



TREASURE

D4.12: Validation, verification, best practices and lessons learned (final version)

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EXECUTIVE SUMMARY

The present deliverable is the final document released within T4.6 “Functional and non-functional evaluation” describing the execution of testing activities performed on the final version of the Circularity Web Platform and the Circular Advisory Tool. The goal of this document is to provide an accurate depiction of how the test of the TREASURE system has been planned and executed, presenting an aggregated analysis of the assessment results.

Following the same evaluation process methodology defined in D4.11, TREASURE evaluation tasks comprise 5 phases:

1. Evaluation requirements definition: dedicated to the preparation of the preconditions for the test and the evaluation requirement consisting in validation purpose, test target, test perspectives and testers.
2. Evaluation Specification: concerns definition of the metrics, split in functional and non-functional measures, the rating levels for evaluation and, finally, the criteria used for test assessment.
3. Evaluation Design: provides the instruments, mainly test sheets, used by testers to accomplish the execution of the validation process. The test sheet consists in 4 main sections:
 - Test Case References
 - Test Script
 - Functional Evaluation
 - Non-Functional Evaluation
4. Execution Phase: assigned to test performance by the appointed tester with the support of the development team, using the tools provided in the design stage.
5. Evaluation Reporting: focuses on summarizing the results coming from the previous stage, providing key takeaways for specific module assessment and comparison.

The execution phase is described in detail in 36 with full depiction of the tests carried out in all modules of both the Circularity Web Platform and the Circular Advisory Tool, that is the Disassemblability, Recycling and Eco-design modules with their equivalent advisory applications. For each module, the tests have been performed taking into consideration two major elements: the purpose of the specific application component to check the system availability for the key sections relevant for the user; and the type of users that operates on the modules according to the background and role in the automotive value chain. More specifically, the following categories of users have been identified: beginning of life actors (designers, carmakers), end of life actors (dismantlers, recyclers) and domain experts.

Overall, a total amount of 1135 tests have been executed for both functional and non-functional assessments. For the former, the whole script is provided with the bar chart and score table summarizing the results while for the latter only the global score is presented in form of radar graph and score table due to its length. Both sections of the test sheet contain evaluation and recommendations for the assessment of software product quality, providing a process description for stating the application compliance to specific requirements.

The full test reports are provided as annex attached at the present document.

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1 Introduction

The aim of this document is to provide an accurate description of the test plan and execution of the final version of TREASURE platform, considering all modules of both the Circularity Web Platform and the Circular Advisory Tool.

The TREASURE platform aims at becoming a reference tool for the circularity assessment in Europe for the automotive value chain. The platform integrates three different modules: (1) Disassemblability; (2) Recyclability, and (3) Eco-design modules. These modules are addressed to stakeholders from the beginning of life (designers and carmakers) to the end of life (dismantlers and recyclers), with the aim to improve circularity in the automobile sector by sharing essential information among the stakeholders of the value chain. The platform modules are complemented by the Circular Advisory Tool which provides support to both BoL and EoL actors in the different decision-making moments that occur in the car component design phase. It works on top of TREASURE platform, playing the role of sustainability enabling technology to support designers in the decision-making process with the aim at identifying the most circular path for car disassembly, recycling and design operations. Decisions are supported considering the environmental, economic, social and circular aspects related to each process. Thus, the tool has been designed to provide data in a clear and user-friendly approach, mainly based on tables and chart, to maximize the user experience.

The evaluation process has been performed on both tools. The test is conducted on two major streams: functional and non-functional evaluation of the system. The validation process encompasses from one side a software quality evaluation methodology and, for the other, the performance indicators mechanism resulting in TSS (Test Sheet Score) score.

Thus, the document is divided in two major sections:

- Overview and methodology of the validation process, presenting the reference framework used, the process phases followed for the preparation, execution and evaluation of the TREASURE platform.
- Test execution and reports, presenting the details of the test performance and result for each platform module and type of user.

Finally, the conclusions, lessons learned and future steps for the refinement of testing activities close the chapter.

As annex to the document, the full test sheets are provided.

1.1 Project Overview

TREASURE – “*leading the TRansition of the European Automotive SUPply chain towards a circular future*” wants to support the transition of the automotive sector towards Circular Economy (CE), by providing a concrete demonstration of how the industry can benefit from the adoption of Circular Economy practices and principles, both from a business and a technological perspective. One of the main encountered issues highlighted by the automotive actors, refers to the huge information gap existent between Beginning-of-Life (BoL) and End-of-Life (EoL) actors along the whole automotive value chain up to the final consumers.

TREASURE aims at filling this gap through the development of a circular assessment tool able to connect and facilitate the interaction among the key involved stakeholders dedicated to car electronics: car parts suppliers, car makers, dismantlers, and shredders. On the other hand,

TREASURE goal consists in assisting both BoL and EoL actors in performing their operations, (best recycling options for optimal recovery), taking the most suitable decision according to up-to-date information, as well as in assessing the impact and the effect of their decision on the final customers.

To this aim, a web-based platform will be developed as a new information sharing tool among all stakeholders, both in forward and backward directions, ensuring secure access and confidentiality. The platform will indeed be developed in order to enhance the connection among the actors, making information available through specific modules that will be built and tailored according to their needs.

The platform will be tested with a set of dedicated demonstration actions within the project boundaries. However, it will be designed assuring that its potential can go beyond the project and its sustainability will be properly defined and agreed with the TREASURE consortium, guaranteeing the possibility for its scale-up and adoption by a wider group of stakeholders.

1.2 Scope of the deliverable

The Evaluation process carried out in T4.6 had as major goal testing all technical developments performed in T4.4. and T4.5, thus concerning both the Circularity Web Platform and the Circular Advisory Tool. The validation activities have been executed taking into consideration the purpose of the specific application component in order to check the system availability for the key part of the platform according to the most relevant tasks the user will perform. Moreover, the evaluation process was performed considering the several types of users according to their role in the automotive sector: beginning of life actors (designers and carmakers), end of life actors (dismantlers, recyclers) and domain experts.

1.3 Contribution to other WPs

Given the fact that the present document is the final step of the functional and non-functional evaluation of task T4.6, it's evident that the activities carried out in this task are strongly connected with T4.4 "Design of the eco-design, dismantling and recycling modules" and T4.5 "Circular AI-based Advisory Tool". The tests have been performed on the final version of the platform modules. Since the TREASURE project is based on an iterative approach, the outcomes of this document have been heavily influenced by activities planned in tasks T4.4 and T4.5. Furthermore, this deliverable is the second version of D4.11 and, therefore, consists in the evaluation of the final version of the TREASURE platform that was improved based on the recommendations provided in the previous test assessments.

Moreover, the evaluation process performed for the final version of the platform will also affect the post-project work as discussed in the conclusions in 245. Finally, the TREASURE Platform has been assessed in the demonstration phase performed within WP6, evaluating the procedure performances in terms of circularity and economic feasibility.

2 TREASURE Evaluation Methodology

Evaluation is the systematic determination of the extent to which an entity meets its specified criteria. The evaluation of software product quality is vital to both the acquisition and development of software. The relative importance of the various characteristics of software quality depends on the intended usage or objectives of the system of which the software is a part; software products need to be evaluated to decide whether relevant quality characteristics meet the requirements of the system.

2.1 Methodological Approach

TREASURE Evaluation Process is based on the reference methodology defined by the standard ISO/IEC 25040:2011 “Systems and software engineering — Systems and software Quality Requirements and Evaluation” (SQuaRE). The SQuaRE set of standards cover two main processes: software quality requirements specification and software quality evaluation, supported by a software quality measurement process. The purpose is to support specification and evaluation of quality requirements by establishing specific criteria for their measurement and evaluation. The SQuaRE standards include a quality model for aligning user definitions of quality with attributes of the development process, providing recommended set of software product quality reference guidelines that can be used by developers and evaluators.

This standard has been chosen due to its relevance for project activities since the ISO/IEC 25040:2011 concerns the same scope of application of TREASURE, being focused on software quality evaluation. Moreover, this system can be used for different purposes and approaches during or after the development process, including quality assessment of pre-developed software, commercial-off-the-shelf software or custom software. This flexibility is in line with the technical implementation of TREASURE platform that requires an agile approach based on an iterative procedure focused on demonstrator requirements and emerging needs for technological improvements.

The Evaluation Process, foreseen in ISO/IEC 25040:2011 standards, has been adapted to the validation of TREASURE system, using the same reference framework for defining the testing methodology, starting from the characterization of functional and non-functional properties to its related execution procedure step by step.

2.2 Evaluation process

TREASURE testing process has been conducted following a set of five phases derived from the reference evaluation process which are described in detail in next sub-chapters and represented in the figure below.

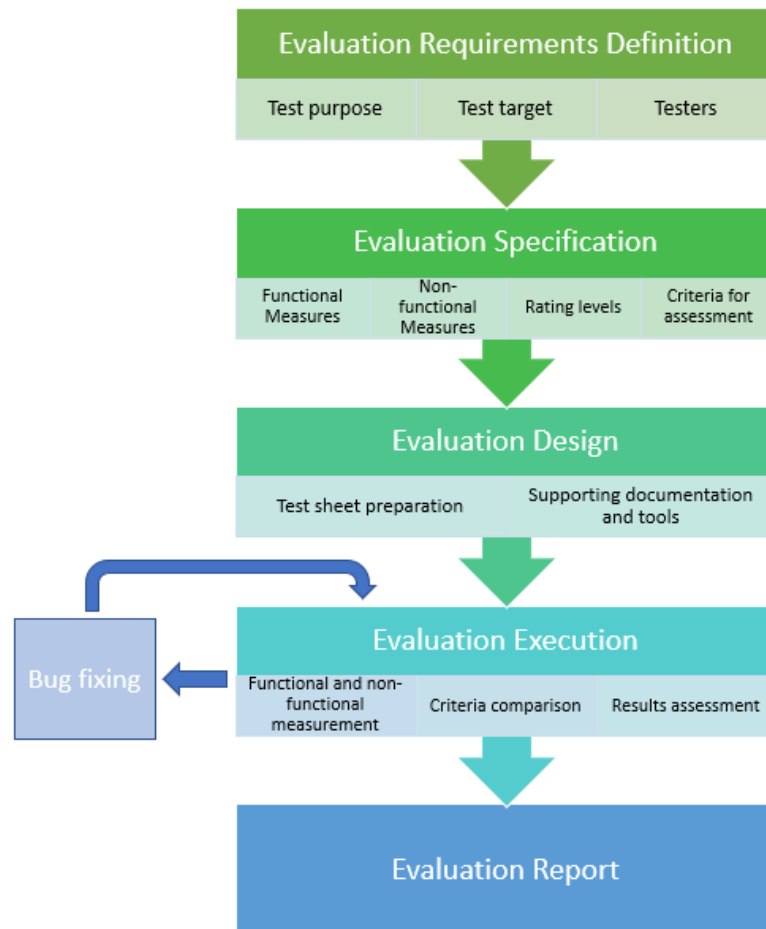


Figure 2.1: TREASURE Evaluation Process

TREASURE Evaluation Process has been designed to apply not only to the functional evaluation but also to non-functional characteristics, adapting the SQuaRE standards to project purpose and scope. A summary of the whole process is here outlined while the detailed description of the work performed in each phase is provided in the following chapters.

1. Evaluation requirements definition: it is the first phase of the assessing process dedicated to preliminary activities that are essential for the execution of the following tasks. This step is split in two stages: firstly, the preparation of the preconditions for the test, including availability of the system and responsibilities; secondly, the evaluation requirement consisting in the identification of validation purpose, test target, test perspectives and testers. More details can be found in 2.2.1.
2. Evaluation Specification: the second phase concerns activities related to the definition of the metrics, split in functional and non-functional measures, the rating levels for evaluation and, finally, the criteria used for test assessment. A detailed description is provided in 2.2.2.
3. Evaluation Design: the third phase provides the instruments, mainly test sheets, used by testers to accomplish the execution of the validation process. The test sheet consists in 4 main sections:
 - a. Test Case References
 - b. Test Script
 - c. Functional Evaluation

d. Non-Functional Evaluation

More details can be found in **Error! Reference source not found..**

4. Execution Phase: the fourth phase is assigned to test performance by the appointed tester with the support of the development team, using the tools provided in the design stage. This step is paramount for the technical improvements of TREASURE platform since, thanks testing activities, lacks and problems are discovered. These bugs will be fixed in order to repeat the evaluation process in an iterative approach. More details on the step process, including the test plan, are reported in 2.2.4, while the activities report is presented in chapter 3 with a comprehensive description of how the tests have been conducted and related outcomes.
5. Evaluation Reporting: the final phase focuses on summarizing the results coming from the previous stage, providing key takeaways for specific module assessment and comparison. This topic is addressed in 2.2.5 and extensively reported in chapter 3.

2.2.1 Evaluation Requirements Phase

The first step in the evaluation process is to establish the requirements of the evaluation. To perform this operation, it's primarily necessary to set preconditions for the test. In particular, in the evaluation preparation phase the consistence of TREASURE platform and its availability have been checked to ensure that all sections of the modules are operatives. This preliminary step is pivotal also for the validation execution since it's an essential condition for a smooth testing performance.

The Evaluation Requirements phase is composed of three stages, the test purpose definition, the test target identification and the tester appointment. Their description is provided in the following sections.

2.2.1.1 Test purpose

The goal of this task is to document the purpose for evaluating the quality of the software, deciding on the acceptance of the intermediate (for this deliverable) and final result. In the project scope, the goal of the test performed is to evaluate and assess overall TREASURE platform, executing the validation on all modules of both the Circularity Web Platform and the Circular Advisory Tool.

TREASURE platform aims at becoming a reference tool for the circularity assessment in Europe for the automotive value chain. The platform integrates three different modules: (1) Disassemblability; (2) Recyclability, and (3) Eco-design modules. These modules are addressed to stakeholders from the beginning of life (designers and carmakers) to the end of life (dismantlers and recyclers), with the aim to improve circularity in the automobile sector by sharing essential information among the stakeholders of the value chain. The platform modules are complemented by the Circular Advisory Tool which provides support to both BoL and EoL actors in the different decision-making moments that occur in the car component design phase. It works on top of TREASURE platform, playing the role of sustainability enabling technology to support designers in the decision-making process with the aim at identifying the most circular path for car disassembly, recycling and design operations. Decisions are supported considering the environmental, economic, social and circular aspects related to each process. Thus, the tool has been designed to provide data in a clear and user-friendly approach, mainly based on tables and charts, to maximize the user experience.

The integrated TREASURE system test has been addressed by different perspectives in order to cover the different aspects of this complex and evolutionary system. To achieve this goal, the

test object may differ according to which platform modules is taken into consideration with the aim at focusing the attention to key elements that affect the user experience. In fact, since each module has a specific purpose, some sections of the platform are more relevant from a user perspective. For this reason, the test has been planned to focus on determined operations to be performed or tables/buttons to visualize/interact with, in order to ensure a comprehensive evaluation. From a technical point of view this approach allows the system to be tested by different perspectives reaching the goal to test all the major functionalities of the system contained in the 4 major block of the system: Disassemblability module, Recyclability module, Eco-Design module and the Circular Advisory Tool, including their integrations. From a non-technical point of view this approach allows the acceptability of the software to be checked with the users; from one hand, testing the aspects related with the data services availability and their retrieval/consumption, and on the other hand the test of the evolutionary behavior of the system that is crucial for its usage after the end of the project.

2.2.1.2 Test targets

The Evaluation process carried out in T4.6 had as major goal testing all technical developments performed in T4.4. and T4.5, thus concerning both the Circularity Web Platform and the Circular AI-based Advisory Tool. The validation activities have been executed taking into consideration the purpose of the specific application component in order to check the system availability for the key part of the platform according to the most relevant tasks the user will perform. More specifically, regarding the Circularity Web Platform, the evaluation procedure concerns the following sections:

- Disassemblability Module
- Recyclability Module
- Eco-design Module

If we consider the Circular Advisory Tool, the testing activities regard the following applications:

- Disassemblability Advisory Module
- Recyclability Advisory Module
- Eco-design Advisory Module

For all this platform sections the testing activities focus on the following key operations: access the TREASURE Circularity Web Platform login as the type of user/s foreseen by each module; select the desired car part/component for which the relevant information has to be inspected; assess that every resource expected is present and displayed in the correct format; eventually exporting the detailed information in Excel format whenever needed.

It's important to note that the evaluation process has been carried out taking into consideration not only the different sections of the platform but also the several types of users. In fact, the following categories of users are possible based on the granted authoring rights:

- The regular user with visualization only mode for the Disassemblability module: the user can only see the platform content related to the standard disassembly dashboards, as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the Circular Advisory dashboards is foreseen for this type of user.

- The regular user with visualization only mode for the Recyclability module: the user can only see the platform content related to the standard recyclability dashboards, as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the Circular Advisory dashboards is foreseen for this type of user.
- The regular user with visualization only mode for the Eco-design module: the user can only see the platform content related to the standard eco-design dashboards, as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the Circular Advisory dashboards is foreseen for this type of user.
- The advisory user with visualization mode for the Circular Advisory dashboards: this user can access the three advisory dashboards (Disassemblability Advisory dashboard, Recyclability Advisory dashboard and Eco-design advisory dashboard), as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the regular platform dashboards is foreseen for this type of user.

The first, second and third types of users are present for the Circularity Web Platform regular platform modules while the fourth user is foreseen for the Circular Advisory Tool platform modules.

2.2.1.3 Testers

Testers have been selected in the TREASURE project following the proximity to the characteristics of the different kind of users presented in the chapter above due to their professional background and technological expertise. To ensure a comprehensive evaluation that includes not only technical matters but also overall user experience, two types of testers have been identified:

- End user: he focuses on the platform usability and clarity with respect to the individual use case and goals. For the final round of this validation process, the end users have been selected, within the TREASURE project, from both BoL and EoL fields in order to gain valuable insights across the whole automotive value chain. In particular:
 - For the BoL the involved actors are SEAT, WALTERPACK and EUROLCDs.
 - For the EoL the involved actors are POLLINI and ILSSA.
- Domain expert: he focuses on the accuracy of the information contained in the platform modules with attention on the graphical representation and understandability. For this category of users, two key partners have been selected within the TREASURE project to obtain feedback on the overall flow of information between platform modules. The involved actors are TNO and UNIVAQ.

The testers have performed both functional and non-functional tests, reporting the results on the evaluation factsheets. Each actor has been provided with dedicated credentials to access the relevant portion of the platform under evaluation, as well as the detailed instructions on how to perform the assessment.

During the evaluation of the platform each actor had the opportunity to test both the module(s) relevant to his field of knowledge and also modules that are not directly linked with the purpose of his contribution or his activity. The reason behind this “blind” test was to simulate the interaction of a novel user accessing the platform for the first time, without prior

knowledge on the visualization style of the content or graphic arrangement of the information. This activity simulates the interaction of a new user which may be a domain expert on its field of knowledge but may not be accustomed to the specific way the TREASURE platform presents the information; it serves as a general benchmark on the platform ability to efficiently vehiculate the information and measure the onboarding effort required on the user's side.

2.2.2 Evaluation Specification

In this activity the evaluation modules and the decision criteria for quality measures are specified by selecting metrics that cover all software validation requirements. Measurement procedures concern the platform quality characteristic (or sub characteristic) they claim to be measuring with sufficient accuracy to allow criteria to be set and comparisons to be made.

2.2.2.1 Indicators and Rating for functional evaluation

To measure the success of the test a set of indicators have been prepared to be matched in advance with the real measurement had during the test. For the functional test the tester should indicate the availability of the running functionality by "Yes/No/Partial".

Another important test for the functionalities is the error check, that is if the system manages and prompts correctly to the users the errors occurred. For example, at the time an empty list is provided, back or a wrong command is launched. For each error the user should check the behavior of the system and report the right behavior by "Yes/No/Partial".

To total amount of Success/Partial/Fail is given a specific score that, converted in percentage, allows to assess the overall test result.

Expected results are visible in the table below.

Table 2.1: Mapping of functional evaluation measures

Mapping of measures				
	Poor	Fair	Good	Excellent
TSS Success	[0 .. 0.25]	]0.25 .. 0.50]	]0.50 .. 0.75]	]0.75 .. 1]
TSS Partial	[0 .. 0.25]	]0.25 .. 0.50]	]0.50 .. 0.75]	]0.75 .. 1]
TSS Fail	]0.75 .. 1]	]0.50 .. 0.75]	]0.25 .. 0.50]	[0 .. 0.25]

2.2.2.2 Indicators and Rating for non-functional evaluation

The non-functional properties are derived from a reference framework based on SQuaRE standards that provide the background for the evaluation according to seven dimensions. These aspects take into consideration are:

- Dim.A - Effectiveness -- usefulness to the network/company: it refers to the benefit or value deriving from the platform use to reach company objectives, i.e. outcomes/ value-based perspective, goal orientation, degree of task achievement, following business logic, benefits understandability, suitability to own environment/network.
- Dim.B - Efficiency - performance of the service: it concerns the generated improvements in executing a specific operation, i.e. time & resource to achieve a task, number of good and bad characteristics recalled by users, available commands not called upon.

- Dim.C - Understandability/simplicity: it measures how understandable and clear the service is for the user, i.e. clarity, simplicity, visualization of complex things in the background.
- Dim.D - Satisfaction & Attractiveness: it applies to user appreciation of the platform, i.e. comfort, running speed, emotional response/ attitudes (mental/ cognitive workload included) short response time, rewarding the user, social tools, first impression, feel of control.
- Dim.E - Learnability, memorability: it regards how easy it is to learn to use the system and return back after a break in usage, i.e. training support, gradual starting, path from starter to power player.
- Dim.F - Use preparation & maintenance: it measures how easy the service is to take into use and maintain, i.e. customizability, portability, adaptability, implementation, low barriers.
- Dim.G - Suitability to network/collaborative environment: it concerns how well the service fits to network environment, i.e. universality (diversity of users), requirement/capability level.

Several questions are provided to the user for each dimension. The users can answer to them with a number comprises from 0 (min) to 4 (max). Results are grouped by dimension, then aggregated for all users and then provided with a result number (average). A radar chart will summarize the values of the different dimensions in just one picture.

Expected results are visible in the table below.

Table 2.2: Mapping of non-functional evaluation measures

Mapping of measures				
	Poor	Fair	Good	Excellent
Effectiveness	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]
Efficiency	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]
Understandability	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]
Satisfaction & Attractiveness	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]
Learnability	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]
Use preparation & maintenance	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]
Suitability	[0 .. 1]	]1 .. 2]	]2 .. 3]	]3 .. 4]

2.2.3 Evaluation Design

The first phase is the creation of test sheet that was used by testers to have a reference about what has to be tested and to report the experience had during the test. The same template has been used by all testers for each platform module to ensure result uniformity.

The test sheet is composed by four main parts which are fully described in the following sub-chapters:

- Test Case References
- Test Script
- Functional Evaluation
- Non-Functional Evaluation

2.2.3.1 Test Case References

Test Case References section provides all the information about the test and the support for testers. It presents an identifier to the scenario in order to facilitate the merge between different copies of the same test.

TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet			
Test Case References			
Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Ludeña (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Figure 2.2: Test Sheet Template: Test Case References section

This upper section is composed by the following elements:

- *Test Case ID*: identify the id of the path built upon the demo case.
- *Actor/s Involved*: define the name of testers and the role they played in the test.
- *Component/s Involved*: depict the major components involved in the test.
- *Contact point/s*: testers are not alone in the execution phase; two experts are available to offer support: one for the front-end part and another person for the back-end part. In this section is defined the name of the contact points. In this way the support could be done by chat, by call or by remote desktop session.

2.2.3.2 Test Script

The test script section is devoted to the description of the steps that the user should do in the test. This serves as a guideline for the tester in order to ensure a homogenous process for all evaluation procedures regardless the platform module peculiarity.

TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet	
Test Script	
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combiner" component and select the first search result. 4. Click the "OPEN DIS" button in the "Disassemblability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.	

Figure 2.3: Test Sheet Template: Test Script section

2.2.3.3 Functional Evaluation

The functional evaluation of the TREASURE platform is provided by the session *Functional Evaluation*, composed by a list of functionalities that will be tested during the execution of the test script and the expected result.

The functionalities list and the expected results are provided by the technical partner/s that describes the test script. The user should provide only the evaluation of the functionality inserting in the "passed Y/N/PARTIAL" box the result.

In addition to the functionalities, the user can also report remarks to provide additional information concerning the test results. This is particularly useful in case of Partial outcomes since it enables the user to give reason for its evaluation and indicate margin of improvements.

TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet			
TSS _{Success}	11	TSS _{Partial}	0
Functionalities	Expected Results		
Access to the Circularity Web Platform	Circularity Web Platform shows login page	Passed	Remarks
Login to the Platform	User successfully logged in	YES	No comment
User redirected to home page	Home page correctly opened	YES	No comment
Search for "combimeter" car part	List of relevant car parts shows up	YES	No comment
Select component to visualize	Modules selection page is shown for the selected component	YES	No comment

Figure 2.4: Test Sheet Template: Functional evaluation section

Results are summarized automatically at the end of the test sheet in a bar chart with clear indication of the score obtained in each evaluation category (Yes/No/Partial). It has to be noted that the TSS acronym refers to Test Sheet Score.

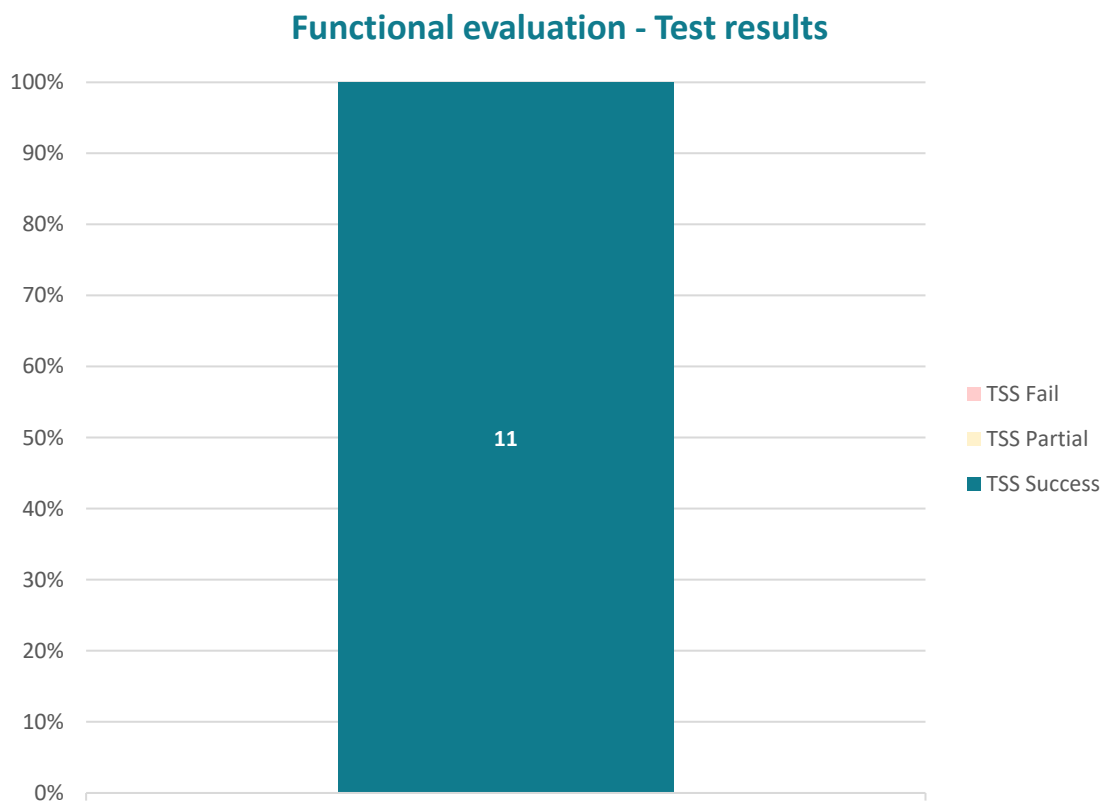


Figure 2.5: Test Sheet Template: Functional Evaluation Bar Chart

The score values shown in the bar chart refer to the corresponding data collected in the test results table below:

Table 2.3: Test Sheet Template: Summary of Functional Evaluation

Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

2.2.3.4 Non-functional Evaluation

The non-functional evaluation is the fourth section of the test sheet. The questions to be answered are divided in the seven dimensions described in 2.2.2 and the user should only insert its answer in the proper column. The answer starts from 0 (disagree) to 4 (totally agree). Results are calculated automatically.

TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet			
Non-Functional Evaluation			
Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.C (Understandability/simplicity)		Total	3.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.	4	
C8	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.D (Satisfaction & Attractiveness)		Total	3.8
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.E (Learnability, memorability)		Total	3.8
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	3	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.F (Use preparation & maintenance)		Total	3.8
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	3	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	3	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.G (Suitability to network/collaborative environment)		Total	3.8
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	3	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	

Figure 2.6: Test Sheet Template: Non-Functional evaluation section

Results are summarized automatically at the end of the test sheet in a radio graph. Each dimension is represented on the different axis.

Table 2.4: Test Sheet Template: Summary of Non-Functional Evaluation

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	0.0

Non-functional evaluation - Test results

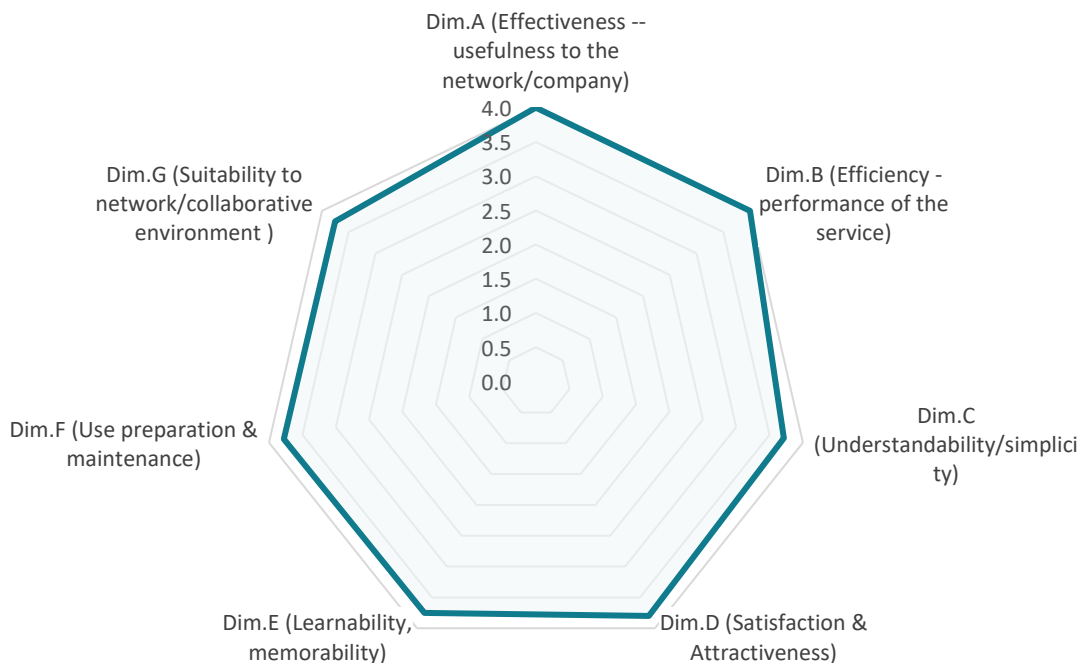


Figure 2.7: Test Sheet Template: Non-Functional Evaluation Radar Chart

2.2.4 Evaluation Execution

The execution of the test is conducted by selected users autonomously relying on the web availability of the TREASURE system. In case of troubles, users can receive online support from the contact point included in the test sheet. In case of bugs, the technical contact point takes in charge of their fix and a new execution can be done afterwards.

The output of the test execution is the filled in test sheet providing feedback on functional and non-functional aspects tested.

The test of the TREASURE platform has been done following the plan described below:

- Preparation of test sheet including online contact point and test factsheet by the 19th of April.
- On the 23rd of April testers receive the material and can start their activities supported online by the contact points.
- Starting from the 24th of April, test activities are performed with the submission of reports expected by the 10th of May.
- Test results are summarized and described in this deliverable submitted on the 31st of May.

Details of the execution including test sheets/scripts are reported in TREASURE Evaluation Execution together with evaluation reporting details.

2.2.5 Evaluation Reporting

The final phase of the test is the summary of the evaluation report within this deliverable. In the full description of the tests presented in TREASURE Evaluation Execution, conclusions regarding the validation activities and results are included. The output of this phase consists in two different items:

- Automatic evaluation results coming from measures and graphs.
- Plain text report summarizing the test and the experience had by testers coming also from plain text suggestions inserted in the test sheets.

3 TREASURE Evaluation Execution

In this section details of the execution of the test and the summary of results are reported. A specific chapter is provided for each module and user type according to the categories presented in 2.2.1.2. Each chapter is composed by an introduction of the scenario, information about test sheet/s used by testers and the report about the scenario evaluation.

Overall, a total amount of 1135 tests have been executed. A detailed description of functional and non-functional evaluations of the system have been performed approaching the project platform from 66 different perspectives corresponding to all modules of both the Circularity Web Platform and the Circular Advisory Tool, that is the Disassemblability, Recycling and Eco-design Module with its equivalent advisory application for each end user, as follows:

I. Circularity Web Platform

- Disassemblability Module: the functional and non-functional evaluation was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component. The test users participating to the disassemblability module assessment are listed below:
 - Evaluation tester #1 (EUROLCDS)
 - Evaluation tester #2 (ILSSA)
 - Evaluation tester #3 (POLLINI)
 - Evaluation tester #4 (SEAT)
 - Evaluation tester #5 (TNO)
 - Evaluation tester #6 (UNIVAQ)
 - Evaluation tester #7 (WALTERPACK)
- Recyclability the functional and non-functional evaluation was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route. The test users participating to the recyclability module assessment are listed below:
 - Evaluation tester #1 (EUROLCDS)
 - Evaluation tester #2 (ILSSA)
 - Evaluation tester #3 (POLLINI)
 - Evaluation tester #4 (SEAT)
 - Evaluation tester #5 (TNO)
 - Evaluation tester #6 (UNIVAQ)
 - Evaluation tester #7 (WALTERPACK)
- Eco-design module: the functional and non-functional evaluation was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more. The test users participating to the eco-design module assessment are listed below:
 - Evaluation tester #1 (EUROLCDS)
 - Evaluation tester #2 (ILSSA)
 - Evaluation tester #3 (POLLINI)
 - Evaluation tester #4 (SEAT)
 - Evaluation tester #5 (TNO)

- Evaluation tester #6 (UNIVAQ)
- Evaluation tester #7 (WALTERPACK)
- II. Circular Advisory Tool:
 - Disassemblability Advisory Module: the functional and non-functional evaluation was carried out considering the information provided in the main advisory dashboard. The test users participating to the disassemblability advisory module assessment are listed below:
 - Evaluation tester #1 (EUROLCDS)
 - Evaluation tester #2 (ILSSA)
 - Evaluation tester #3 (POLLINI)
 - Evaluation tester #4 (SEAT)
 - Test User #1
 - Test User #2
 - Evaluation tester #5 (TNO)
 - Evaluation tester #6 (UNIVAQ)
 - Evaluation tester #7 (WALTERPACK)
 - Recyclability Advisory Module: the functional and non-functional evaluation was carried out considering the information provided in the main advisory dashboard. The test users participating to the recyclability advisory module assessment are listed below:
 - Evaluation tester #1 (EUROLCDS)
 - Evaluation tester #2 (ILSSA)
 - Evaluation tester #3 (POLLINI)
 - Evaluation tester #4 (SEAT)
 - Test User #1
 - Test User #2
 - Evaluation tester #5 (TNO)
 - Evaluation tester #6 (UNIVAQ)
 - Evaluation tester #7 (WALTERPACK)
 - Eco-design Advisory Module: the functional and non-functional evaluation was carried out considering the information provided in the main advisory dashboard. The test users participating to the eco-design advisory module assessment are listed below:
 - Evaluation tester #1 (EUROLCDS)
 - Evaluation tester #2 (ILSSA)
 - Evaluation tester #3 (POLLINI)
 - Evaluation tester #4 (SEAT)
 - Test User #1
 - Test User #2
 - Evaluation tester #5 (TNO)
 - Evaluation tester #6 (UNIVAQ)
 - Evaluation tester #7 (WALTERPACK)

For the functional test the whole script is provided with the bar chart summarizing the results while for the non-functional evaluation the overall score only is presented in form of radar graph due to its length. The full test reports are provided as annex attached at the present document.

3.1 Disassemblability Module

The Evaluation process performed in the Disassemblability module of the Circularity Web Platform mainly focused on user log in, search and visualization of the selected car component and use of the assessment instruments to evaluate disassembly procedures, including the details pages for disassemblability levels 1 and 2.

The tests have been carried out for each type of user foreseen in this platform module, as follows:

- The regular user with visualization only mode for the Disassemblability module: the user can only see the platform content related to the standard disassembly dashboards, as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the Circular Advisory dashboards is foreseen for this type of user.

3.1.1 Evaluation tester #1 (EUROLCDs)


3.1.1.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a remark on the visualization of the content of the materials chart when the percentage value for a certain item is very low and the corresponding label is displayed small.



TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References				
Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)	
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard			
Test Script				
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN DIS" button in the "Disassemblability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.				
TSS _{purpose}	10	TSS _{actual}	1	TSS _{fail} 0
Functionalities	Expected Results		Passed	Remarks
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	
Login to the Platform	User successfully logged in		YES	
User redirected to home page	Home page correctly opened		YES	
Search for "combimeter" car part	List of relevant car parts shows up		YES	
Select component to visualize	Modules selection page is shown for the selected component		YES	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		PARTIAL	In material cost side the costs are barely visible
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES	
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES	
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES	
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES	
Press the "Add feedback" button	The add feedback popup appears		YES	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES	
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES	

Figure 3.1: Disassemblability module - Functional evaluation for user EUROLCDs - Homepage

The evaluation shows no TSS fail with only one TSS partial which is related to the materials composition remark above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

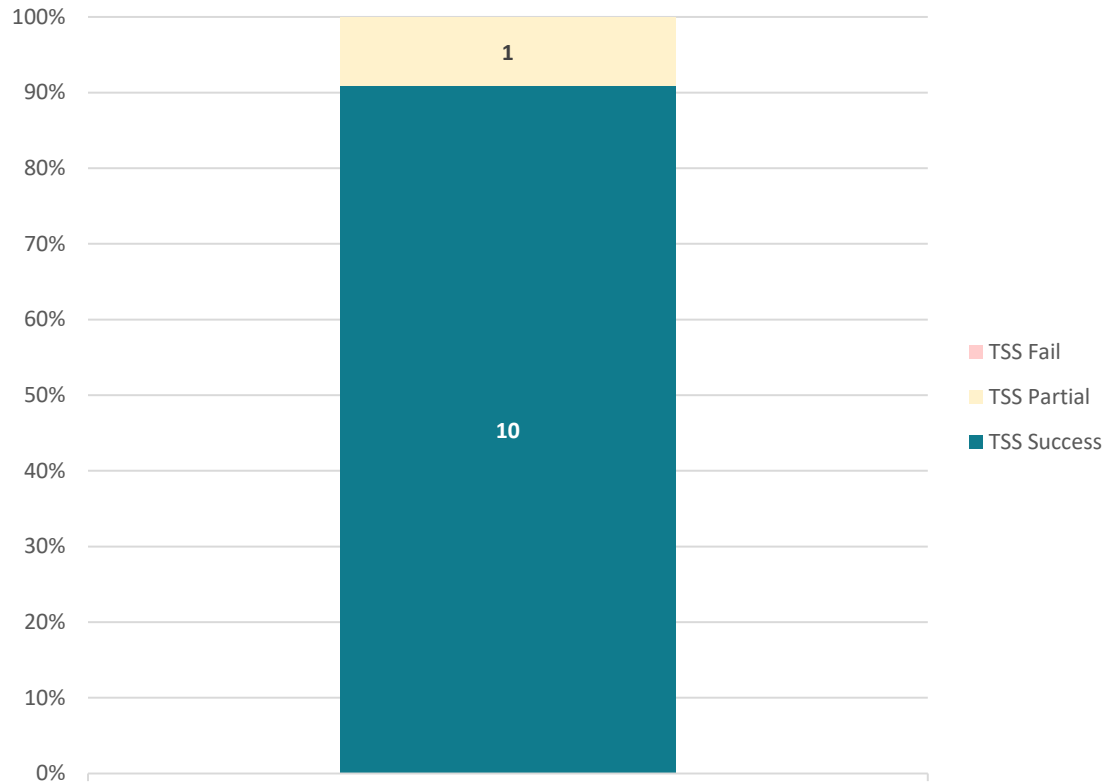



Figure 3.2: Disassemblability module -Visual results of the functional evaluation for user EUROLCDs - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	10
TSS Partial	1
TSS Fail	0

Figure 3.3: Disassemblability module -Tabular results of the functional evaluation for user EUROLCDs - Homepage

Considering the details page instead, the test sheet below shows all tests have passed successfully with no additional steps to be performed.



TREASURE

Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

- Access the TREASURE Circularity Web Platform.
- Login with the evaluation credentials provided.
- In the search bar, search for the "combimeter" component and select the first search result.
- Click the "OPEN DIS" button in the "Disassemblability Module" card.
- Navigate to the "Disassembly times (manual)" section.
- Click the info button next to the "Level 2" metric.
- Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
- Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

- Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{Access}	13	TSS _{Partial}	0	TSS _{Full}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Figure 3.4: Disassemblability module - Functional evaluation for user EUROLCDs - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

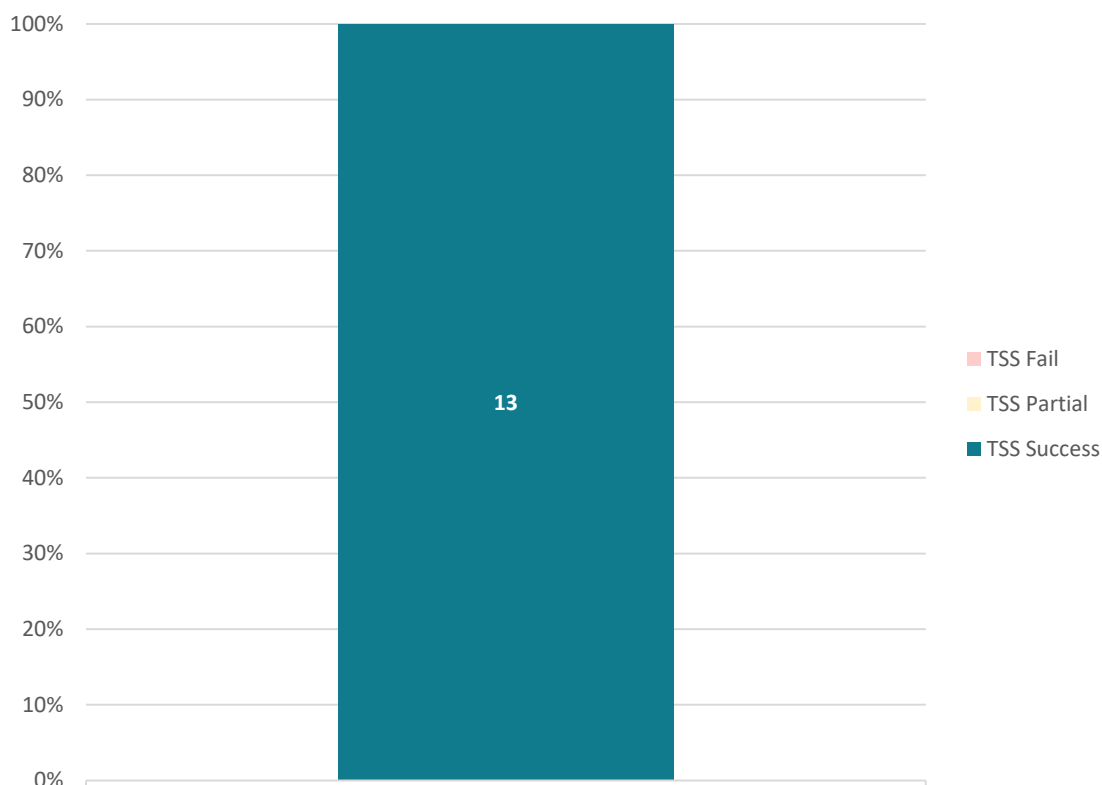


Figure 3.5: Disassemblability module -Visual results of the functional evaluation for user EUROLCDs - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.6: Disassemblability module -Tabular results of the functional evaluation for user EUROLCDs - Details page

If we consider both tests performed on the Disassemblability module, the outcomes are satisfactory since no TSS Fail have been registered and most results are TSS Success.

3.1.1.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, full ranking has been achieved by learnability with reasonable values for the other dimensions, while more emphasis should be put on collaboration.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	2.8
	Total
	3.4

Figure 3.7: Disassemblability module – Tabular results of the non-functional assessment for user EUROLCDs - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

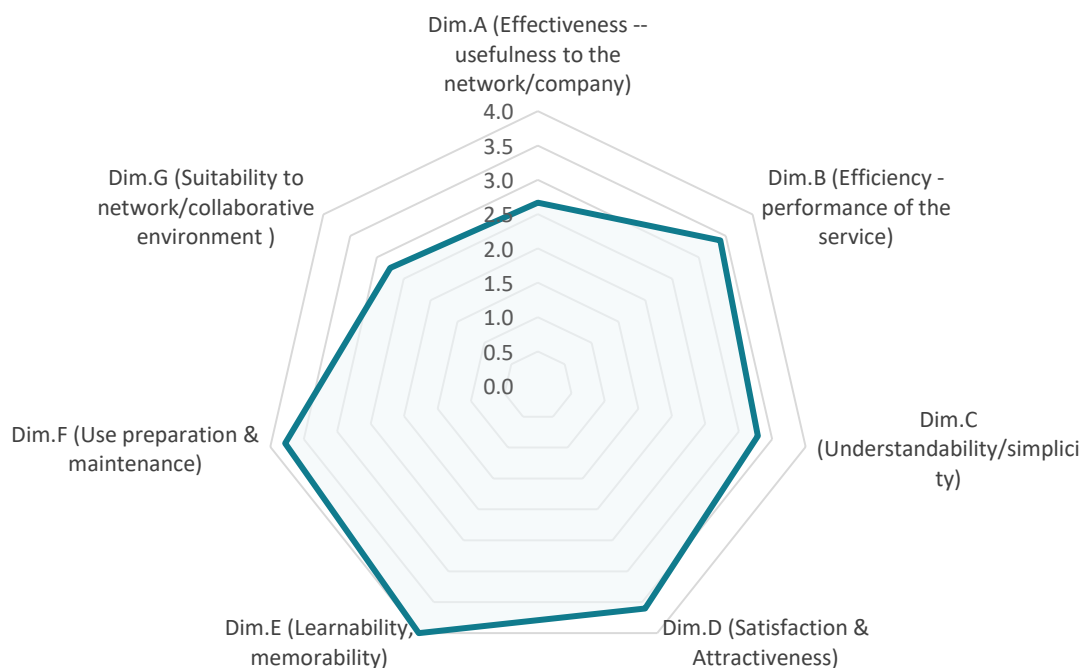


Figure 3.8: Disassemblability module – Visual results of the non-functional assessment for user EUROLCDs - Homepage

If we consider the non-functional evaluation of the details page, full ranking has been achieved by satisfaction and attractiveness with reasonable values for the other dimensions, while more emphasis should be put on collaboration.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	2.8
Total	3.4

Figure 3.9: Disassemblability module – Tabular results of the non-functional assessment for user EUROLCDs - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

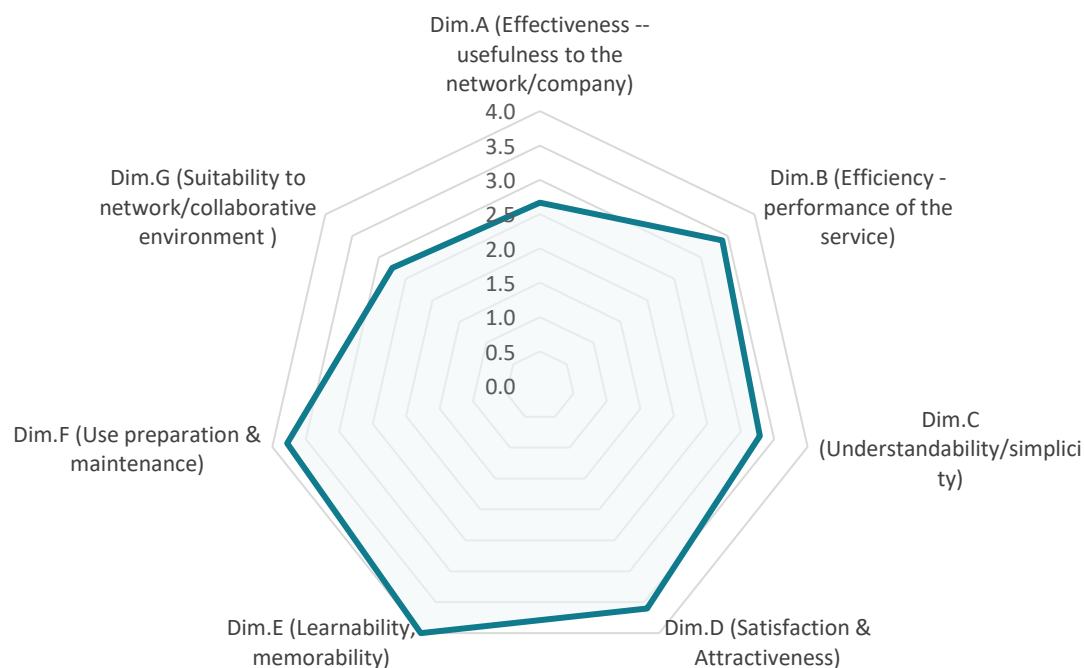


Figure 3.10: Disassemblability module – Visual results of the non-functional assessment for user EUROLCDs - Details page

3.1.2 Evaluation tester #2 (ILSSA)


3.1.2.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Loduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

- Access the TREASURE Circularity Web Platform.
- Login with the evaluation credentials provided.
- In the search bar, search for the "combimeter" component and select the first search result.
- Click the "OPEN DIS" button in the "Disassemblability Module" card.
- Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES	No comment	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES	No comment	
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES	No comment	
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	No comment	
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES	No comment	
Press the "Add feedback" button	The add feedback popup appears		YES	No comment	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES	No comment	
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES	No comment	

Figure 3.11: Disassemblability module - Functional evaluation for user ILSSA - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

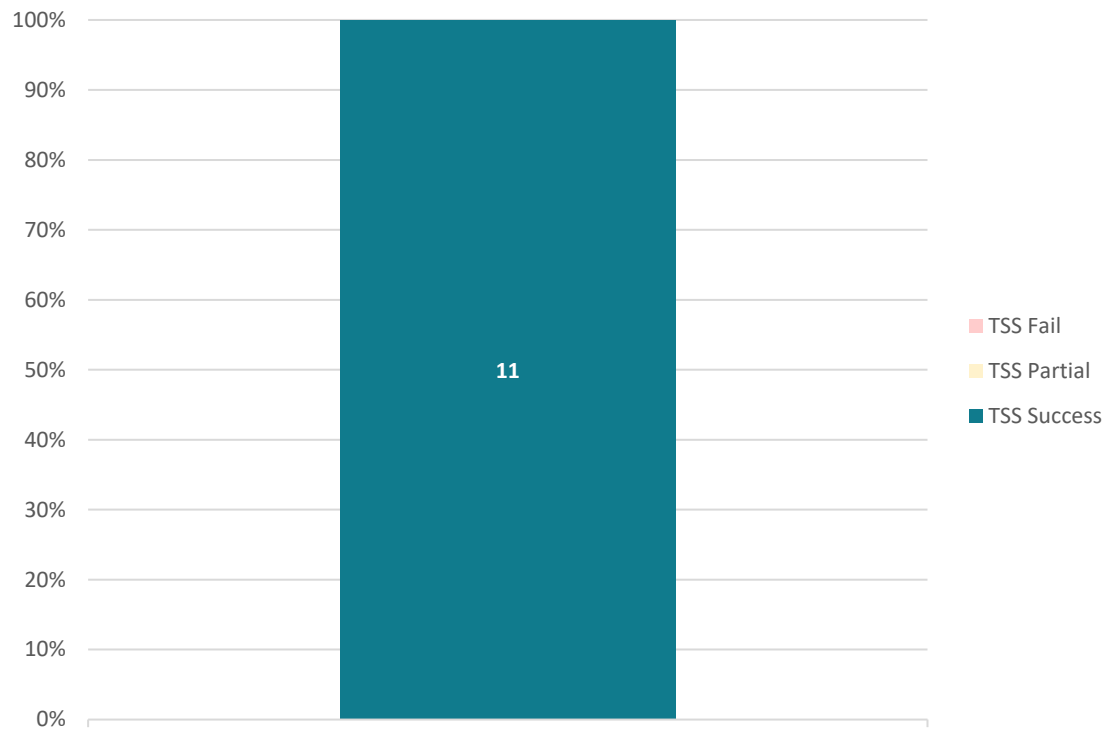



Figure 3.12: Disassemblability module -Visual results of the functional evaluation for user ILSSA - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.13: Disassemblability module -Tabular results of the functional evaluation for user ILSSA - Homepage

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Name Surname (COMPANY) (technical/business user)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassemblability Module" card.

5. Navigate to the "Disassembly times (manual)" section.

6. Click the info button next to the "Level 2" metric.

7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.

8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{Success}	13	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN DIS" button in the	Disassembly dashboard is shown for the selected component		YES	No comment	
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES	No comment	
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES	No comment	
Assess the parts table	Parts table correctly displays all the relevant information		YES	No comment	
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES	No comment	
Assess the difficulty level table	The difficulty level table contains the proper information		YES	No comment	
Press the "Close" ("X") button	The difficulty level popup closes		YES	No comment	
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES	No comment	

Figure 3.14: Disassemblability module - Functional evaluation for user ILSSA - Details page

Concerning the details page instead, the evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

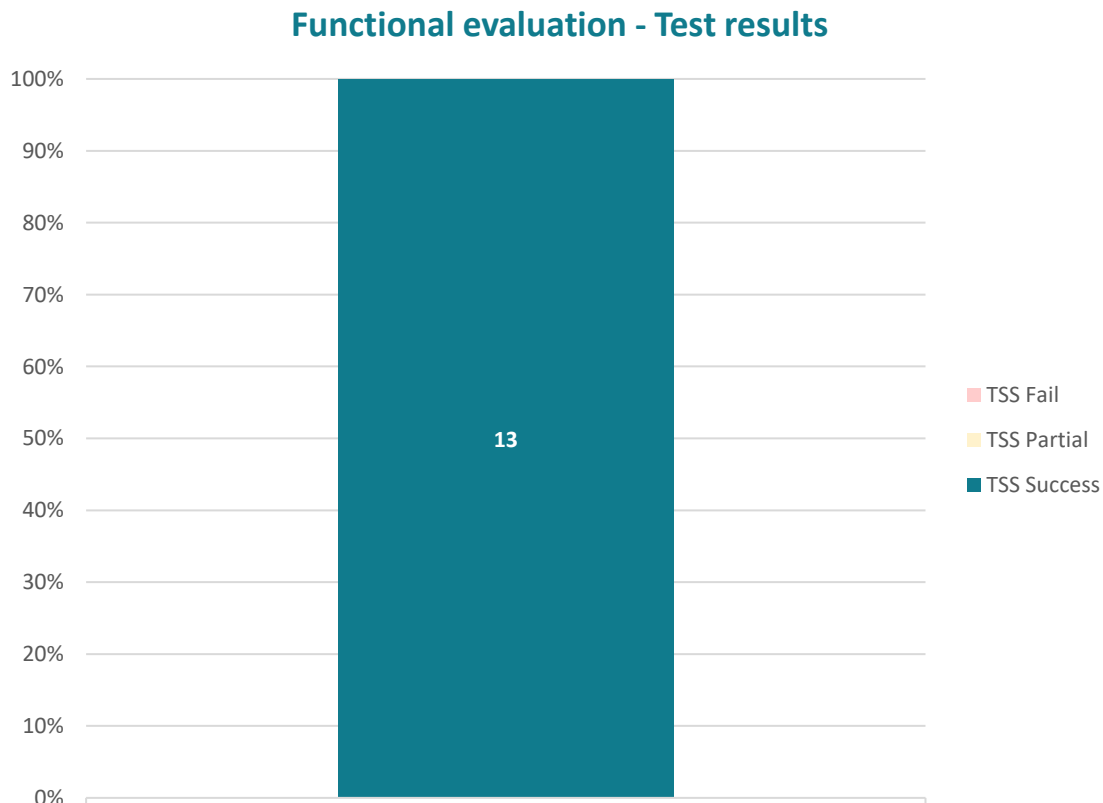


Figure 3.15: Disassemblability module - Visual results of the functional evaluation for user ILSSA - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.16: Disassemblability module -Tabular results of the functional evaluation for user ILSSA - Details page

If we consider both tests performed on the Disassemblability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.1.2.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, full ranking has been achieved by effectiveness and efficiency with high values also for the other dimensions, indicating overall satisfaction for the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Figure 3.17: Disassemblability module – Tabular results of the non-functional assessment for user ILSSA - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

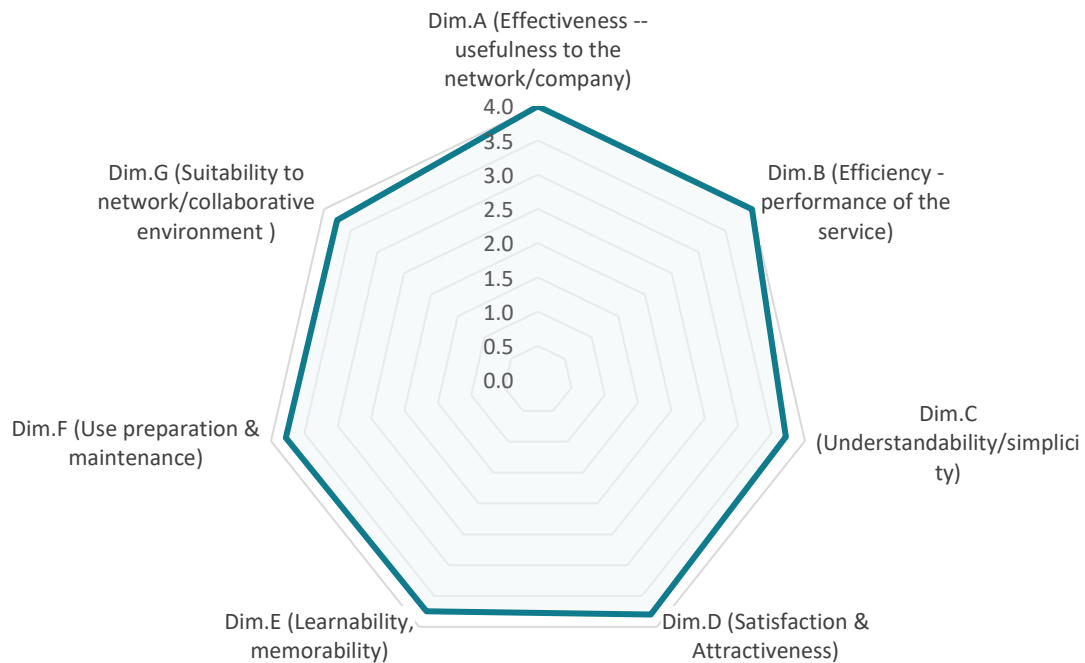


Figure 3.18: Disassemblability module – Visual results of the non-functional assessment for user ILSSA - Homepage

If we consider the non-functional evaluation of the details page, full ranking has been achieved by understandability with high values also for the other dimensions, indicating overall satisfaction for the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Figure 3.19: Disassemblability module – Tabular results of the non-functional assessment for user ILSSA - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

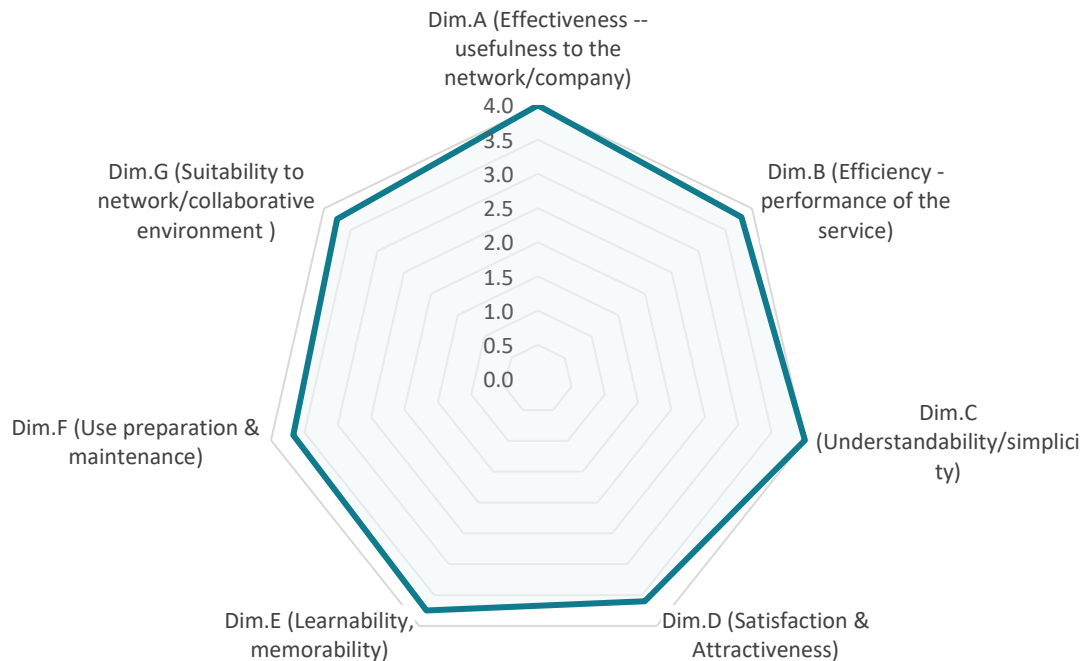


Figure 3.20: Disassemblability module – Visual results of the non-functional assessment for user ILSSA - Details page

3.1.3 Evaluation tester #3 (POLLINI)

3.1.3.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)	
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard			

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Figure 3.21: Disassemblability module - Functional evaluation for user POLLINI - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

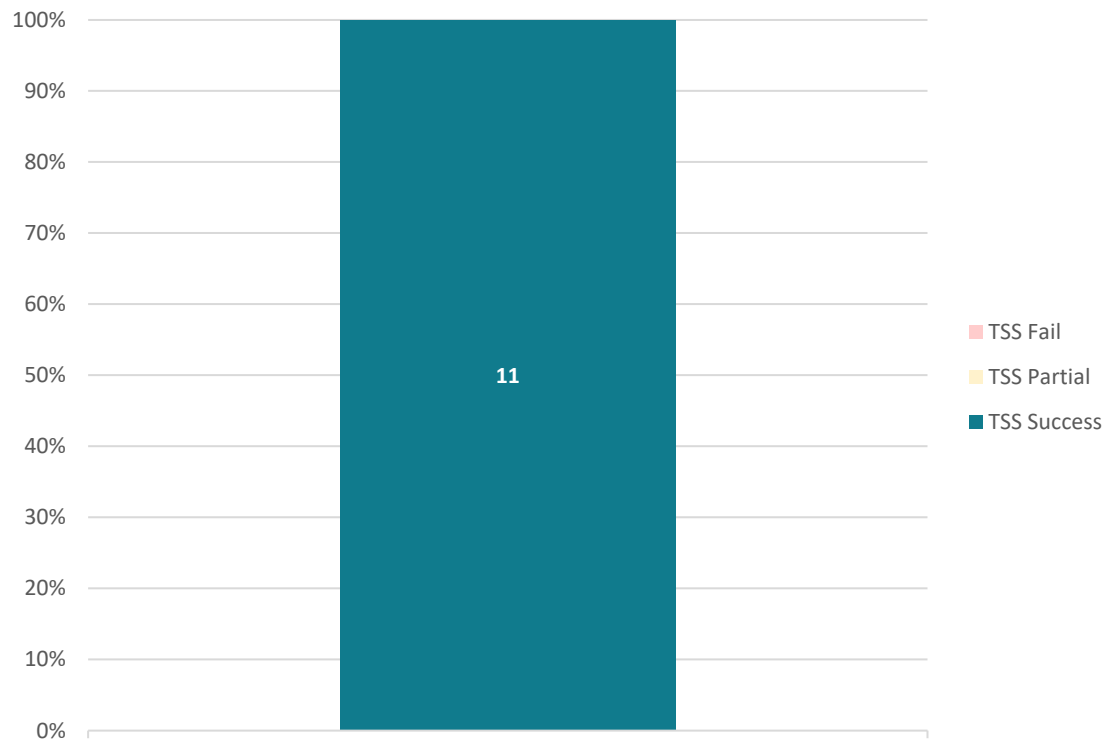



Figure 3.22: Disassemblability module -Visual results of the functional evaluation for user POLLINI - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.23: Disassemblability module -Tabular results of the functional evaluation for user POLLINI - Homepage

Concerning the details page instead, the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References			
Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script			
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN DIS" button in the "Disassemblability Module" card. 5. Navigate to the "Disassembly times (manual)" section. 6. Click the info button next to the "Level 2" metric. 7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct. 8. Export the detailed information in Excel format.			

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{Success}	13	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities		Expected Results		Passed	Remarks
Access to the Circularity Web Platform		Circularity Web Platform shows login page		YES	
Login to the Platform		User successfully logged in		YES	
User redirected to home page		Home page correctly opened		YES	
Search for "combimeter" car part		List of relevant car parts shows up		YES	
Select component to visualize		Modules selection page is shown for the selected component		YES	
Click the "OPEN DIS" button in the		Disassembly dashboard is shown for the selected component		YES	
Navigate to the "Disassembly times (manual)" section.		"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES	
Press the info button next to the "Level 2" metric		Disassembly time (level 2) page is correctly shown		YES	
Assess the parts table		Parts table correctly displays all the relevant information		YES	
Press the "Info" button next to the "Difficulty level" table header		"Difficulty level calculation" popup is correctly shown		YES	
Assess the difficulty level table		The difficulty level table contains the proper information		YES	
Press the "Close" ("X") button		The difficulty level popup closes		YES	
Press the "Export" button		Data are exported successfully in ".xlsx" format		YES	

Figure 3.24: Disassemblability module - Functional evaluation for user POLLINI - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

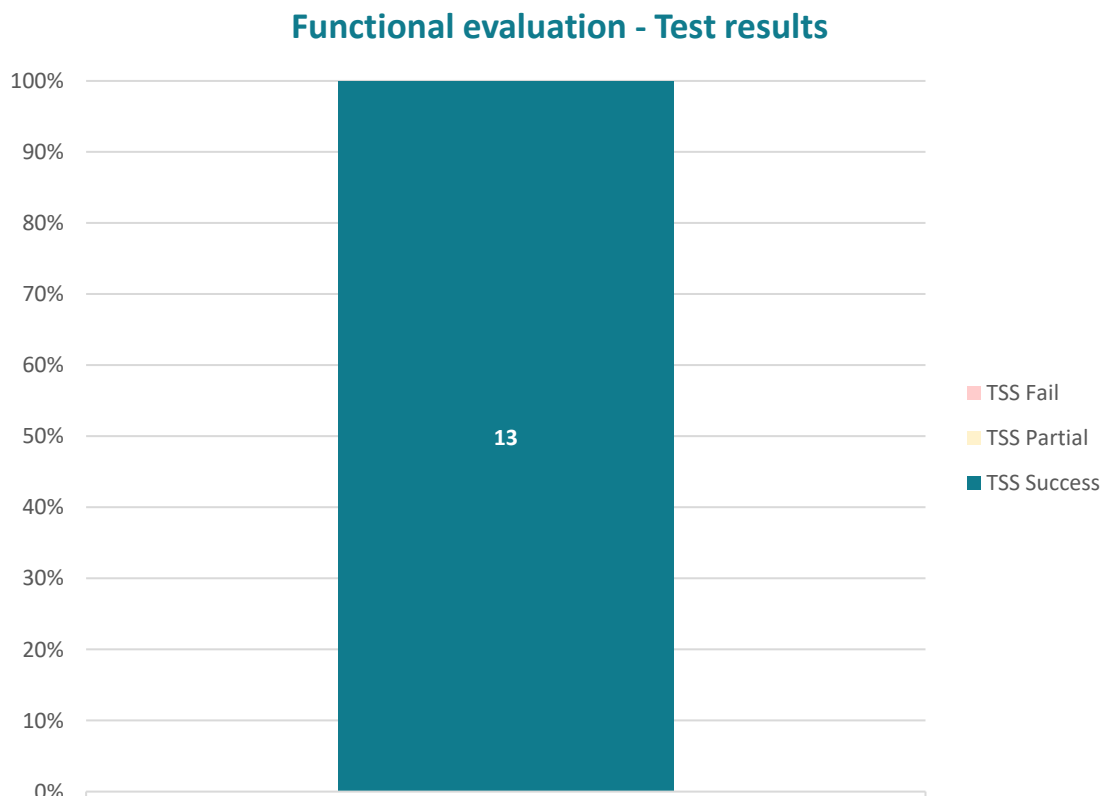


Figure 3.25: Disassemblability module - Visual results of the functional evaluation for user POLLINI - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.26: Disassemblability module -Tabular results of the functional evaluation for user POLLINI - Details page

If we consider both tests performed on the Disassemblability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.1.3.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, full ranking has been achieved by all dashboards indicating overall satisfaction for the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.27: Disassemblability module – Tabular results of the non-functional assessment for user POLLINI - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

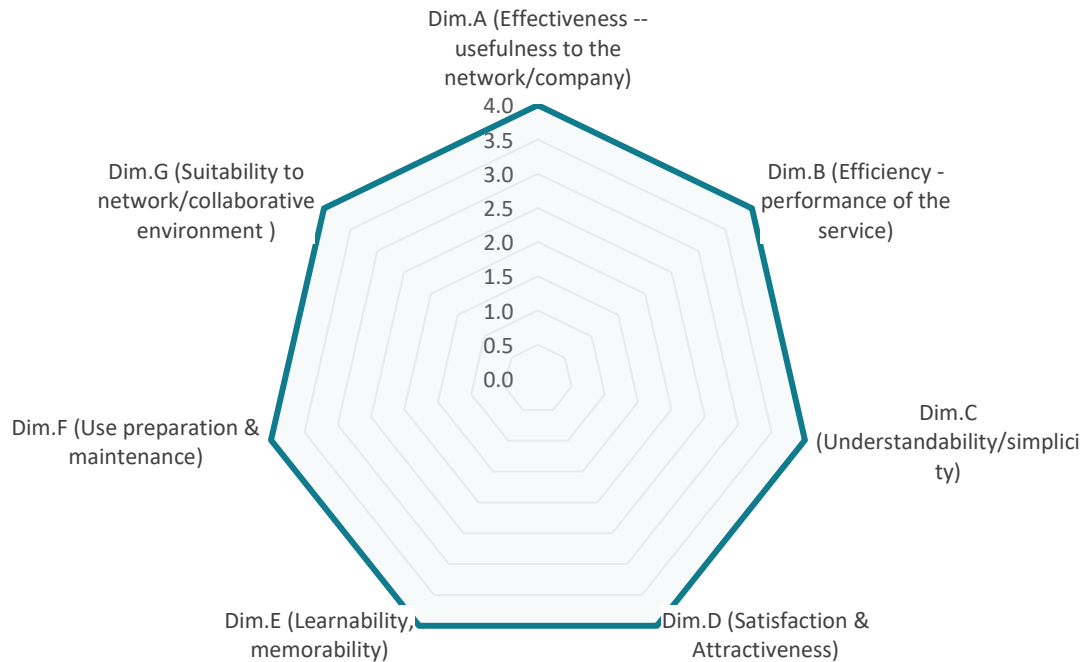


Figure 3.28: Disassemblability module – Visual results of the non-functional assessment for user POLLINI - Homepage

If we consider the non-functional evaluation of the details page, full ranking has been achieved by all dashboards indicating overall satisfaction for the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.29: Disassemblability module – Tabular results of the non-functional assessment for user POLLINI - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

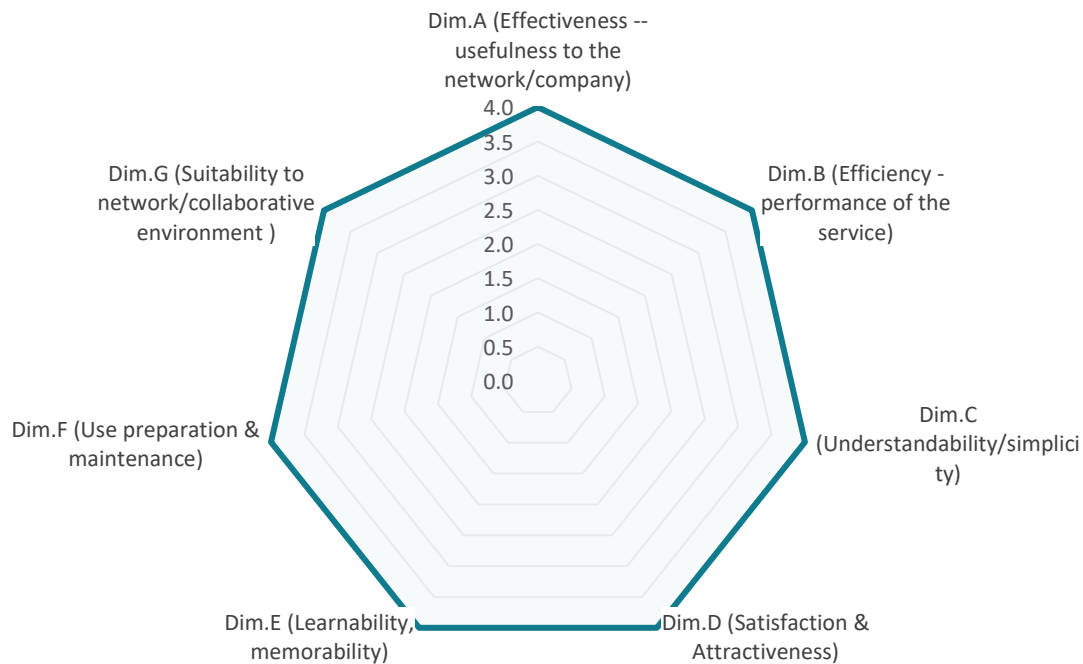


Figure 3.30: Disassemblability module – Visual results of the non-functional assessment for user POLLINI - Details page

3.1.4 Evaluation tester #4 (SEAT)


3.1.4.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassemblability Module" card.

5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Figure 3.31: Disassemblability module - Functional evaluation for user SEAT - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

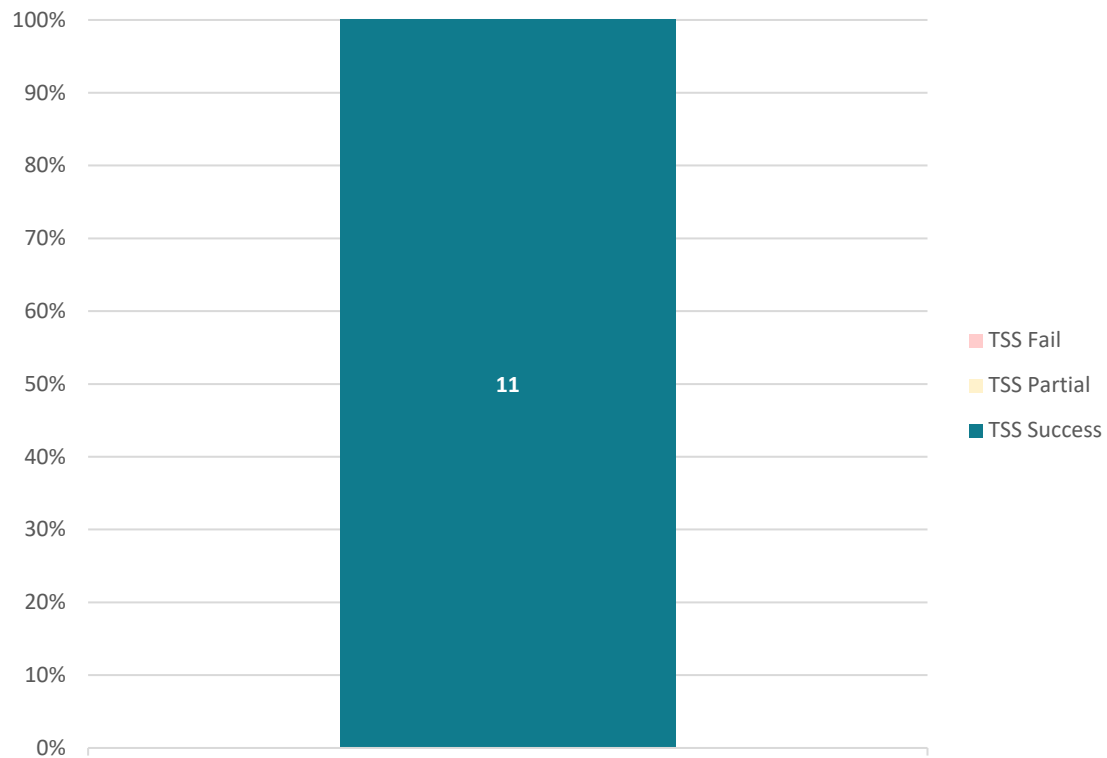



Figure 3.32: Disassemblability module -Visual results of the functional evaluation for user SEAT - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.33: Disassemblability module -Tabular results of the functional evaluation for user SEAT - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References			
Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script			
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN DIS" button in the "Disassemblability Module" card. 5. Navigate to the "Disassembly times (manual)" section. 6. Click the info button next to the "Level 2" metric. 7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct. 8. Export the detailed information in Excel format.			

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{process}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities		Expected Results		Passed	Remarks
Access to the Circularity Web Platform		Circularity Web Platform shows login page		YES	
Login to the Platform		User successfully logged in		YES	
User redirected to home page		Home page correctly opened		YES	
Search for "combimeter" car part		List of relevant car parts shows up		YES	
Select component to visualize		Modules selection page is shown for the selected component		YES	
Click the "OPEN DIS" button in the		Disassembly dashboard is shown for the selected component		YES	
Navigate to the "Disassembly times (manual)" section.		"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES	
Press the info button next to the "Level 2" metric		Disassembly time (level 2) page is correctly shown		YES	
Assess the parts table		Parts table correctly displays all the relevant information		YES	
Press the "Info" button next to the "Difficulty level" table header		"Difficulty level calculation" popup is correctly shown		YES	
Assess the difficulty level table		The difficulty level table contains the proper information		YES	
Press the "Close" ("X") button		The difficulty level popup closes		YES	
Press the "Export" button		Data are exported successfully in ".xlsx" format		YES	

Figure 3.34: Disassemblability module - Functional evaluation for user SEAT - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

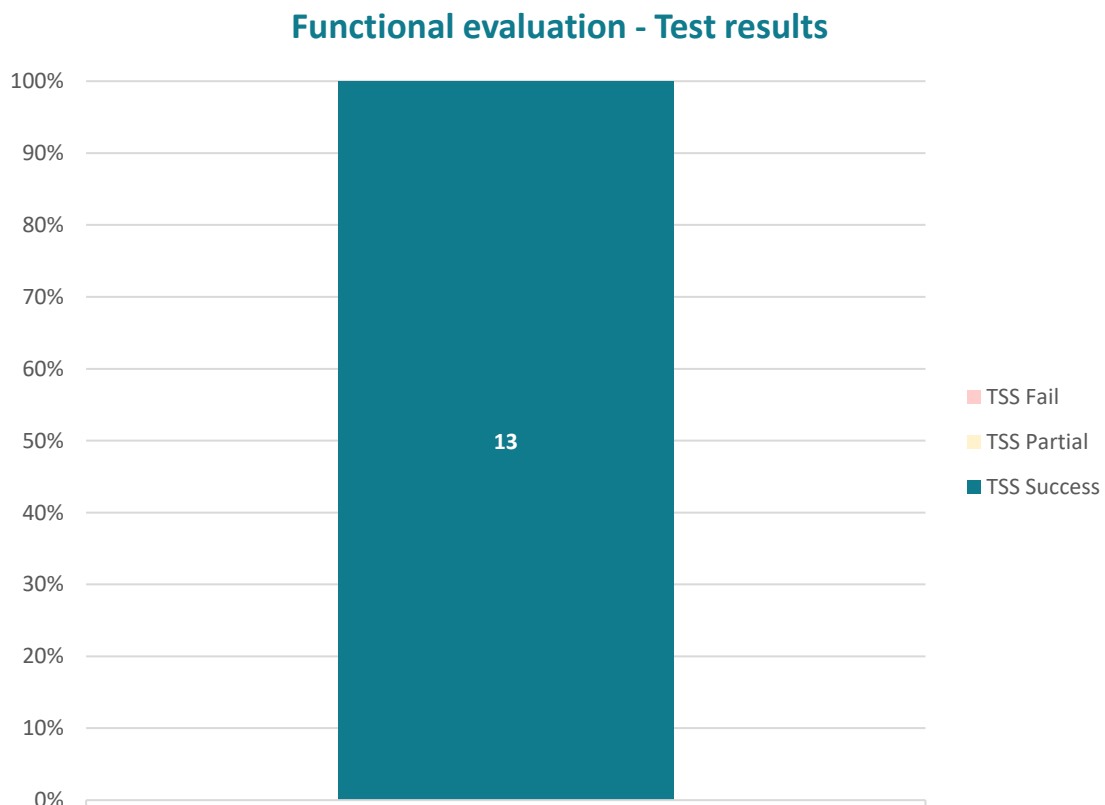


Figure 3.35: Disassemblability module - Visual results of the functional evaluation for user SEAT - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.36: Disassemblability module -Tabular results of the functional evaluation for user SEAT - Details page

If we consider both tests performed on the Disassemblability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.1.4.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a reasonable high score has been achieved by many dimensions while more attention is needed for the simplicity dimension.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.1

Figure 3.37: Disassemblability module – Tabular results of the non-functional assessment for user SEAT - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

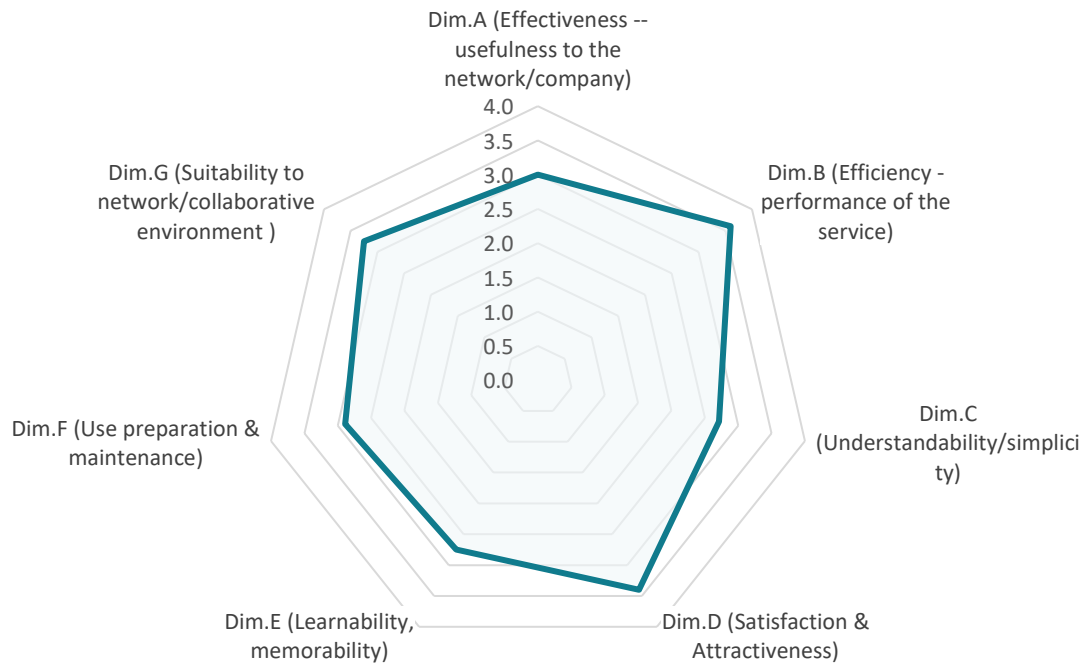


Figure 3.38: Disassemblability module – Visual results of the non-functional assessment for user SEAT - Homepage

If we consider the non-functional evaluation of the details page, a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	3.0
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.0
Dim.F (Use preparation & maintenance)	3.0
Dim.G (Suitability to network/collaborative environment)	3.3
Total	3.2

Figure 3.39: Disassemblability module – Tabular results of the non-functional assessment for user SEAT - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

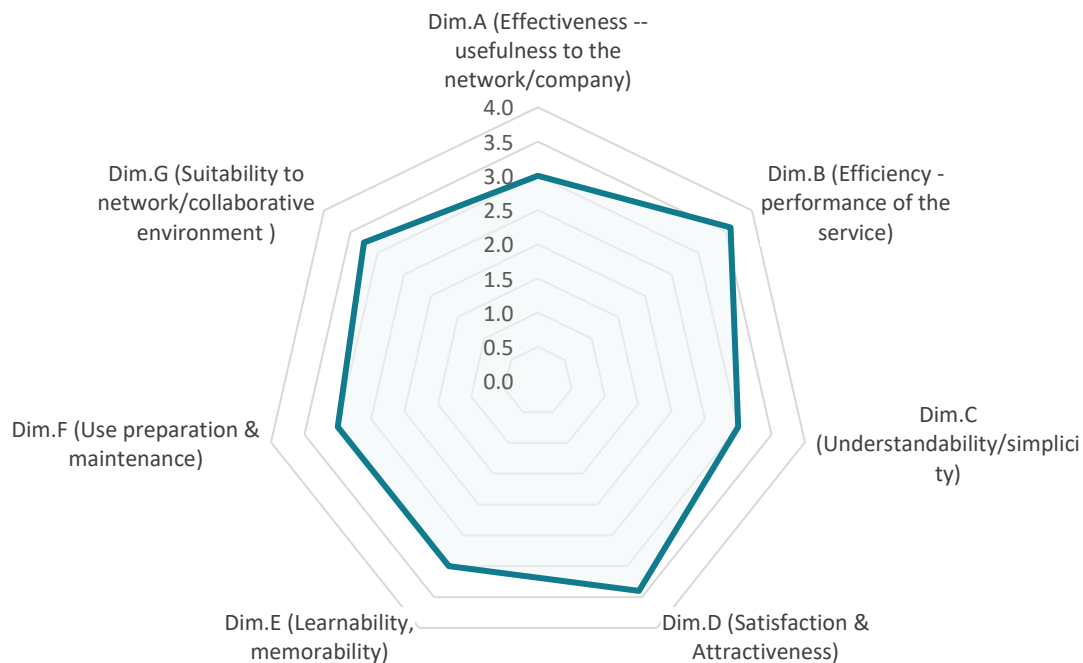


Figure 3.40: Disassemblability module – Visual results of the non-functional assessment for user SEAT - Details page

3.1.5 Evaluation tester #5 (TNO)


3.1.5.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassemblability Module" card.

5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Figure 3.41: Disassemblability module - Functional evaluation for user TNO - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

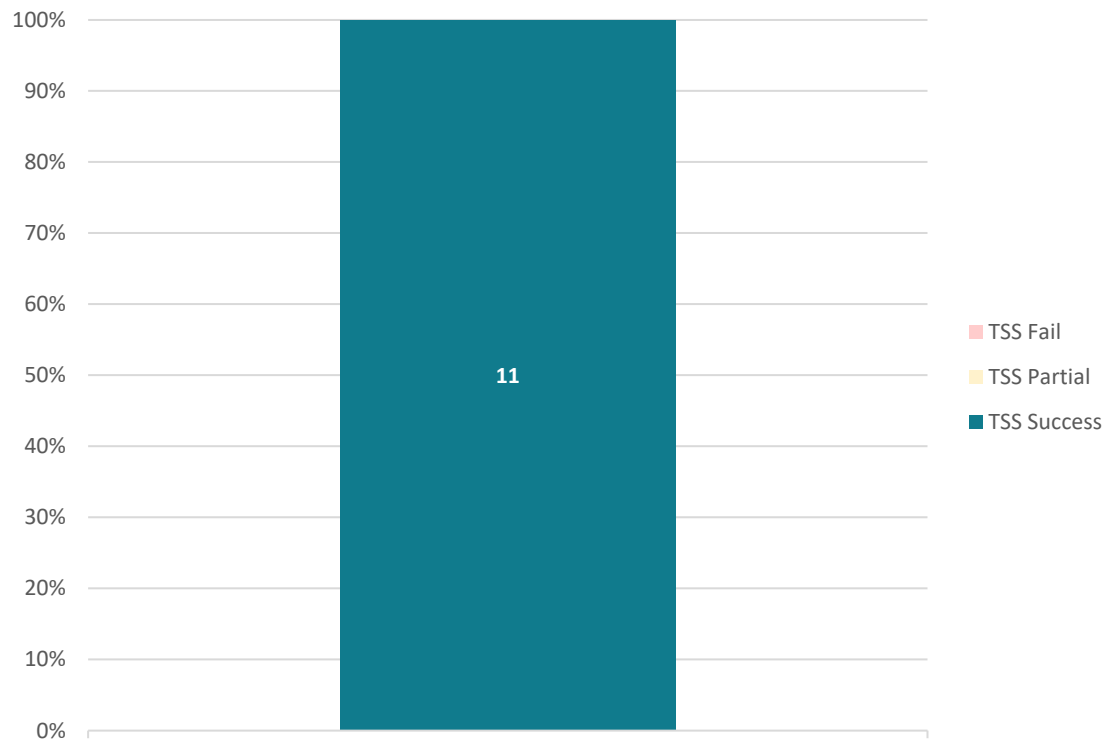



Figure 3.42: Disassemblability module -Visual results of the functional evaluation for user TNO - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.43: Disassemblability module -Tabular results of the functional evaluation for user TNO - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References			
Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script			
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN DIS" button in the "Disassemblability Module" card. 5. Navigate to the "Disassembly times (manual)" section. 6. Click the info button next to the "Level 2" metric. 7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct. 8. Export the detailed information in Excel format.			

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Figure 3.44: Disassemblability module - Functional evaluation for user TNO - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

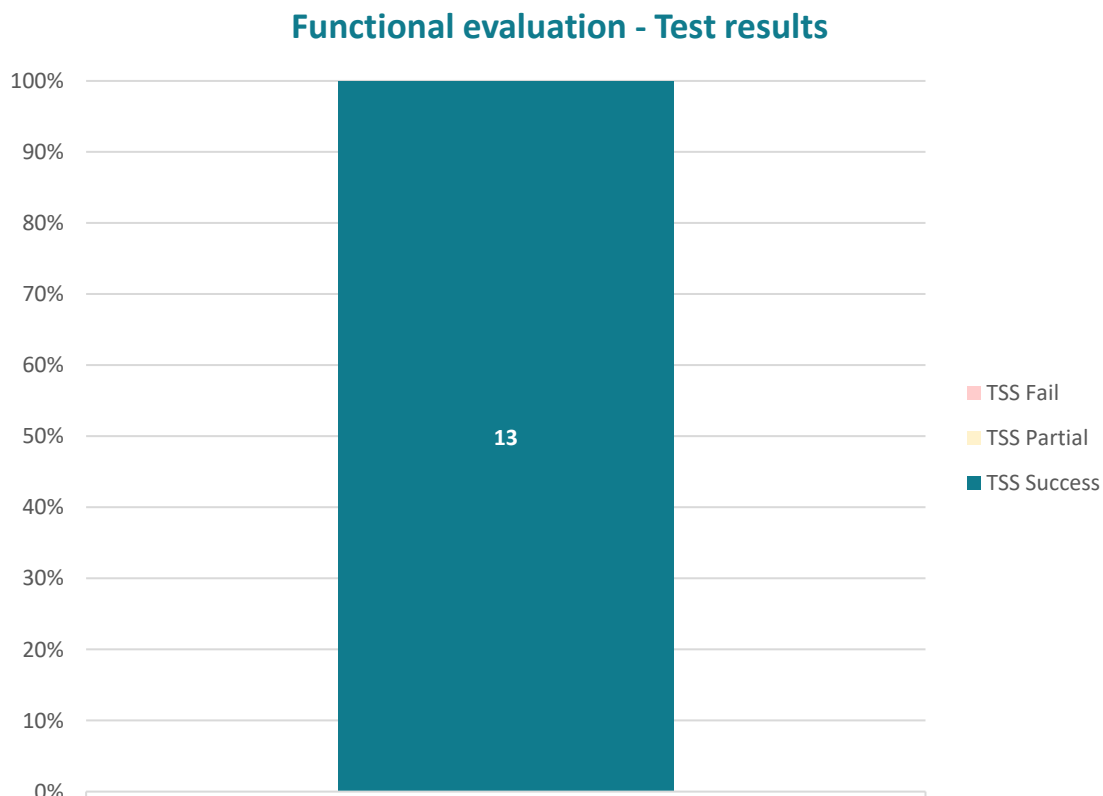


Figure 3.45: Disassemblability module - Visual results of the functional evaluation for user TNO - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.46: Disassemblability module -Tabular results of the functional evaluation for user TNO - Details page

If we consider both tests performed on the Disassemblability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.1.5.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.5

Figure 3.47: Disassemblability module – Tabular results of the non-functional assessment for user TNO - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

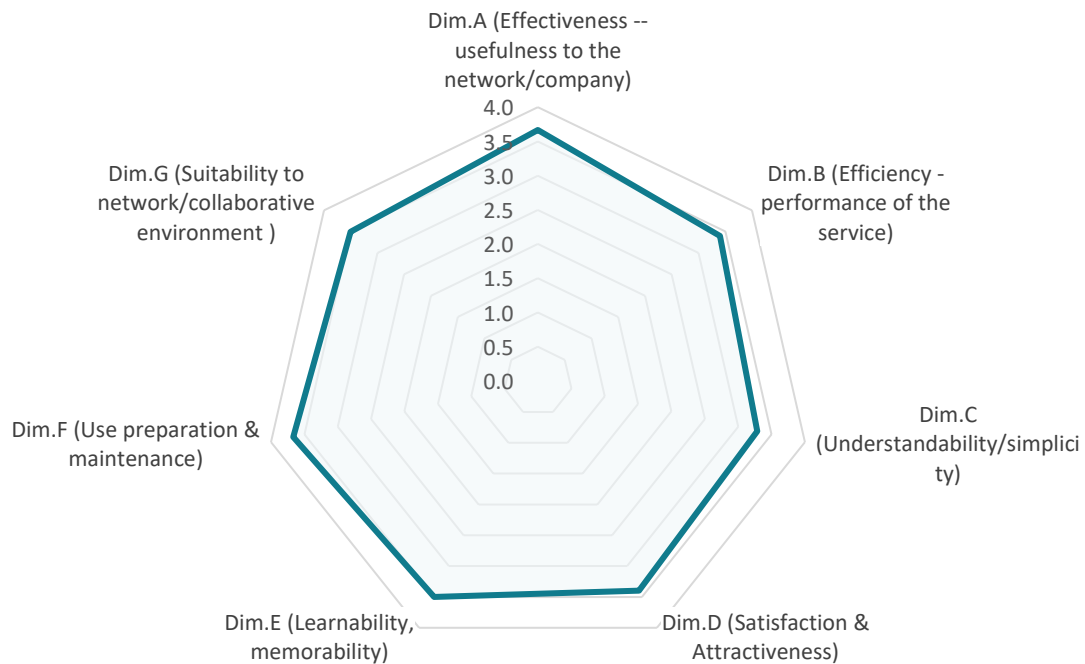


Figure 3.48: Disassemblability module – Visual results of the non-functional assessment for user TNO - Homepage

If we consider the non-functional evaluation of the details page, a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.2
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
Total	3.5

Figure 3.49: Disassemblability module – Tabular results of the non-functional assessment for user TNO - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

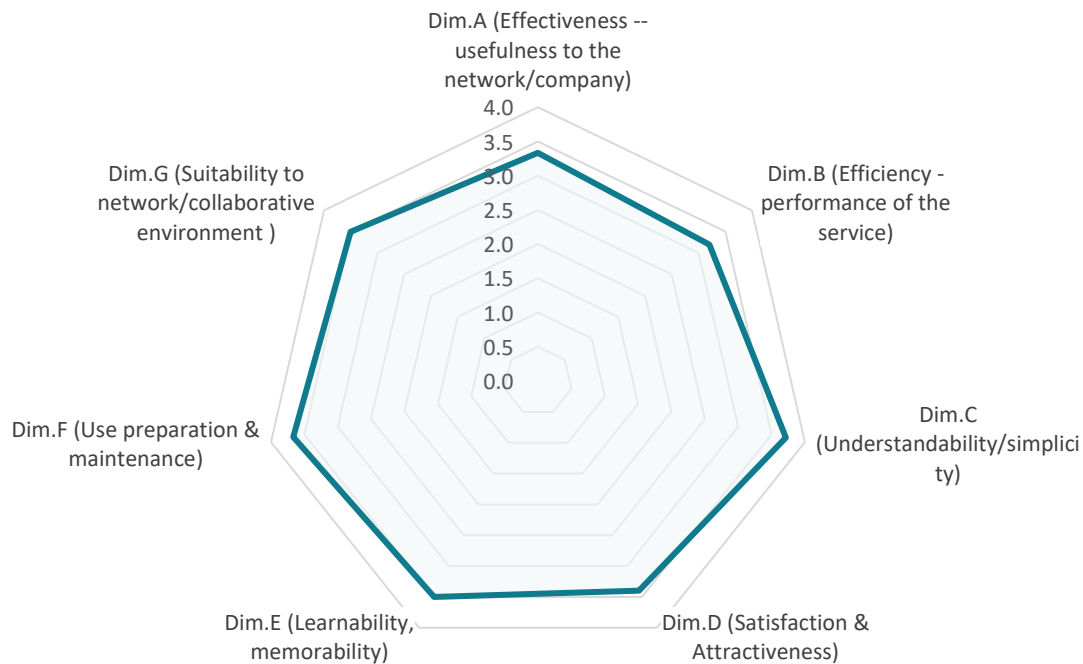


Figure 3.50: Disassemblability module – Visual results of the non-functional assessment for user TNO - Details page

3.1.6 Evaluation tester #6 (UNIVAQ)


3.1.6.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academy	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassemblability Module" card.

5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{expected}	11	TSS _{actual}	0	TSS _{fail}		0
Functionalities	Expected Results		Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES			
Login to the Platform	User successfully logged in		YES			
User redirected to home page	Home page correctly opened		YES			
Search for "combimeter" car part	List of relevant car parts shows up		YES			
Select component to visualize	Modules selection page is shown for the selected component		YES			
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES			
Assess component overall stats section	All relevant information for the desired section is displayed		YES			
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES			
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES			
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES			
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES			
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES			
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES			
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES			
Press the "Add feedback" button	The add feedback popup appears		YES			
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES			
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES			

Figure 3.51: Disassemblability module - Functional evaluation for user UNIVAQ - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

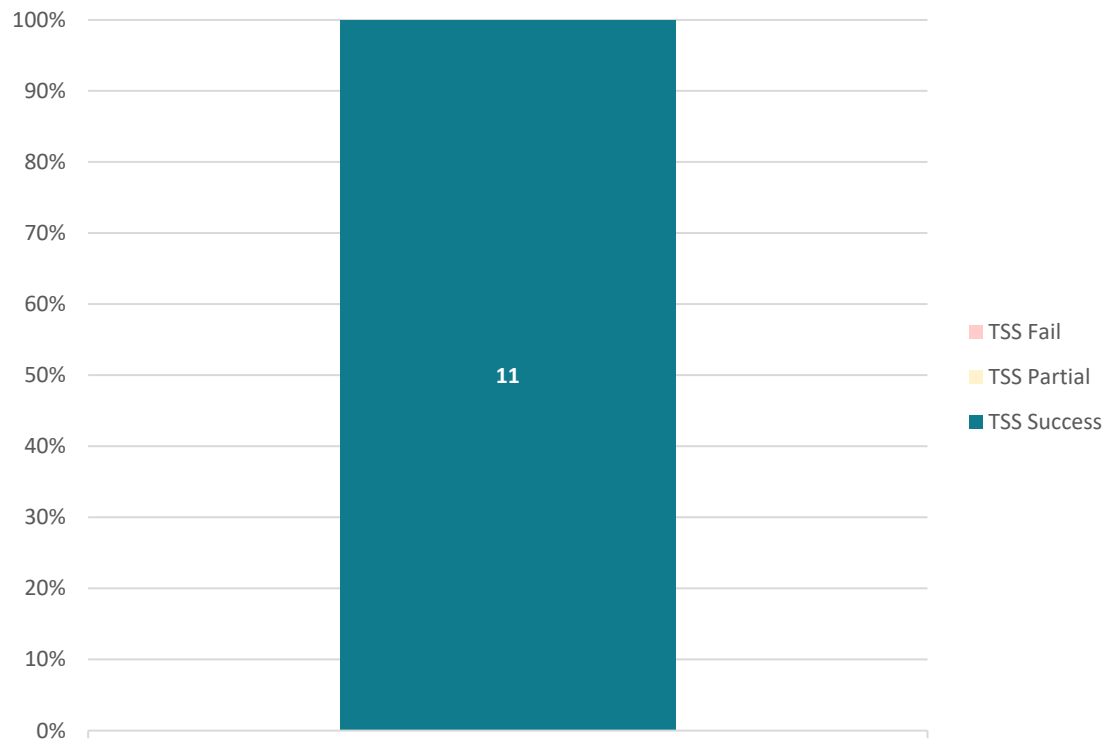



Figure 3.52: Disassemblability module -Visual results of the functional evaluation for user UNIVAQ - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.53: Disassemblability module -Tabular results of the functional evaluation for user UNIVAQ - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academy	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

- Access the TREASURE Circularity Web Platform.
- Login with the evaluation credentials provided.
- In the search bar, search for the "combimeter" component and select the first search result.
- Click the "OPEN DIS" button in the "Disassemblability Module" card.
- Navigate to the "Disassembly times (manual)" section.
- Click the info button next to the "Level 2" metric.
- Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
- Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

- Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{Success}	13	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results	Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page	YES			
Login to the Platform	User successfully logged in	YES			
User redirected to home page	Home page correctly opened	YES			
Search for "combimeter" car part	List of relevant car parts shows up	YES			
Select component to visualize	Modules selection page is shown for the selected component	YES			
Click the "OPEN DIS" button in the	Disassembly dashboard is shown for the selected component	YES			
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics	YES			
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown	YES			
Assess the parts table	Parts table correctly displays all the relevant information	YES			
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown	YES			
Assess the difficulty level table	The difficulty level table contains the proper information	YES			
Press the "Close" ("X") button	The difficulty level popup closes	YES			
Press the "Export" button	Data are exported successfully in ".xlsx" format	YES			

Figure 3.54: Disassemblability module - Functional evaluation for user UNIVAQ - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

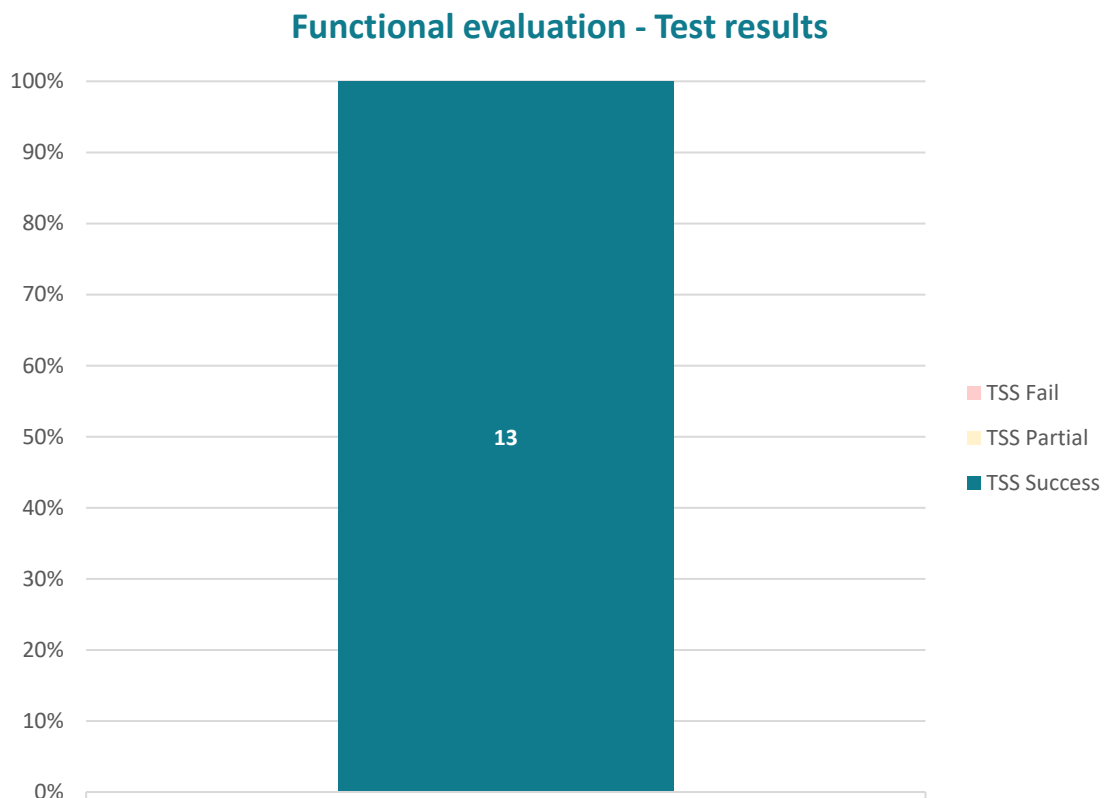


Figure 3.55: Disassemblability module - Visual results of the functional evaluation for user UNIVAQ - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.56: Disassemblability module -Tabular results of the functional evaluation for user UNIVAQ - Details page

If we consider both tests performed on the Disassemblability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.1.6.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by collaboration, performance and understandability, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Figure 3.57: Disassemblability module – Tabular results of the non-functional assessment for user UNIVAQ - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

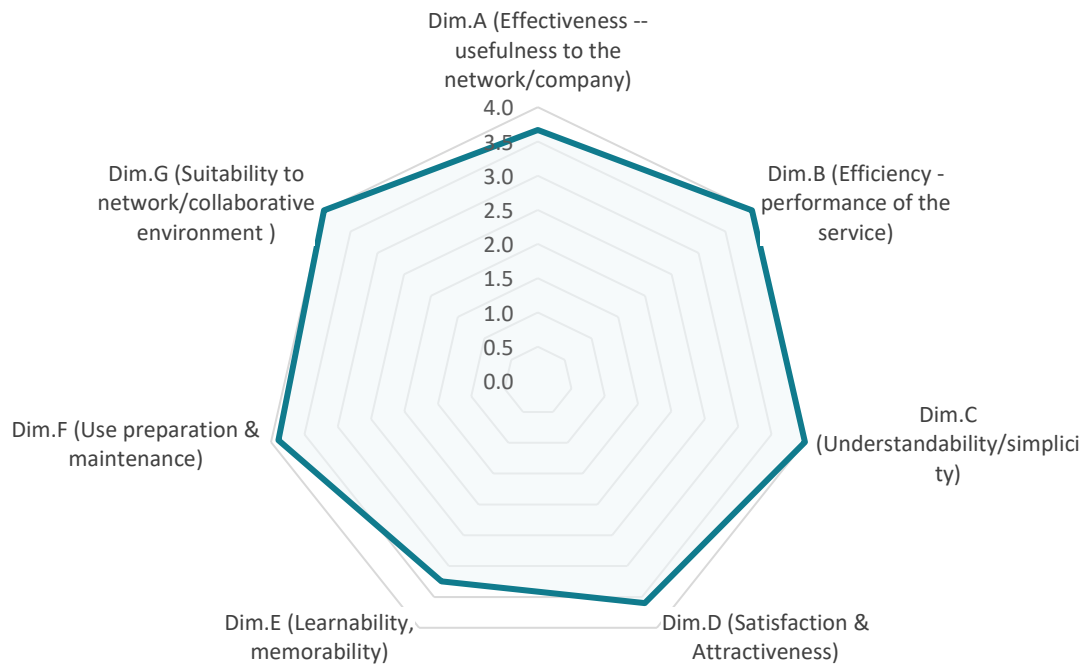


Figure 3.58: Disassemblability module – Visual results of the non-functional assessment for user UNIVAQ - Homepage

If we consider the non-functional evaluation of the details page, a full score has been achieved by collaboration, performance and understandability, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	4.0
Total	3.8

Figure 3.59: Disassemblability module – Tabular results of the non-functional assessment for user UNIVAQ - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

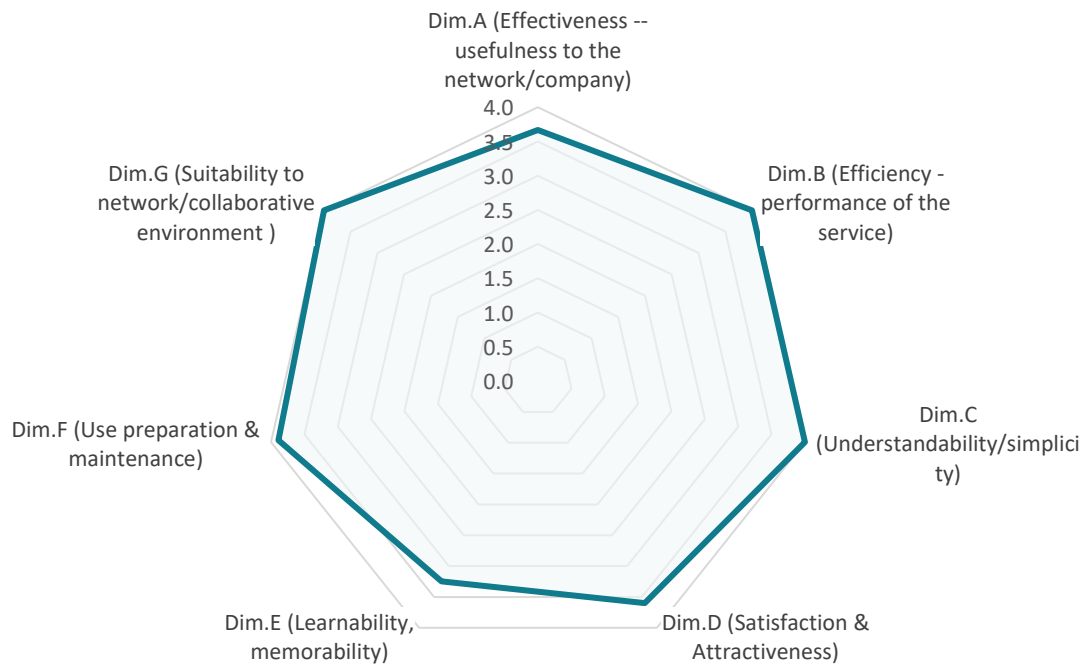


Figure 3.60: Disassemblability module – Visual results of the non-functional assessment for user UNIVAQ - Details page

3.1.7 Evaluation tester #7 (WALTERPACK)


3.1.7.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{purpose}	11	TSS _{actual}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Figure 3.61: Disassemblability module - Functional evaluation for user WALTERPACK - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

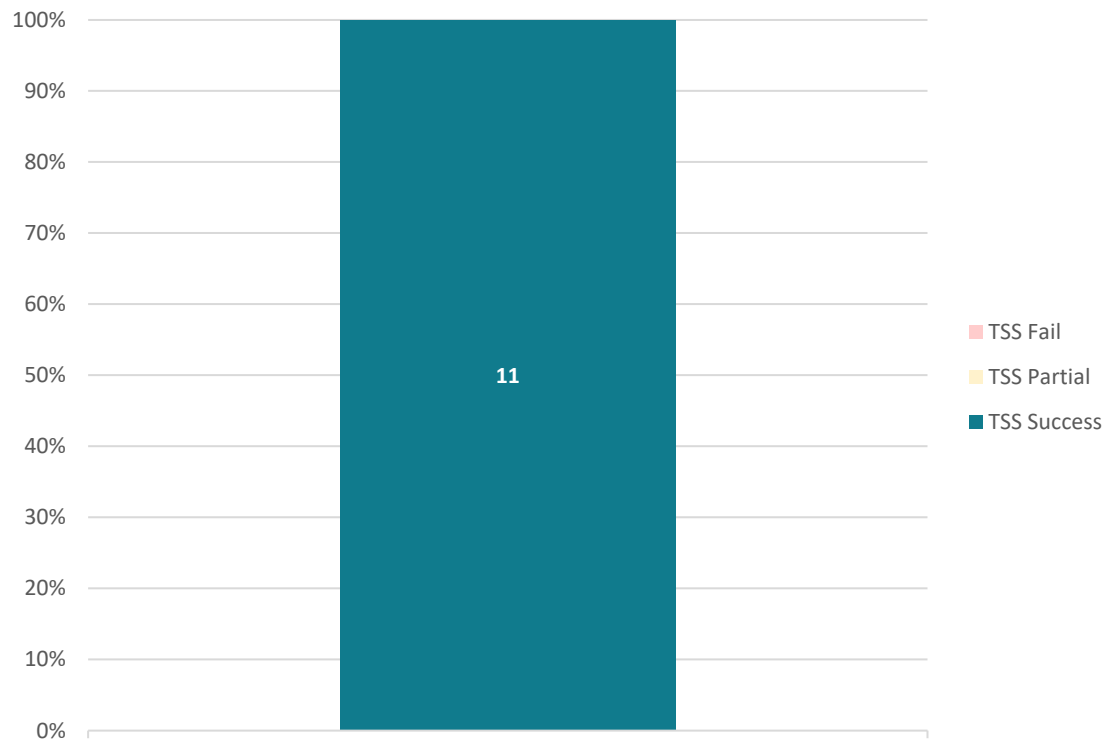



Figure 3.62: Disassemblability module -Visual results of the functional evaluation for user WALTERPACK - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.63: Disassemblability module -Tabular results of the functional evaluation for user WALTERPACK - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References			
Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		
Test Script			
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN DIS" button in the "Disassemblability Module" card. 5. Navigate to the "Disassembly times (manual)" section. 6. Click the info button next to the "Level 2" metric. 7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct. 8. Export the detailed information in Excel format.			
NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity: 6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)			

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Figure 3.64: Disassemblability module - Functional evaluation for user WALTERPACK - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

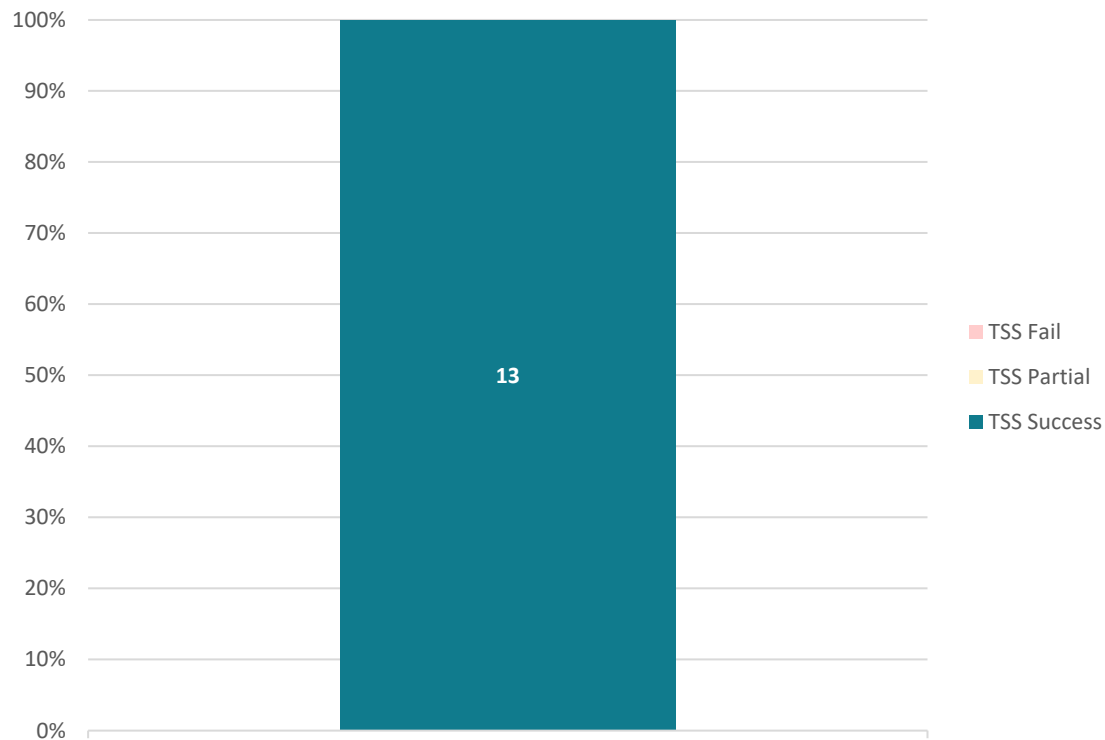


Figure 3.65: Disassemblability module -Visual results of the functional evaluation for user WALTERPACK - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.66: Disassemblability module -Tabular results of the functional evaluation for user WALTERPACK - Details page

If we consider both tests performed on the Disassemblability, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.1.7.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The testing tasks concerned the log in phase, and the assessment of disassembly routes and disassemblability levels according to the selected car part.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by learnability, performance and understandability, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Figure 3.67: Disassemblability module – Tabular results of the non-functional assessment for user WALTERPACK - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

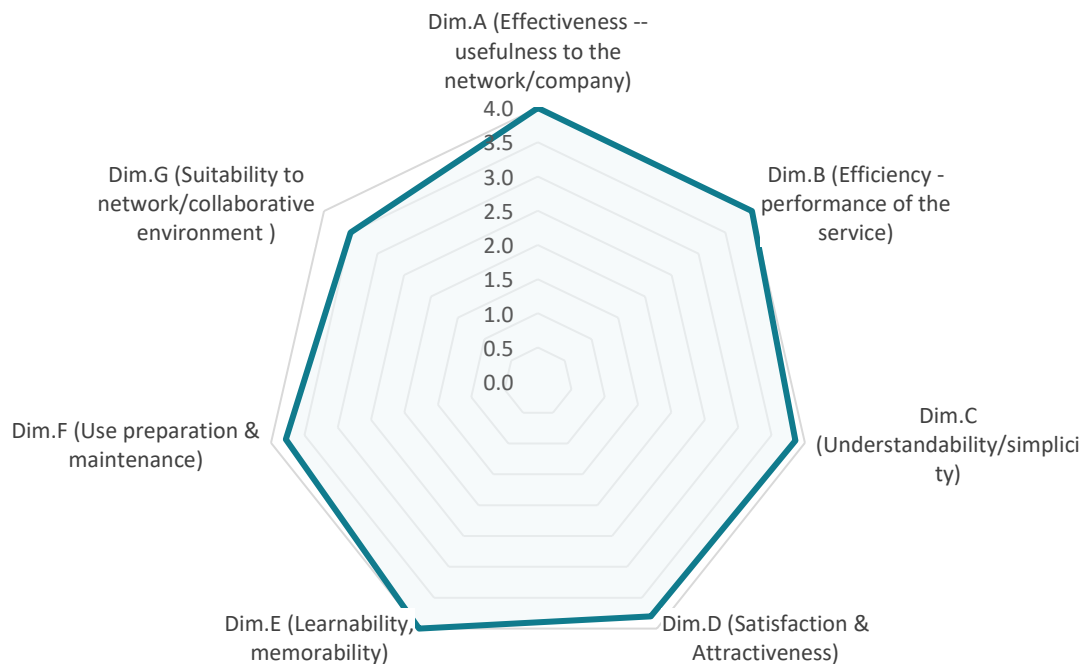


Figure 3.68: Disassemblability module – Visual results of the non-functional assessment for user WALTERPACK - Homepage

If we consider the non-functional evaluation of the details page, a full score has been achieved by effectiveness, satisfaction, performance and learnability, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.9

Figure 3.69: Disassemblability module – Tabular results of the non-functional assessment for user WALTERPACK – Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

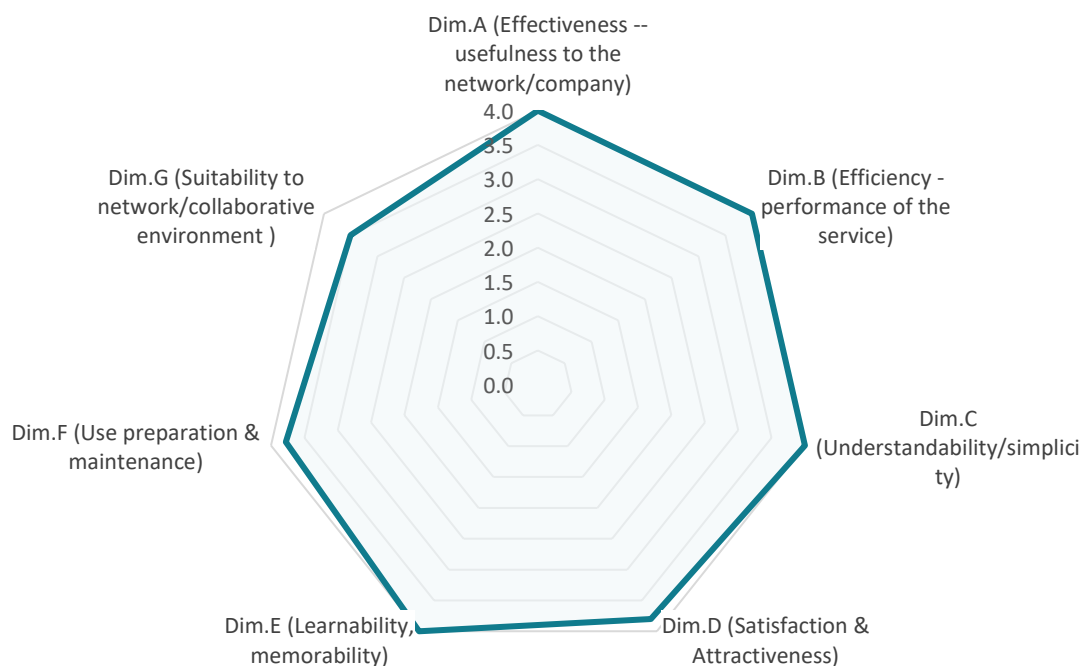


Figure 3.70: Disassemblability module – Visual results of the non-functional assessment for user WALTERPACK - Details page

3.1.8 Overall results

3.1.8.1 Functional evaluation

The functional evaluation for the Disassemblability module has an overall satisfactory outcome. All evaluation testers reported most, if not all, tests successfully passed with no remarks. As can be seen in the figure below, the total number of TSS success is 191, the total number of TSS partial is 1 and the total number of TSS fail is 0.

Disassemblability Module - Overall Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	191
TSS Partial	1
TSS Fail	0

Figure 3.71 - Disassemblability Module - Functional evaluation overall results assessment

The only attention point for this module has been raised by EUROLCDs concerning the home page of the Disassemblability dashboard and it is relative to the “Material Composition” and “Material Cost” pie charts. In these charts whenever a category is represented with a small value, the corresponding portion of the chart shows the category name with a text size that is too small, thus impacting readability.

3.1.8.2 Non-functional evaluation

The non-functional evaluation for the Disassemblability module has an overall satisfactory outcome.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	3.5
Dim.B (Efficiency - performance of the service)	3.7
Dim.C (Understandability/simplicity)	3.6
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.6
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.6

Figure 3.72: Disassemblability Module – Non-functional evaluation overall results assessment

3.2 Recyclability Module

The Recyclability module is dedicated to providing information concerning the most suitable recycling routes based on the LCA performed by the Sustainability Tool through the representation of recovery rate for each car part material. Like the Disassemblability module, the Recyclability module is composed of the homepage and a detail page that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.

The tests have been carried out for each type of user foreseen in this platform module, as follows:

- The regular user with visualization only mode for the Recyclability module: the user can only see the platform content related to the standard recyclability dashboards, as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the Circular Advisory dashboards is foreseen for this type of user.

3.2.1 Evaluation tester #1 (EUROLCDs)


3.2.1.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a remark on the reading key of the details table related to the individual recycling rates.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

- Access the TREASURE Circularity Web Platform.
- Login with the evaluation credentials provided.
- In the search bar, search for the "combimeter" component and select the first search result.
- Click the "OPEN REC" button in the "Recyclability Module" card.
- Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results	Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page	YES			
Login to the Platform	User successfully logged in	YES			
User redirected to home page	Home page correctly opened	YES			
Search for "combimeter" car part	List of relevant car parts shows up	YES			
Select component to visualize	Modules selection page is shown for the selected component	YES			
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component	YES			
Assess component overall stats section	All relevant information for the desired section is displayed	YES			
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed	YES			
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed	YES			
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level	YES			
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly	YES			
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing	YES			
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly	PARTIAL	Shows that steel is no high quality product		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed	YES			
Press the "Add feedback" button	The add feedback popup appears	YES			
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table	YES			

Figure 3.73: Recyclability module - Functional evaluation for user EUROLCDs - Homepage

The evaluation shows no TSS fail, with only one TSS partial related to the individual recycling rates section as described above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

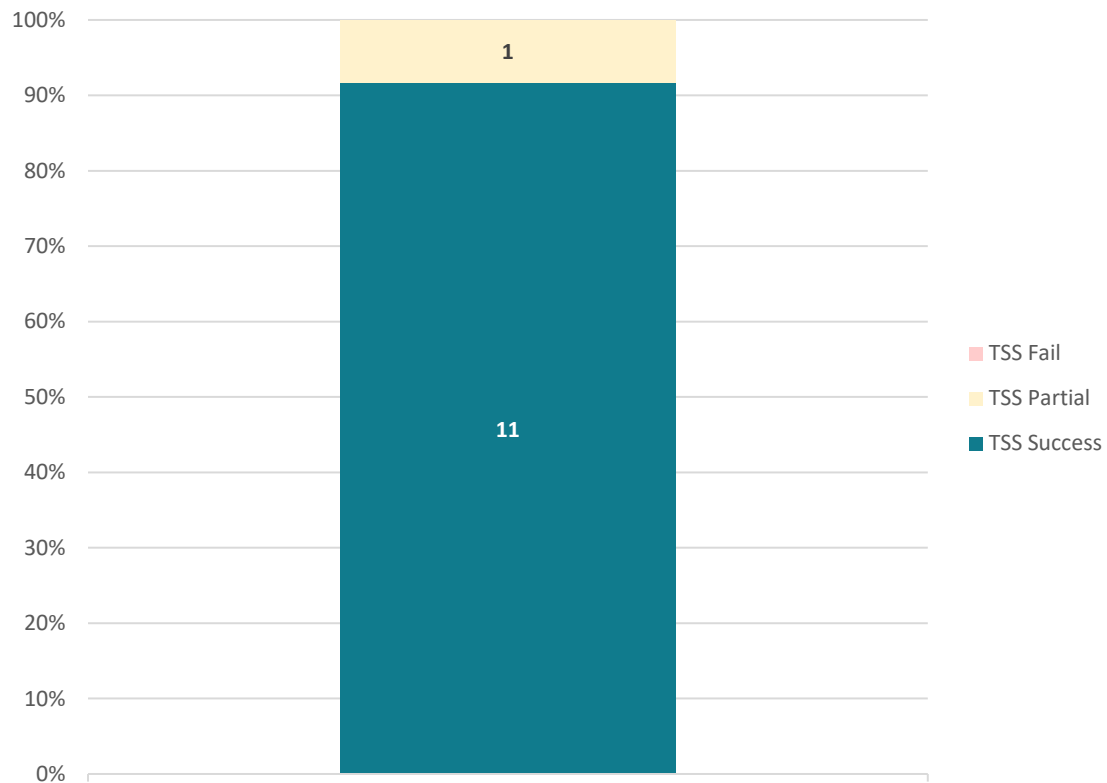



Figure 3.74: Recyclability module -Visual results of the functional evaluation for user EUOLCDS - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	1
TSS Fail	0

Figure 3.75: Recyclability module -Tabular results of the functional evaluation for user EUOLCDS - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.

6. Click the "Details" button next to the recycling routes dropdown menu.

7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Figure 3.76: Recyclability module - Functional evaluation for user EUROLCDs - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

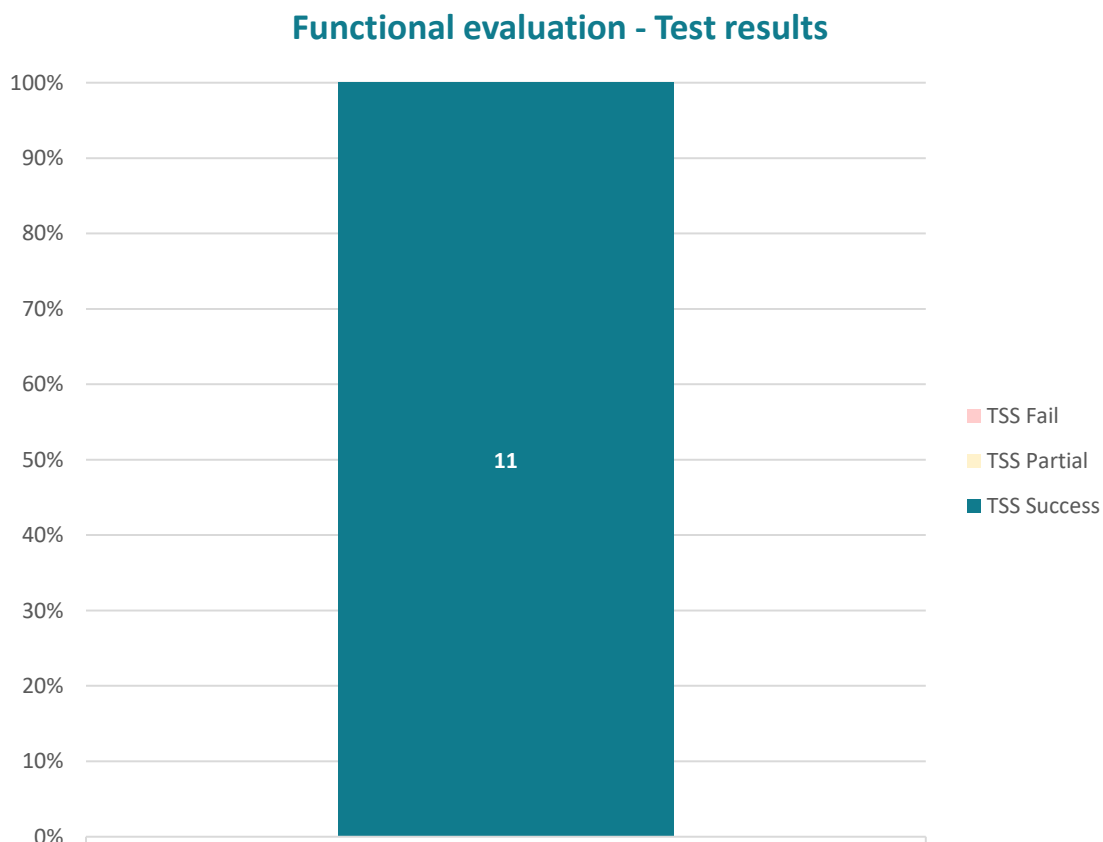


Figure 3.77: Recyclability module - Visual results of the functional evaluation for user EUROLCDs - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.78: Recyclability module -Tabular results of the functional evaluation for user EUROLCDs - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.1.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by collaboration and maintenance, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.6
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.7

Figure 3.79: Recyclability module – Tabular results of the non-functional assessment for user EUROLCDs - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

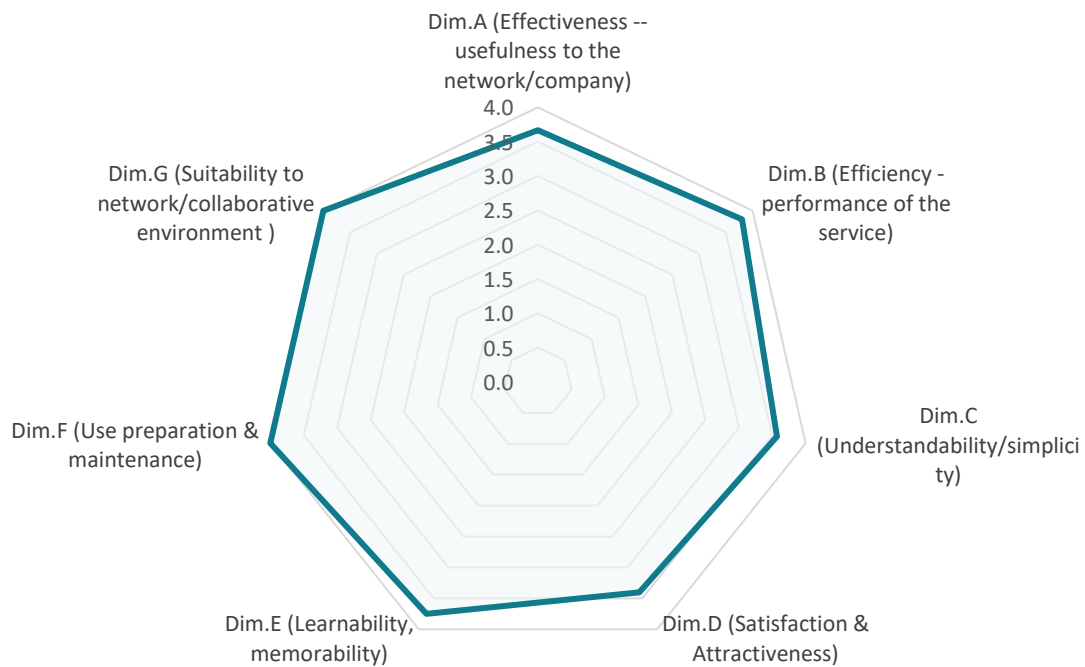


Figure 3.80: Recyclability module – Visual results of the non-functional assessment for user EUOLCDS - Homepage

If we consider the non-functional evaluation of the details page, a full score has been achieved by collaboration and maintenance, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
Total	3.8

Figure 3.81: Recyclability module – Tabular results of the non-functional assessment for user EUOLCDS - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

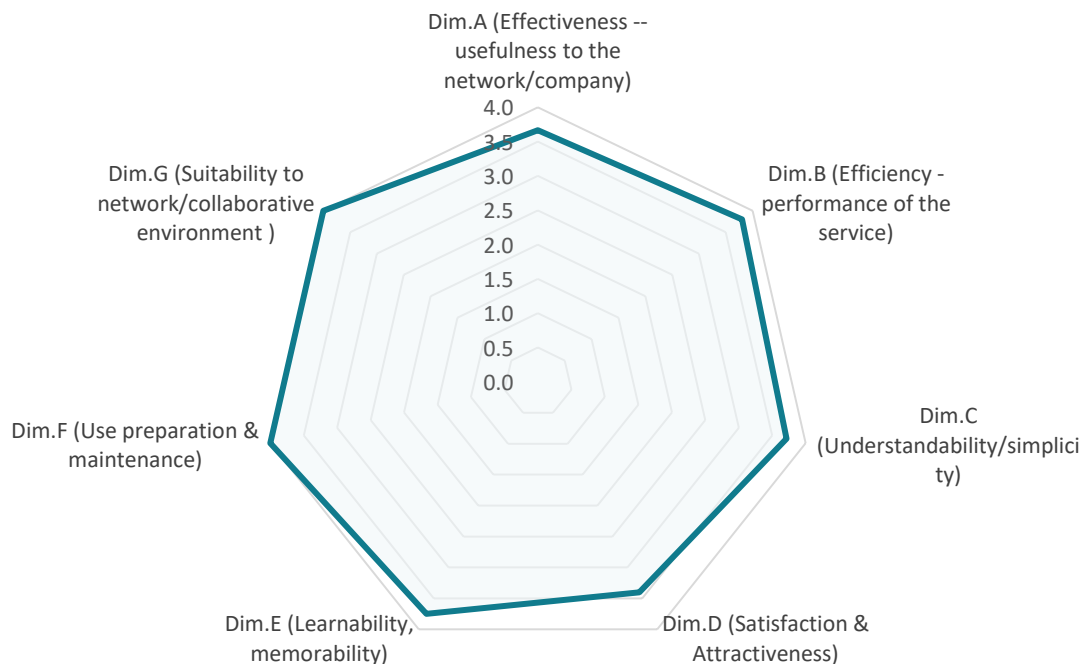


Figure 3.82: Recyclability module – Visual results of the non-functional assessment for user EUROLCDs - Details page

3.2.2 Evaluation tester #2 (ILSSA)


3.2.2.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References			
Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Ludueña (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script			
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.			

TSS _{success}	11	TSS _{actual}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES	No comment	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES	No comment	
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	No comment	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES	No comment	
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing		YES	No comment	
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES	No comment	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	No comment	
Press the "Add feedback" button	The add feedback popup appears		YES	No comment	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	No comment	

Figure 3.83: Recyclability module - Functional evaluation for user ILSSA - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

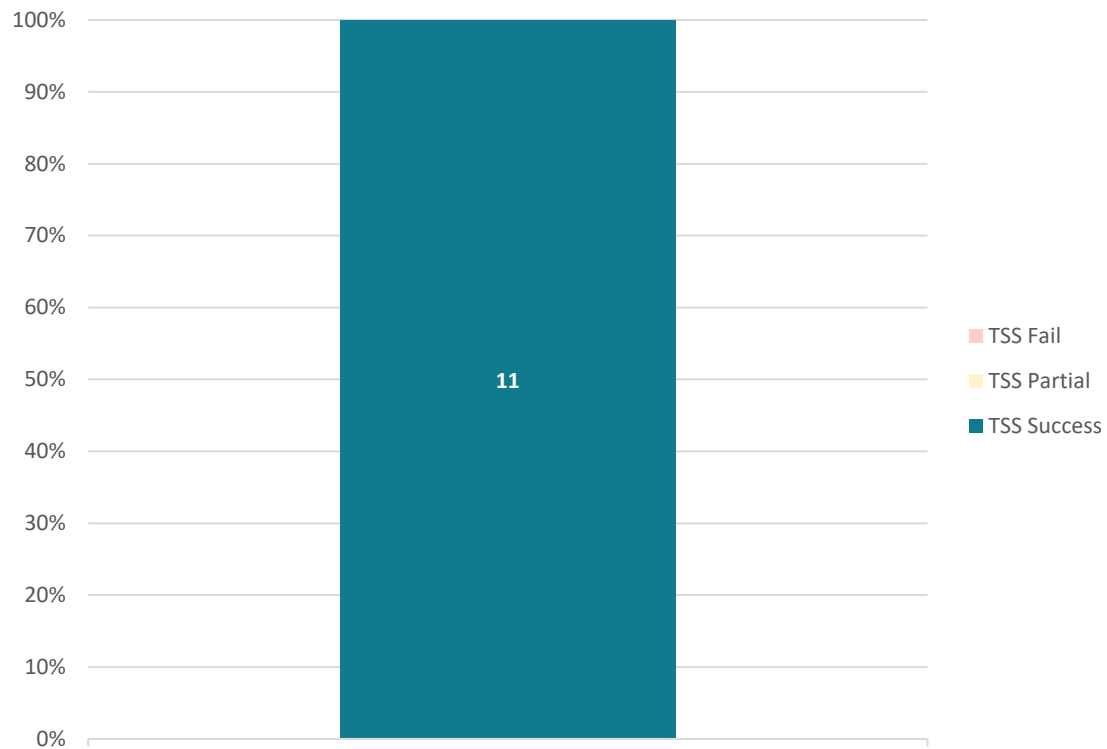



Figure 3.84: Recyclability module -Visual results of the functional evaluation for user ILSSA - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.85: Recyclability module -Tabular results of the functional evaluation for user ILSSA - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References					
Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform		
Actors involved	Marcelo Liendo Ludeña (ILSSA) (Environmental Manager in Grupo Lopez Sodano)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)		
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section. 6. Click the "Details" button next to the recycling routes dropdown menu. 7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.					
TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES	No comment	
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES	No comment	
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES	No comment	
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES	No comment	

Figure 3.86: Recyclability module - Functional evaluation for user ILSSA - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

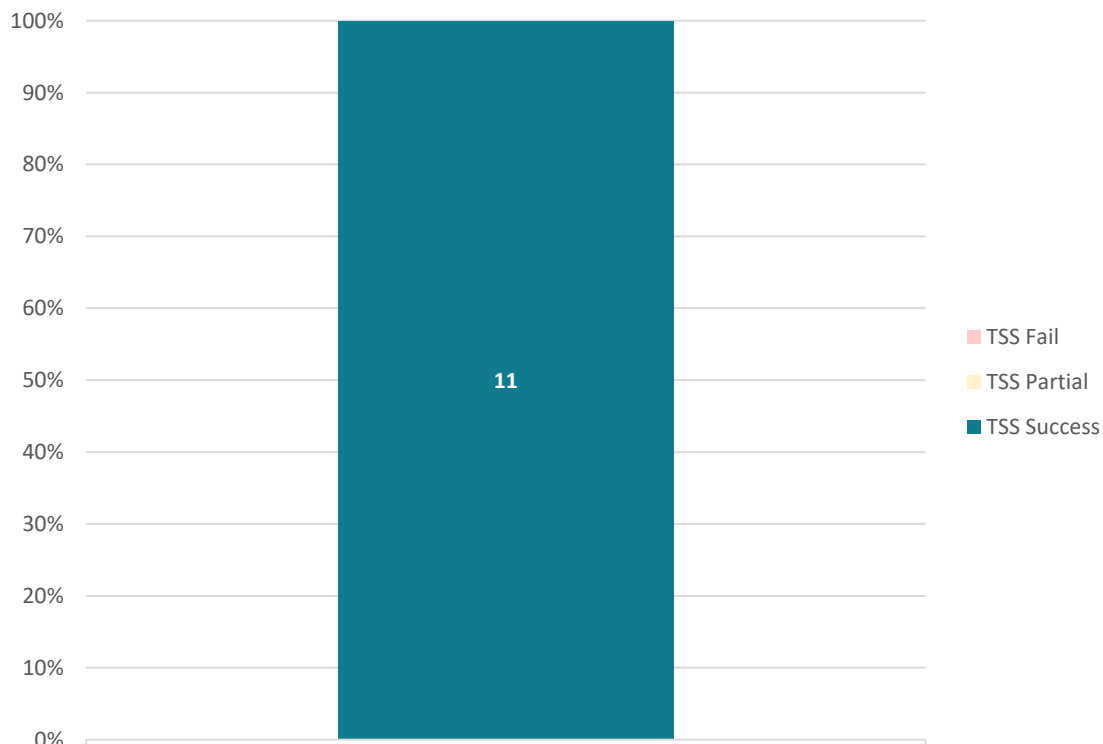


Figure 3.87: Recyclability module -Visual results of the functional evaluation for user ILSSA - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.88: Recyclability module Tabular results of the functional evaluation for user ILSSA - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.2.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by effectiveness, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.7

Figure 3.89: Recyclability module – Tabular results of the non-functional assessment for user ILSSA - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

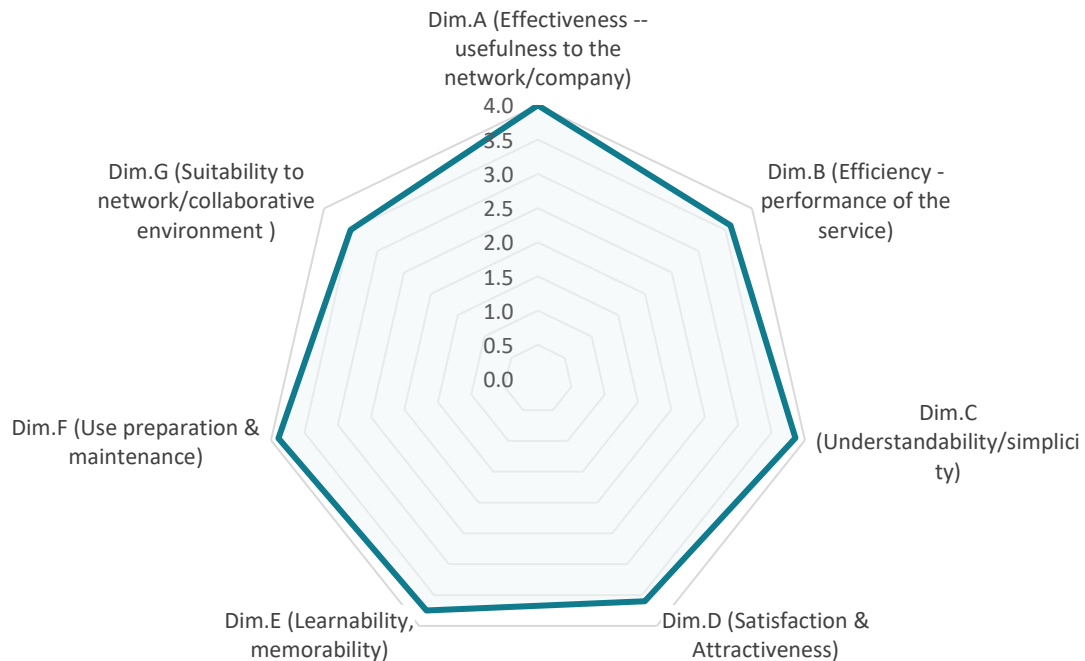


Figure 3.90: Recyclability module – Visual results of the non-functional assessment for user ILSSA - Homepage

If we consider the non-functional evaluation of the details page, a full score has been achieved by effectiveness, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.8
Total	3.8

Figure 3.91: Recyclability module – Tabular results of the non-functional assessment for user ILSSA - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

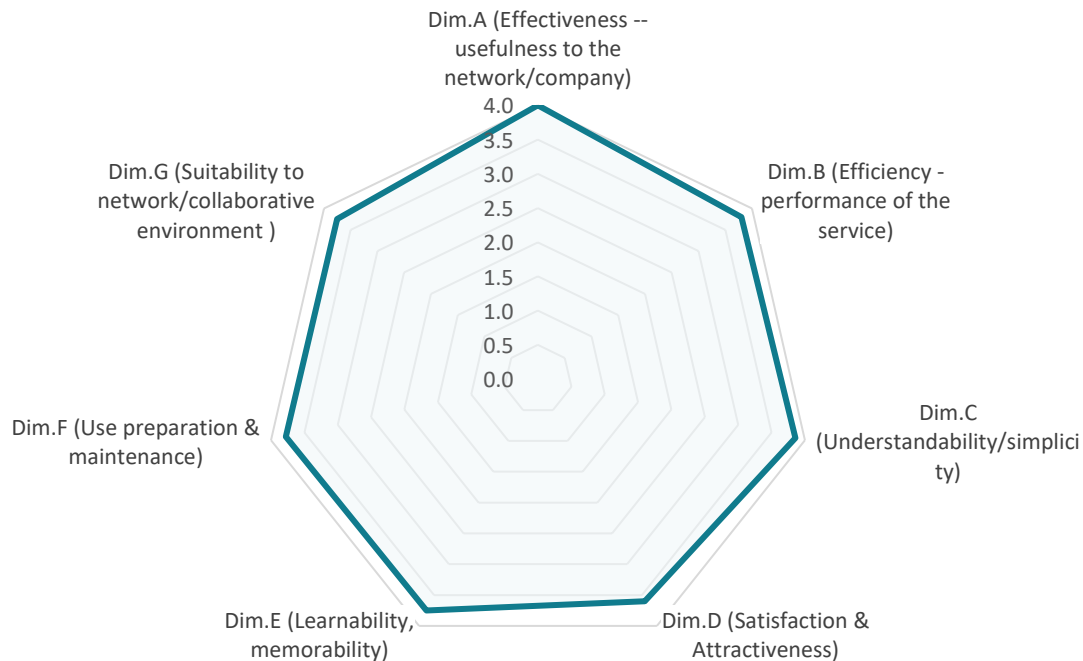


Figure 3.92: Recyclability module – Visual results of the non-functional assessment for user ILSSA - Details page

3.2.3 Evaluation tester #3 (POLLINI)


3.2.3.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References				
Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)	
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard			
Test Script				
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.				
TSS _{purpose}	11	TSS _{actual}	0	TSS _{fail} 0
Functionalities	Expected Results		Passed	Remarks
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	
Login to the Platform	User successfully logged in		YES	
User redirected to home page	Home page correctly opened		YES	
Search for "combimeter" car part	List of relevant car parts shows up		YES	
Select component to visualize	Modules selection page is shown for the selected component		YES	
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES	
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES	
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES	
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing		YES	
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	
Press the "Add feedback" button	The add feedback popup appears		YES	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	

Figure 3.93: Recyclability module - Functional evaluation for user POLLINI - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

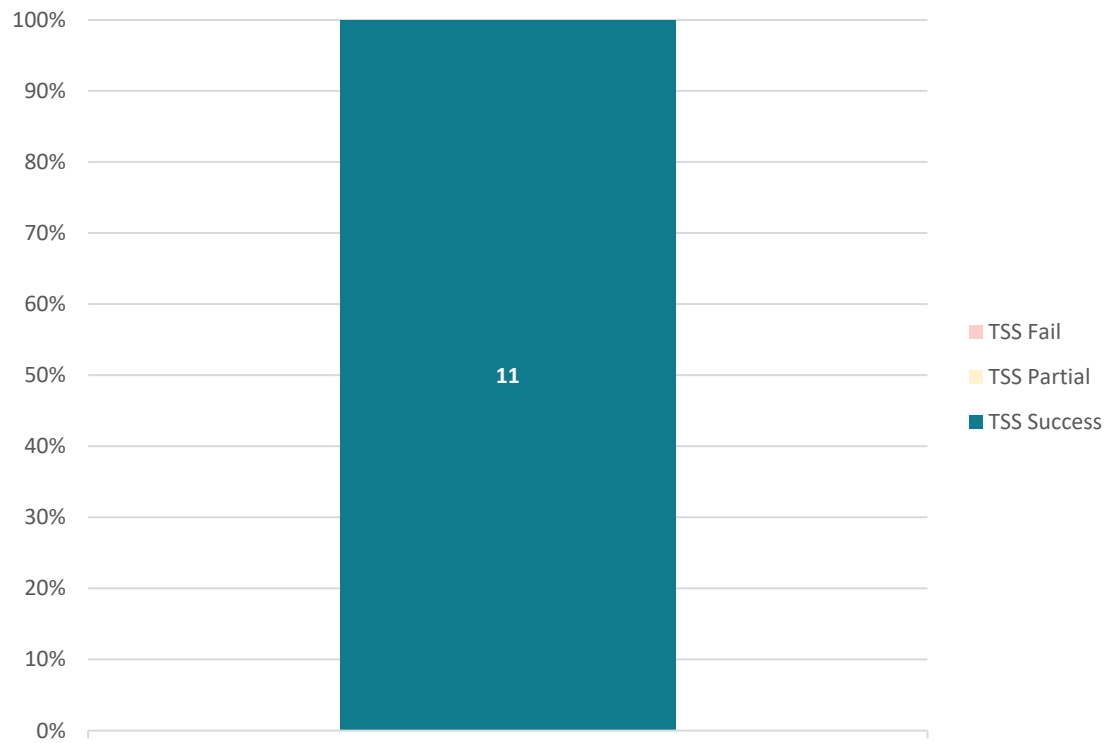



Figure 3.94: Recyclability module -Visual results of the functional evaluation for user POLLINI - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.95: Recyclability module -Tabular results of the functional evaluation for user POLLINI - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.

6. Click the "Details" button next to the recycling routes dropdown menu.

7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Figure 3.96: Recyclability module - Functional evaluation for user POLLINI - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

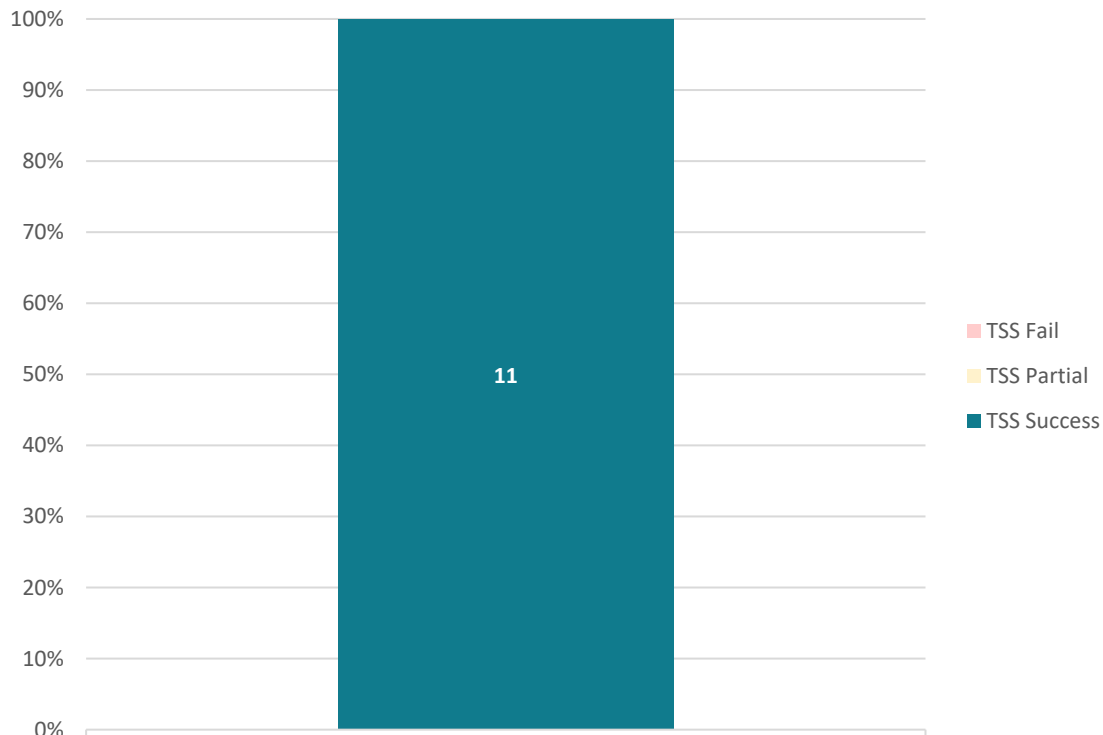


Figure 3.97: Recyclability module - Visual results of the functional evaluation for user POLLINI - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.98: Recyclability module -Tabular results of the functional evaluation for user POLLINI - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.3.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.99: Recyclability module – Tabular results of the non-functional assessment for user POLLINI - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

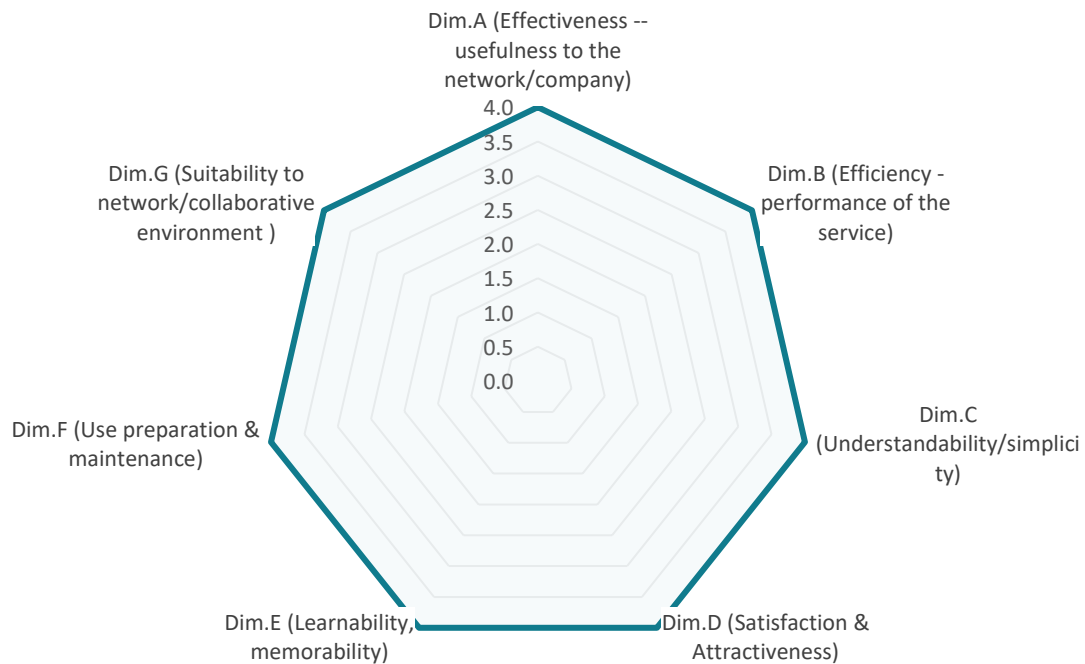


Figure 3.100: Recyclability module – Visual results of the non-functional assessment for user POLLINI - Homepage

If we consider the non-functional evaluation of the details page, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.101: Recyclability module – Tabular results of the non-functional assessment for user POLLINI - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

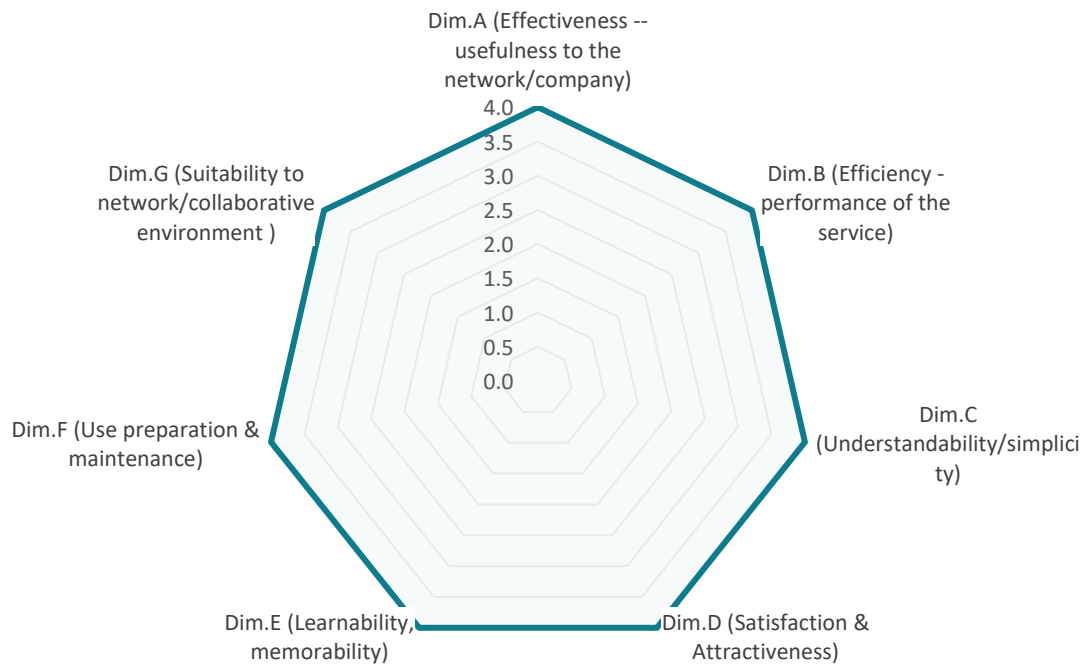


Figure 3.102: Recyclability module – Visual results of the non-functional assessment for user POLLINI - Details page

3.2.4 Evaluation tester #4 (SEAT)


3.2.4.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References				
Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)	
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard			
Test Script				
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.				
TSS _{success}	11	TSS _{actual}	0	TSS _{fail} 0
Functionalities	Expected Results		Passed	Remarks
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	
Login to the Platform	User successfully logged in		YES	
User redirected to home page	Home page correctly opened		YES	
Search for "combimeter" car part	List of relevant car parts shows up		YES	
Select component to visualize	Modules selection page is shown for the selected component		YES	
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES	
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES	
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES	
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing		YES	
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	
Press the "Add feedback" button	The add feedback popup appears		YES	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	

Figure 3.103: Recyclability module - Functional evaluation for user SEAT - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

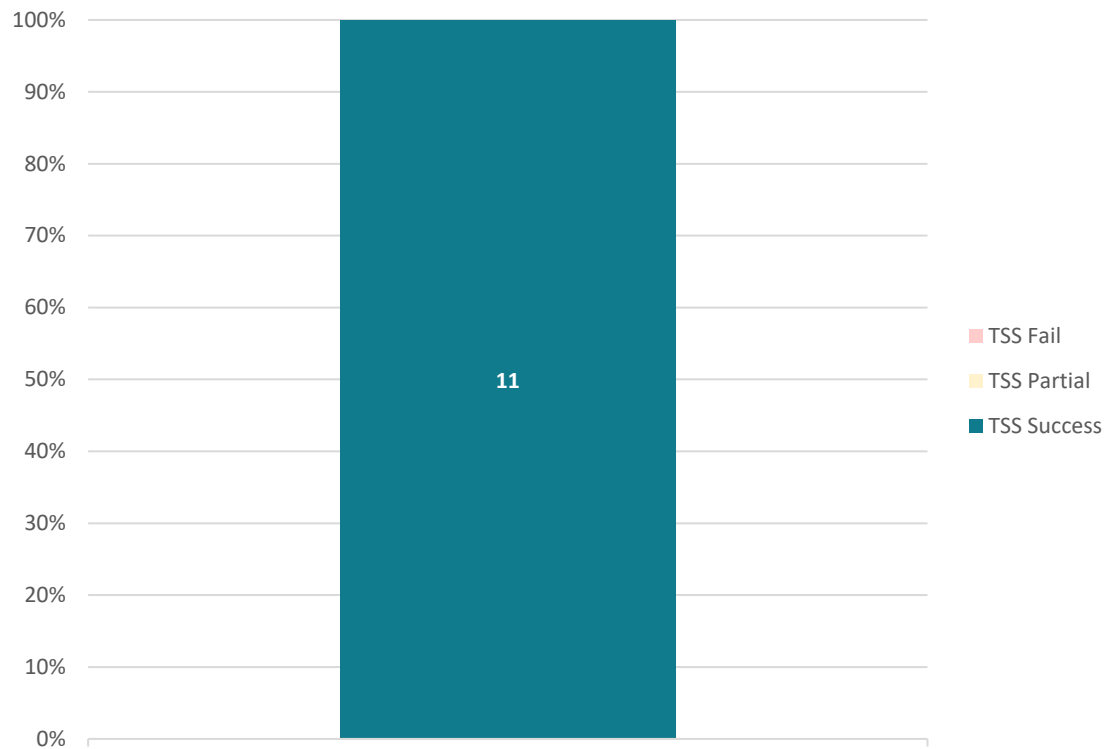



Figure 3.104: Recyclability module -Visual results of the functional evaluation for user SEAT - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.105: Recyclability module -Tabular results of the functional evaluation for user SEAT - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.

6. Click the "Details" button next to the recycling routes dropdown menu.

7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Figure 3.106: Recyclability module - Functional evaluation for user SEAT - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

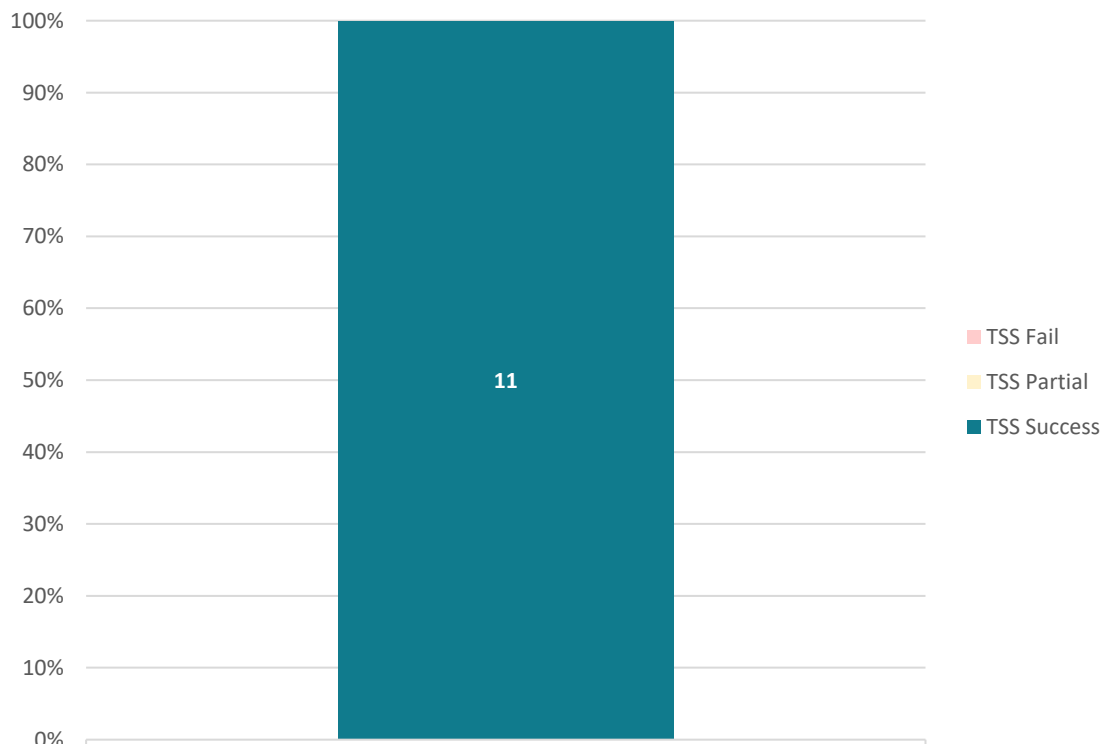


Figure 3.107: Recyclability module - Visual results of the functional evaluation for user SEAT - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.108: Recyclability module -Tabular results of the functional evaluation for user SEAT - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.4.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard, while attention is needed on simplicity.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.4
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.0

Figure 3.109: Recyclability module – Tabular results of the non-functional assessment for user SEAT - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

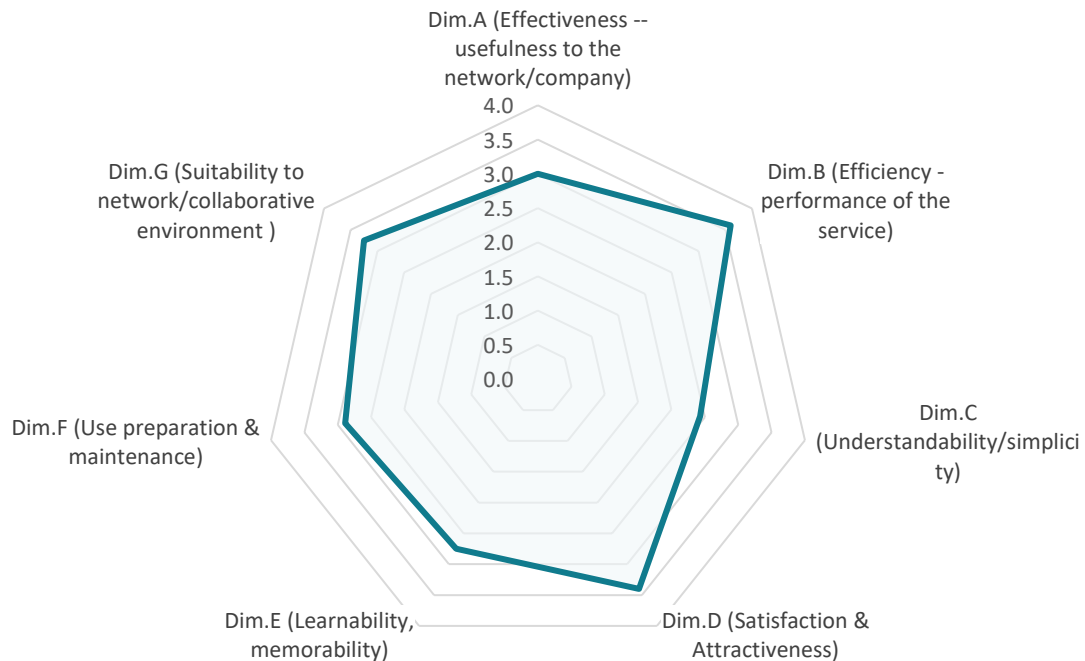


Figure 3.110: Recyclability module – Visual results of the non-functional assessment for user SEAT - Homepage

If we consider the non-functional evaluation of the details page a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard, while attention is needed on simplicity.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.1

Figure 3.111: Recyclability module – Tabular results of the non-functional assessment for user SEAT - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

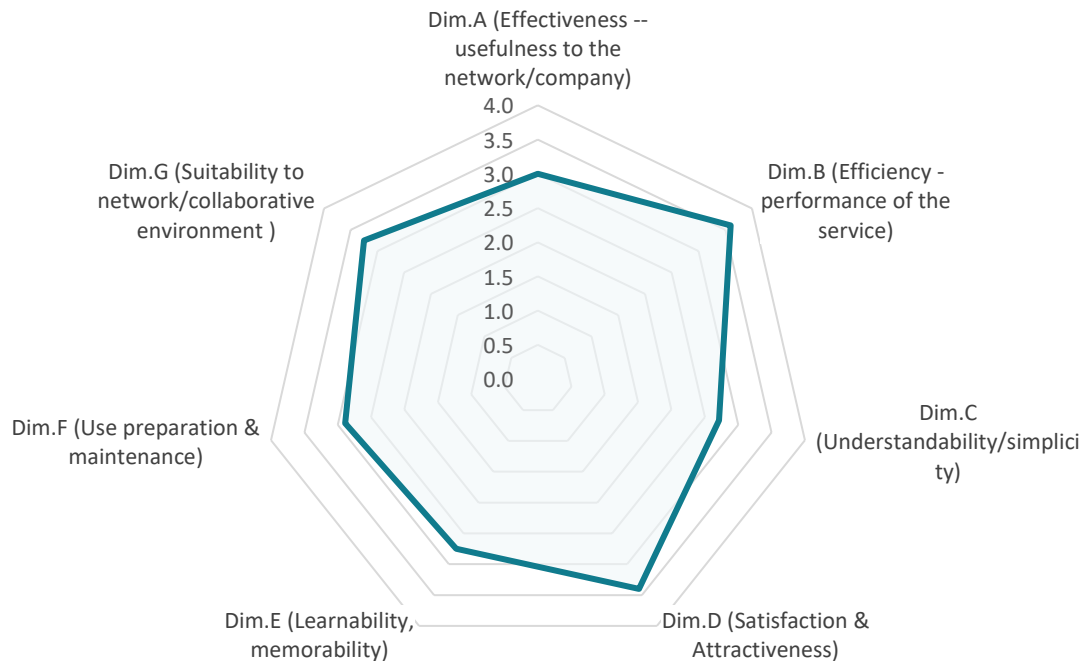


Figure 3.112: Recyclability module – Visual results of the non-functional assessment for user SEAT - Details page

3.2.5 Evaluation tester #5 (TNO)


3.2.5.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References				
Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)	
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard			
Test Script				
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.				
TSS _{success}	11	TSS _{actual}	0	TSS _{fail}
Functionalities	Expected Results		Passed	Remarks
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	
Login to the Platform	User successfully logged in		YES	
User redirected to home page	Home page correctly opened		YES	
Search for "combimeter" car part	List of relevant car parts shows up		YES	
Select component to visualize	Modules selection page is shown for the selected component		YES	
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES	
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES	
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES	
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing		YES	
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	
Press the "Add feedback" button	The add feedback popup appears		YES	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	

Figure 3.113: Recyclability module - Functional evaluation for user TNO - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

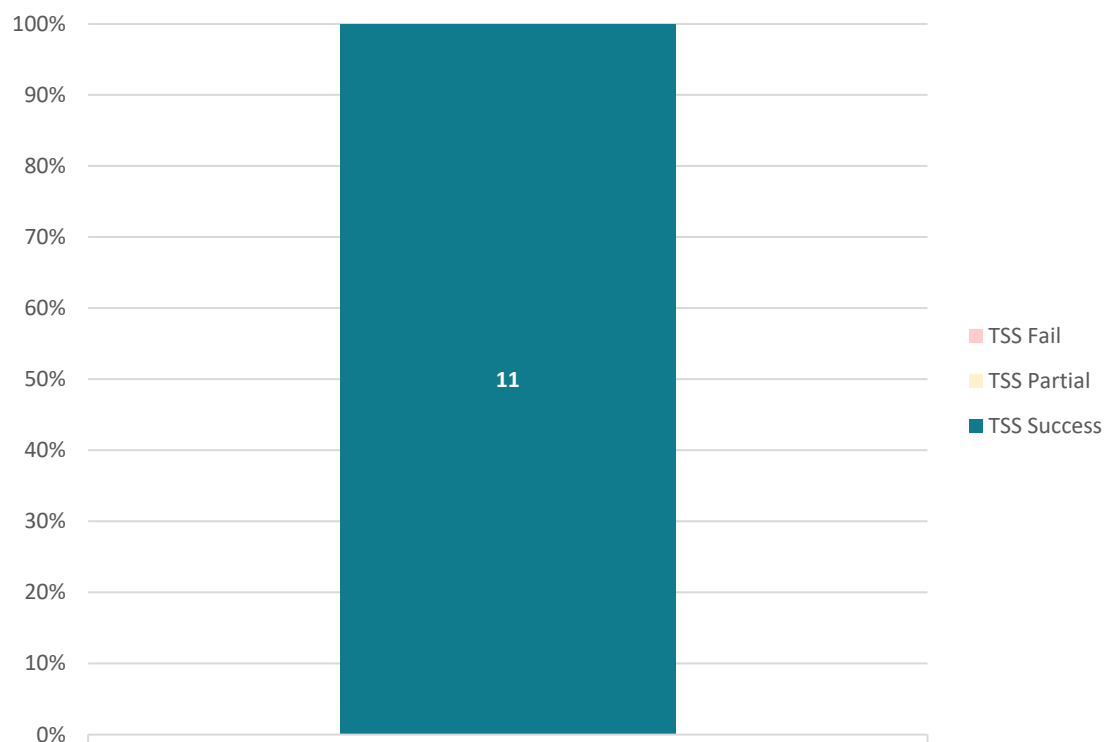



Figure 3.114: Recyclability module -Visual results of the functional evaluation for user TNO - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.115: Recyclability module -Tabular results of the functional evaluation for user TNO - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.

6. Click the "Details" button next to the recycling routes dropdown menu.

7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Figure 3.116: Recyclability module - Functional evaluation for user TNO - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

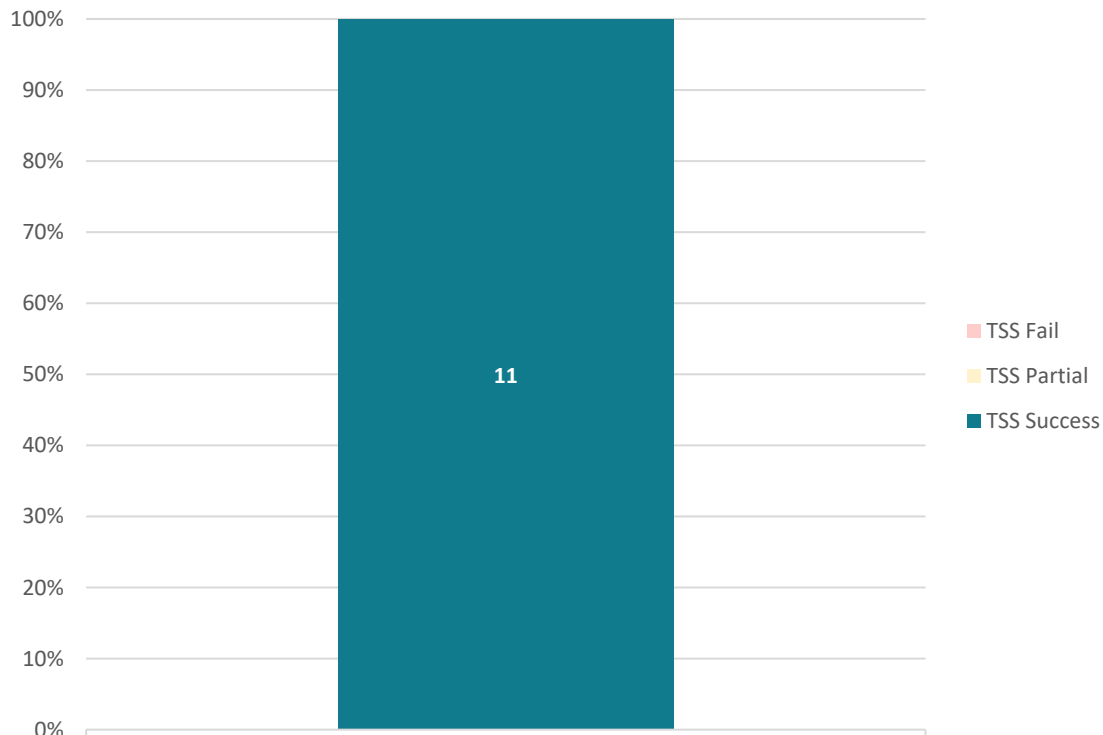


Figure 3.117: Recyclability module - Visual results of the functional evaluation for user TNO - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.118: Recyclability module -Tabular results of the functional evaluation for user TNO - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.5.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.2
Dim.C (Understandability/simplicity)	3.4
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.6
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.3

Figure 3.119: Recyclability module – Tabular results of the non-functional assessment for user TNO - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

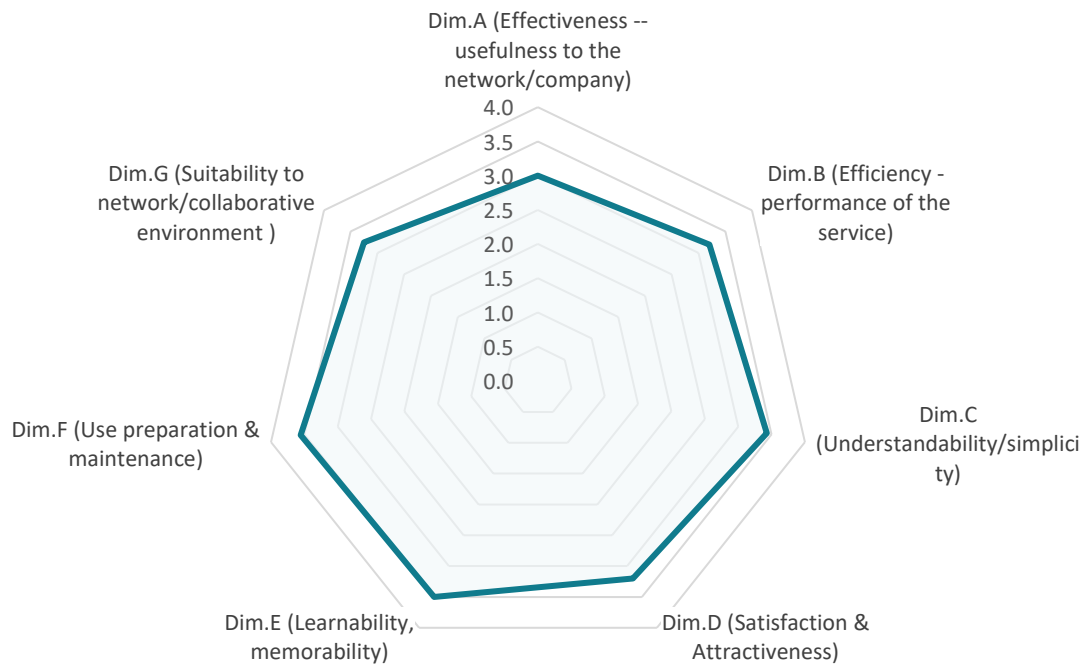


Figure 3.120: Recyclability module – Visual results of the non-functional assessment for user TNO - Homepage

If we consider the non-functional evaluation of the details page a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.6
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.3
Total	3.5

Figure 3.121: Recyclability module – Tabular results of the non-functional assessment for user TNO - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

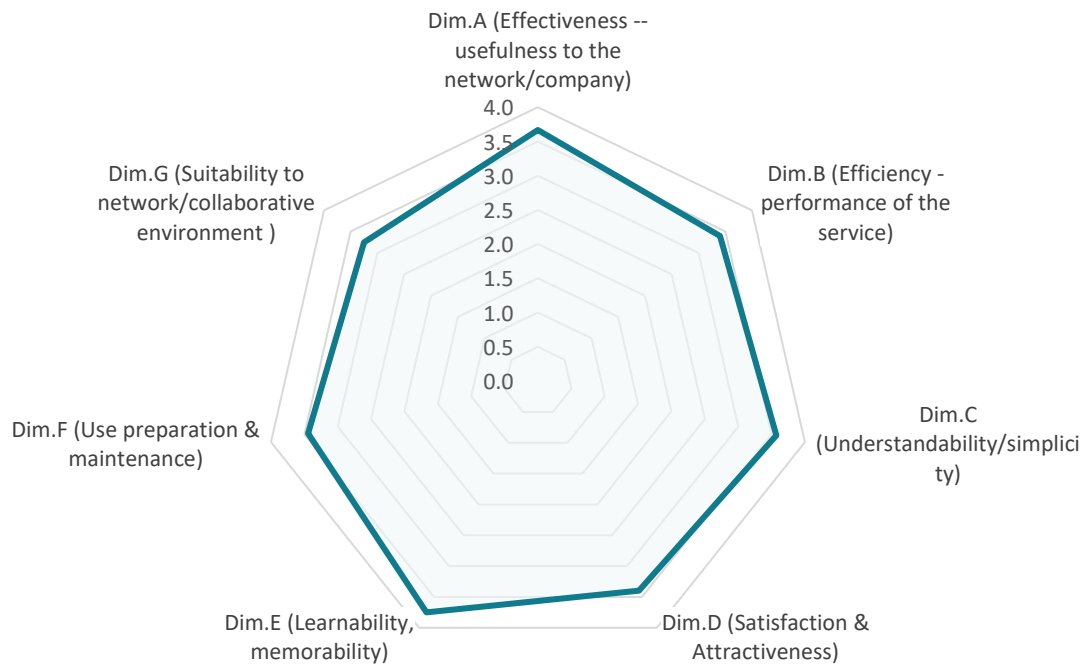


Figure 3.122: Recyclability module – Visual results of the non-functional assessment for user TNO - Details page

3.2.6 Evaluation tester #6 (UNIVAQ)


3.2.6.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully with only a few remarks. First the need to clarify the description for the “level-2” total label, then to enable comment deletion from the dashboard and finally to better clarify a placeholder message when no recycling routes are present.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References					
Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Nicolò Maria Ippolito (UNIVAQ technical/academy)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	11	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	Why does 'infotainment unit' at level 2-total?	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		PARTIAL	For the steel processing route at level 1 no recycling rates are shown	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	The comment can't be delete	

Figure 3.123: Recyclability module - Functional evaluation for user UNIVAQ - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

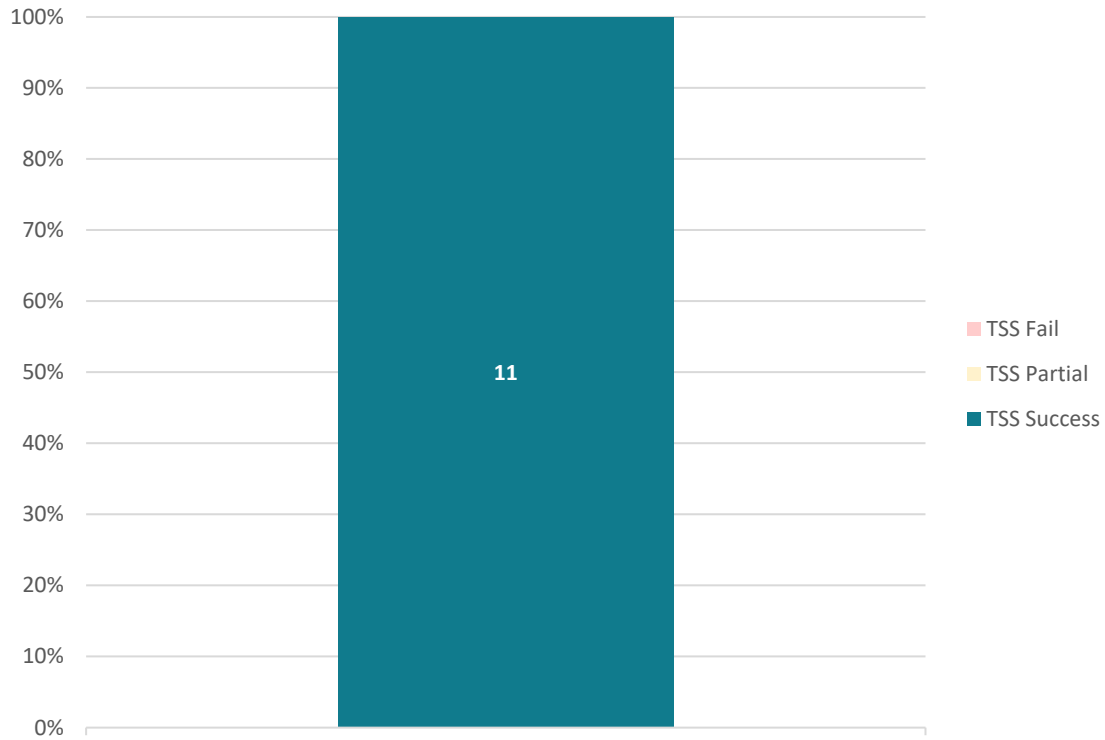



Figure 3.124: Recyclability module -Visual results of the functional evaluation for user UNIVAQ - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.125: Recyclability module -Tabular results of the functional evaluation for user UNIVAQ - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ technical/academy)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.

6. Click the "Details" button next to the recycling routes dropdown menu.

7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Figure 3.126: Recyclability module - Functional evaluation for user UNIVAQ - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

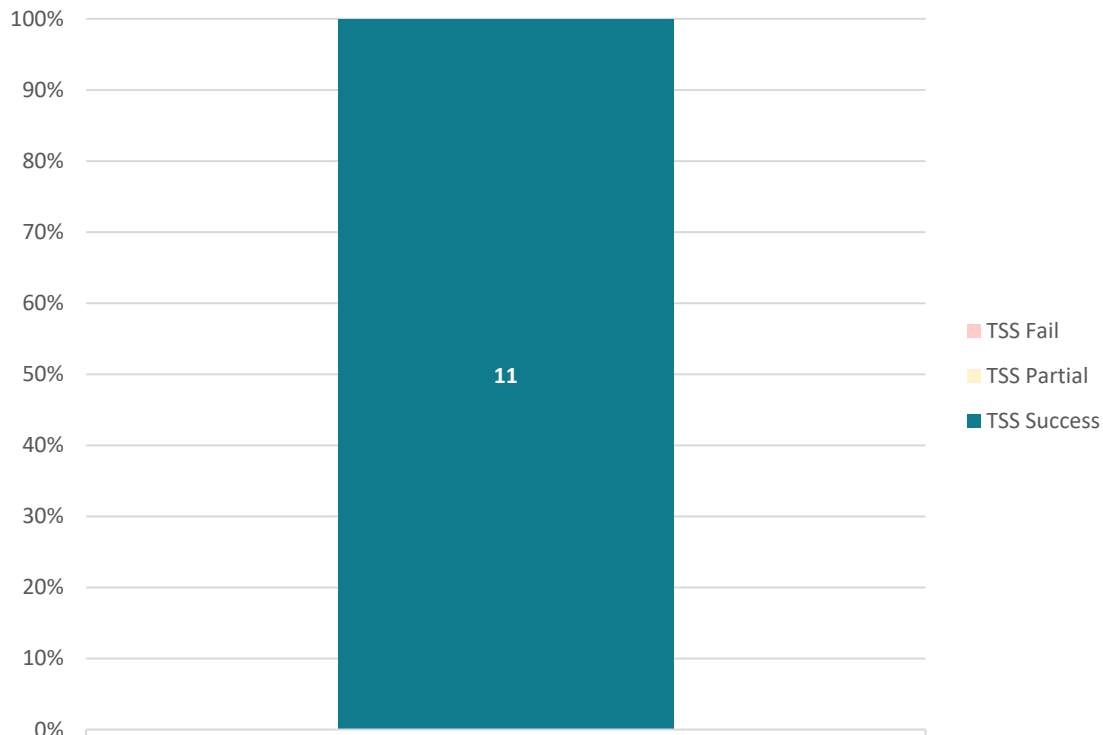


Figure 3.127: Recyclability module - Visual results of the functional evaluation for user UNIVAQ - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.128: Recyclability module -Tabular results of the functional evaluation for user UNIVAQ - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.6.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a full score has been achieved by simplicity, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Figure 3.129: Recyclability module – Tabular results of the non-functional assessment for user UNIVAQ - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

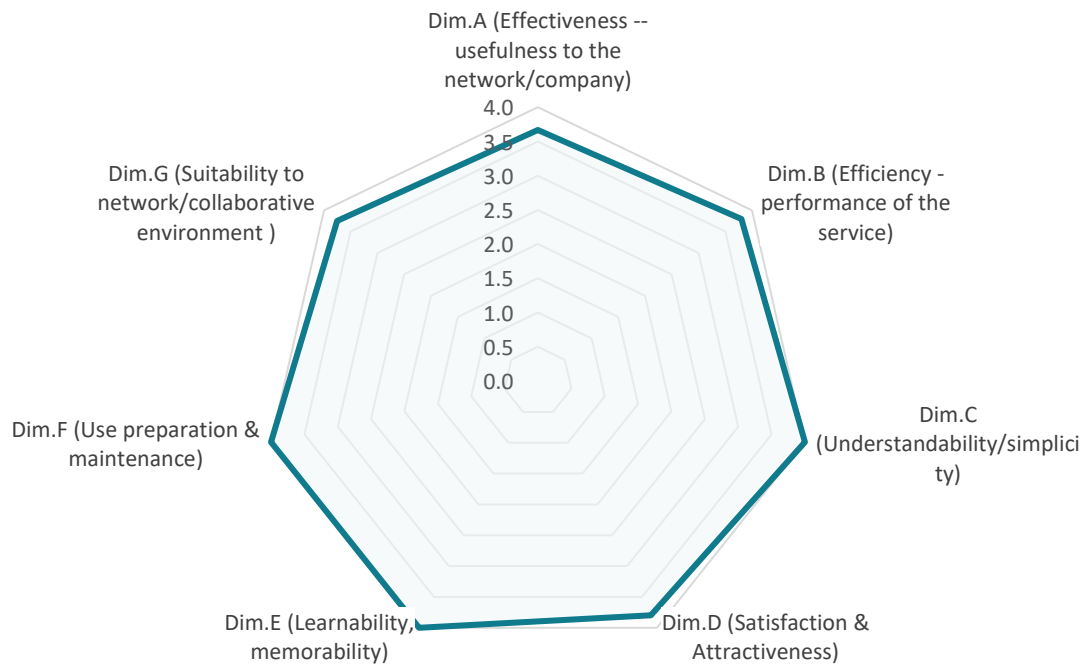


Figure 3.130: Recyclability module – Visual results of the non-functional assessment for user UNIVAQ - Homepage

If we consider the non-functional evaluation of the details page full score has been achieved by simplicity, learnability and maintenance, while a reasonable high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Figure 3.131: Recyclability module – Tabular results of the non-functional assessment for user UNIVAQ - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

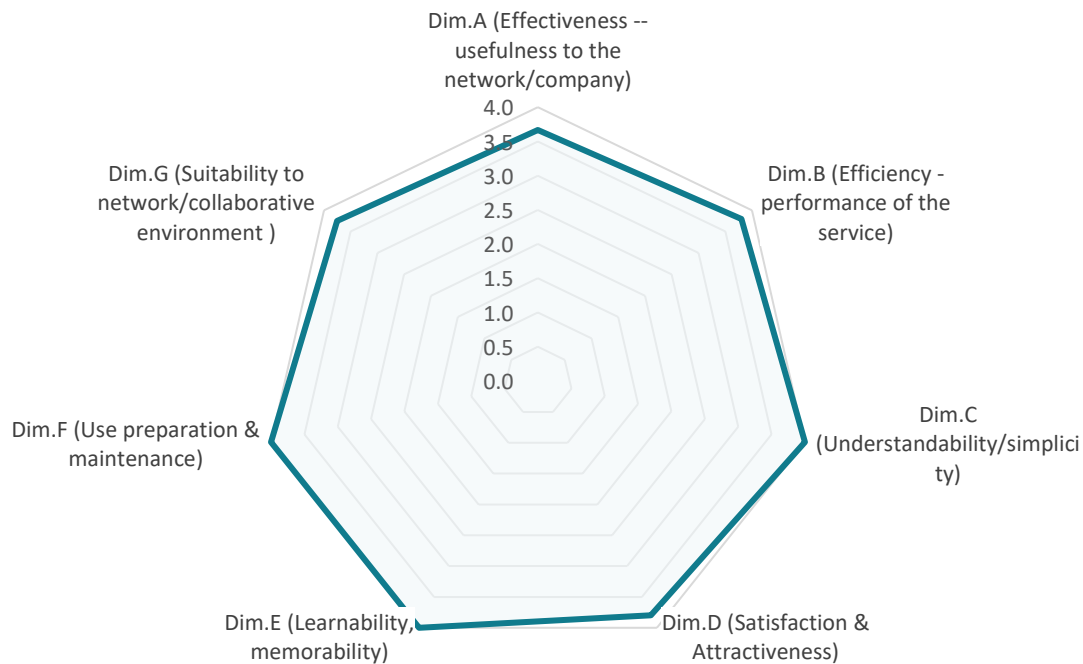


Figure 3.132: Recyclability module – Visual results of the non-functional assessment for user UNIVAQ - Details page

3.2.7 Evaluation tester #7 (WALTERPACK)


3.2.7.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References					
Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{Success}	11	TSS _{Actual}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES		
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button.	The feedback is correctly inserted into the feedbacks table		YES		

Figure 3.133: Recyclability module - Functional evaluation for user WALTEREPACK - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

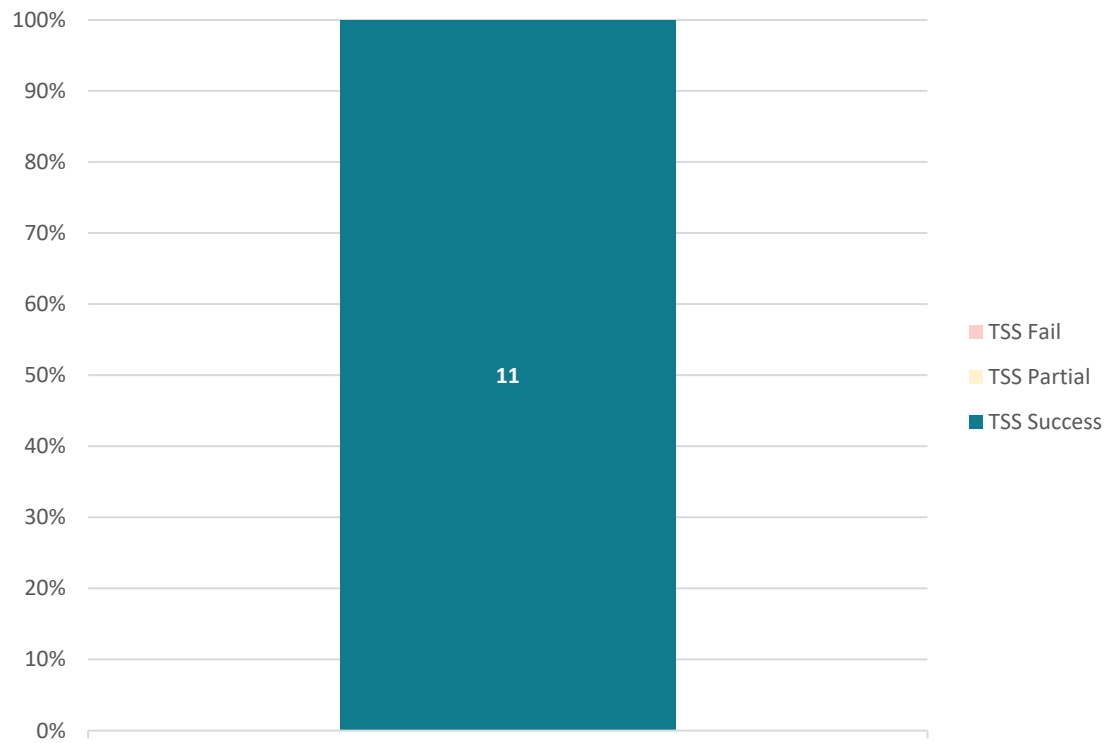



Figure 3.134: Recyclability module -Visual results of the functional evaluation for user WALTERPACK - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.135: Recyclability module -Tabular results of the functional evaluation for user WALTREPACK - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References				
Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform	
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)	
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard			
Test Script				
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section. 6. Click the "Details" button next to the recycling routes dropdown menu. 7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.				
TSS _{Success}	11	TSS _{Partial}	0	TSS _{Fail}
Functionalities		Expected Results	Passed	Remarks
Access to the Circularity Web Platform		Circularity Web Platform shows login page	YES	
Login to the Platform		User successfully logged in	YES	
User redirected to home page		Home page correctly opened	YES	
Search for "combimeter" car part		List of relevant car parts shows up	YES	
Select component to visualize		Modules selection page is shown for the selected component	YES	
Click the "OPEN REC" button in the "Recyclability"		Recyclability dashboard is shown for the selected component	YES	
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section		"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu	YES	
Press the "Details" button next to the recycling routes dropdown menu		"Individual recycling rates" page is correctly shown	YES	
Select a recyclability level from the top-right dropdown menu		Recycling rates table correctly displays all the relevant information accounting for the user selection	YES	
Select a recycling route from the second dropdown menu on the right		Recycling rates table correctly displays all the relevant information accounting for the user selection	YES	
Assess the "Rates by recycling route" table		Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route	YES	

Figure 3.136: Recyclability module - Functional evaluation for user WALTERPACK - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

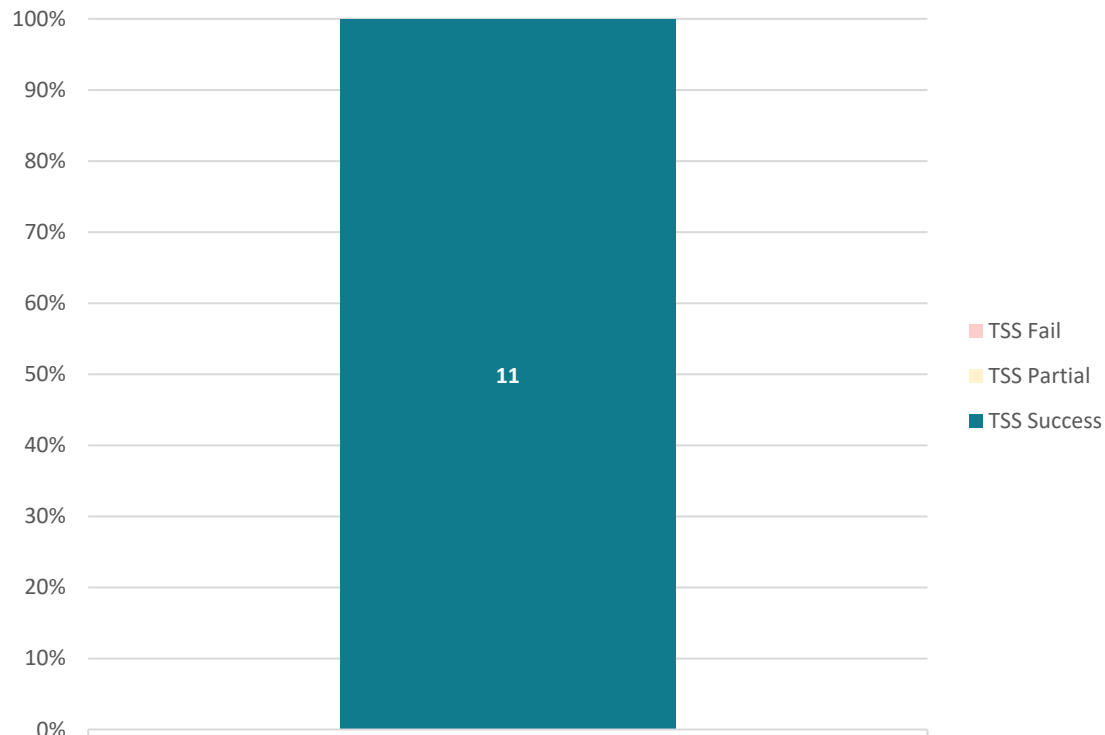


Figure 3.137: Recyclability module - Visual results of the functional evaluation for user WALTERPACK - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.138: Recyclability module -Tabular results of the functional evaluation for user WALTERPACK - Details page

If we consider both tests performed on the Recyclability module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.2.7.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail page that provides additional information on materials recycling rates for the desired recyclability level and recycling route.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to recycling routes.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.9

Figure 3.139: Recyclability module – Tabular results of the non-functional assessment for user WALTERPACK - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

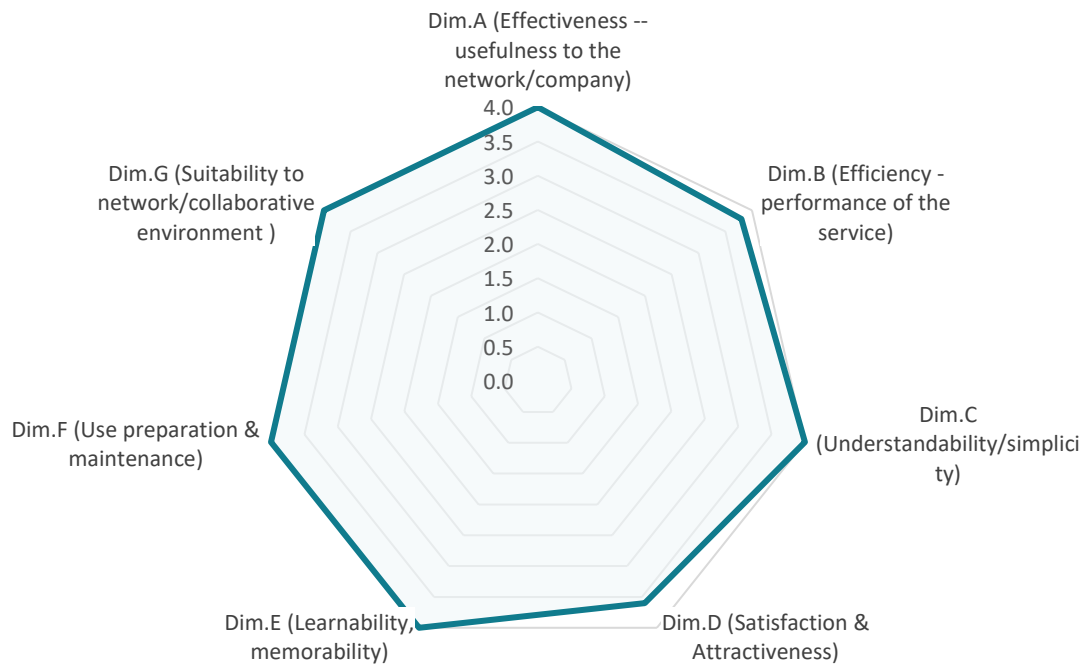


Figure 3.140: Recyclability module – Visual results of the non-functional assessment for user WALTERPACK - Homepage

If we consider the non-functional evaluation of the details page full score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Figure 3.141: Recyclability module – Tabular results of the non-functional assessment for user WALTERPACK - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

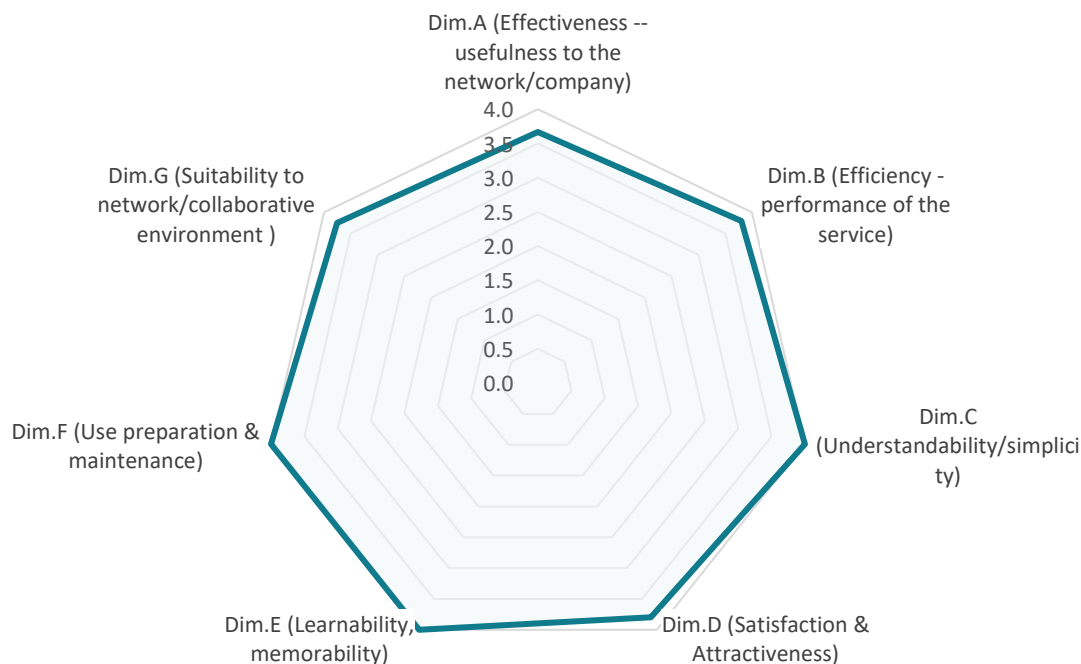


Figure 3.142: Recyclability module – Visual results of the non-functional assessment for user WALTERPACK - Details page

3.2.8 Overall results

3.2.8.1 Functional evaluation

The functional evaluation for the Recyclability module has an overall satisfactory outcome. All evaluation testers reported most, if not all, tests successfully passed with no remarks. As can be seen in the figure below, the total number of TSS success is 154, the total number of TSS partial is 1 and the total number of TSS fail is 0.

Recyclability Module - Overall Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	154
TSS Partial	1
TSS Fail	0

Figure 3.143 - Recyclability Module - Functional evaluation overall results assessment

The only attention point for this module has been raised again by EUROLCDs concerning the home page of the Disassemblability dashboard and it is relative to the “Recycling routes” section. In this section the indication related to the steel analysis has been reported as non-high-quality product from the recyclability assessment and the remark suggest to provide an adequate explanation concerning the motivation behind this classification.

3.2.8.2 Non-functional evaluation

The non-functional evaluation for the Recyclability module has an overall satisfactory outcome.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	3.6
Dim.B (Efficiency - performance of the service)	3.7
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.7
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.7
	Total
	3.7

Figure 3.144: Recyclability Module - Non-functional evaluation overall results assessment

3.3 Eco-Design Module

The Eco-Design module is focused on providing recommendations to car manufacturers with the aim at improving vehicle design to improve car parts recyclability. Like the previous modules, the Eco-design module is composed of the homepage and a series of detail pages (for both metals and plastics) that provides additional information on the material composition of the car part/component.

The tests have been carried out for each type of user foreseen in this platform module, as follows:

- The regular user with visualization only mode for the Eco-design module: the user can only see the platform content related to the standard eco-design dashboards, as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the Circular Advisory dashboards is foreseen for this type of user.

3.3.1 Evaluation tester #1 (EUROLCDs)

3.3.1.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		PARTIAL		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Figure 3.145: Eco-design module - Functional evaluation for user EUROLCDs - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

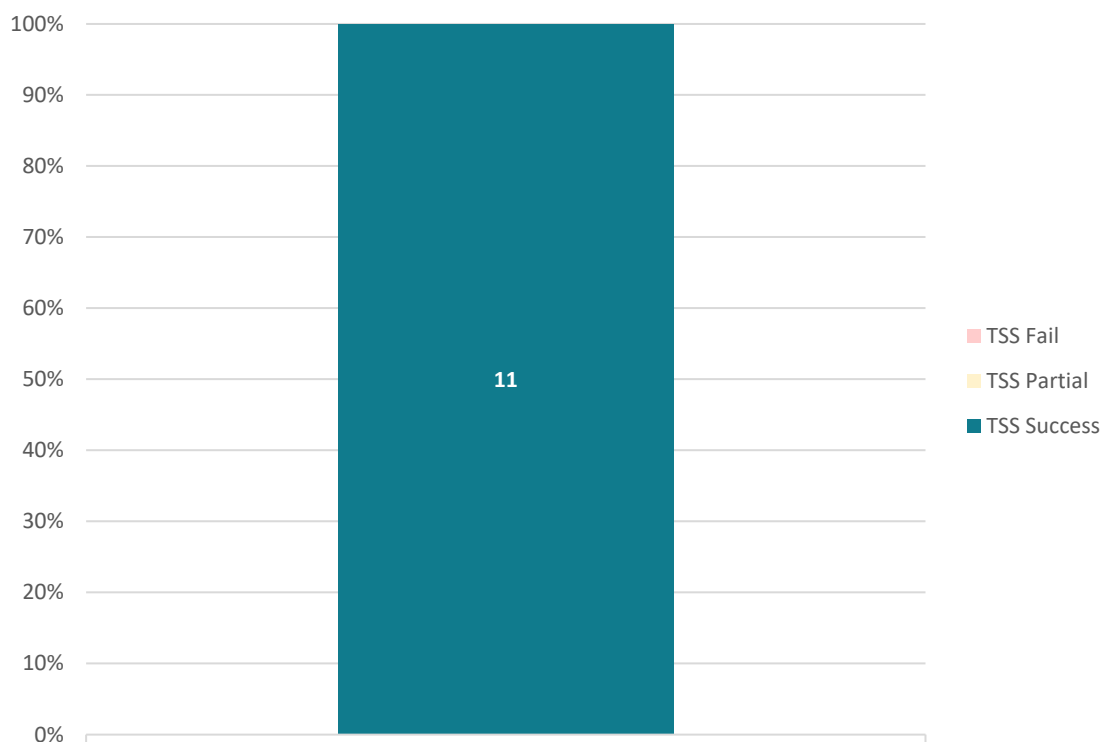


Figure 3.146: Eco-design module -Visual results of the functional evaluation for user EUROLCDs - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.147: Eco-design module -Tabular results of the functional evaluation for user EUROLCDs - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:
5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)
5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Figure 3.148: Eco-design module - Functional evaluation for user EUROLCDs - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

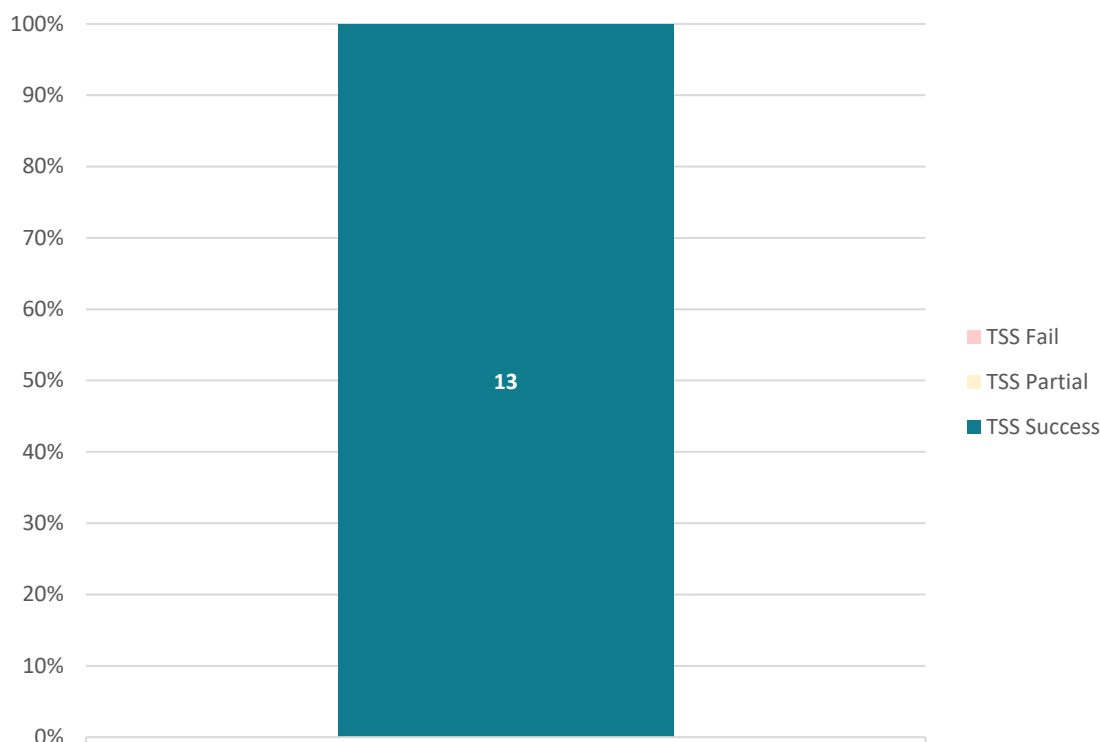


Figure 3.149: Eco-design module -Visual results of the functional evaluation for user EUROLCDs - Details page

Results Assessment	
Functional Dimension	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.150: Eco-design module -Tabular results of the functional evaluation for user EUROLCDs - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.3.1.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by satisfaction and learnability, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.7

Figure 3.151: Eco-design module – Tabular results of the non-functional assessment for user EUOLCDS - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

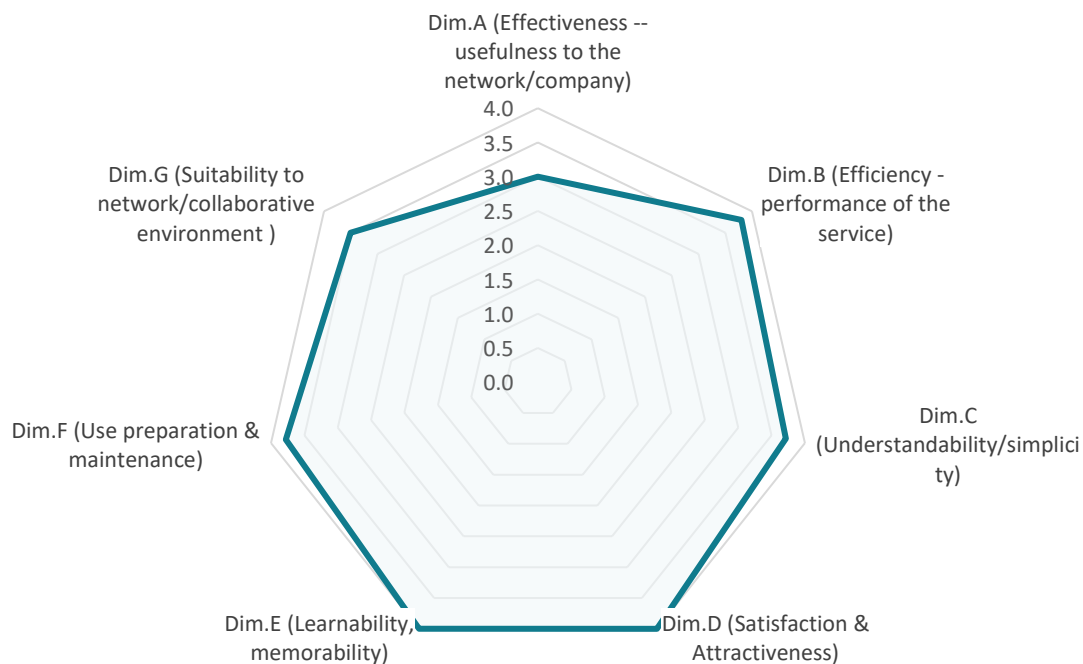


Figure 3.152: Eco-design module – Visual results of the non-functional assessment for user EUOLCDS - Homepage

If we consider the non-functional evaluation of the details page full score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Figure 3.153: Eco-design module – Tabular results of the non-functional assessment for user EUOLCDS - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

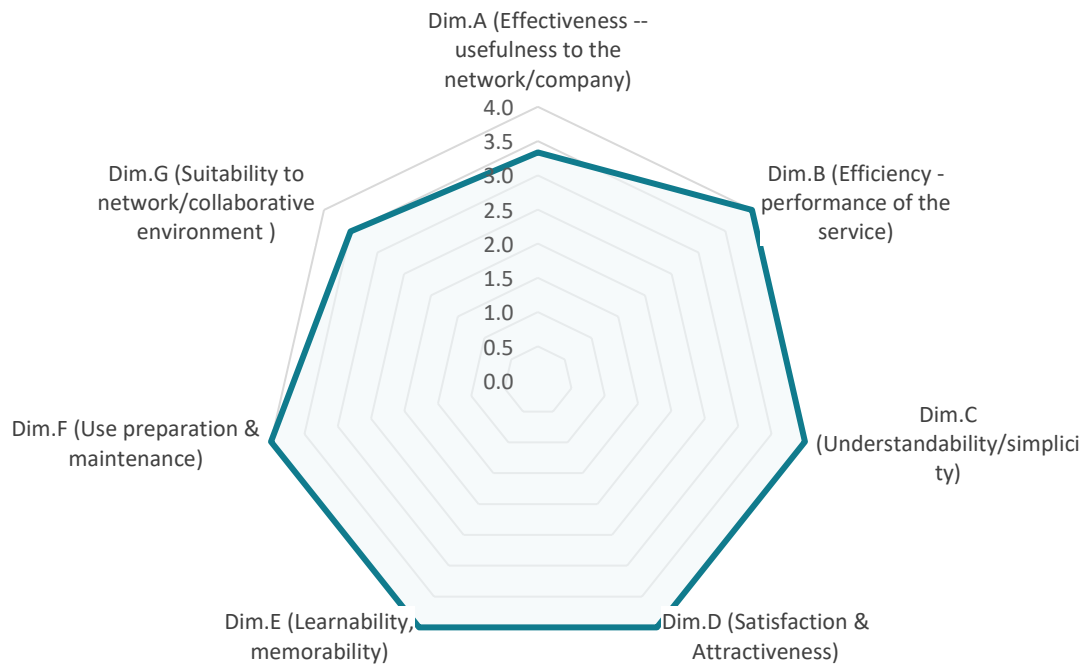


Figure 3.154: Eco-design module – Visual results of the non-functional assessment for user EUROLCDs - Details page

3.3.2 Evaluation tester #2 (ILSSA)


3.3.2.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Ludeña (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN ECO" button in the "Eco-Design Module" card.

5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{Success}	11	TSS _{Actual}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES	No comment	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES	No comment	
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES	No comment	
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES	No comment	
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES	No comment	
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES	No comment	
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES	No comment	
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES	No comment	
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES	No comment	
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES	No comment	

Figure 3.155: Eco-design module - Functional evaluation for user ILSSA - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

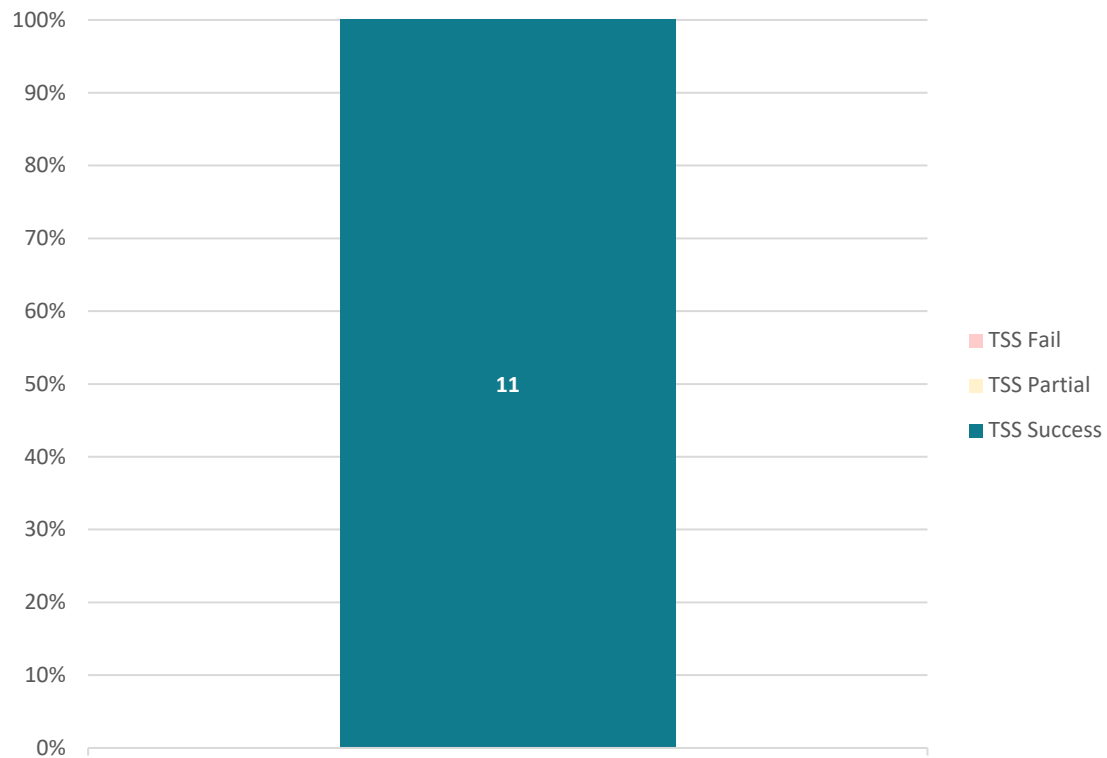



Figure 3.156: Eco-design module -Visual results of the functional evaluation for user ILSSA - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.157: Eco-design module -Tabular results of the functional evaluation for user ILSSA - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Ludueña (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN ECO" button in the "Eco-Design Module" card.

5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.

6. Click the "Details" button above the corresponding chart.

7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct

8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES	No comment	
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES	No comment	
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES	No comment	
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES	No comment	
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES	No comment	
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES	No comment	

Figure 3.158: Eco-design module - Functional evaluation for user ILSSA - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

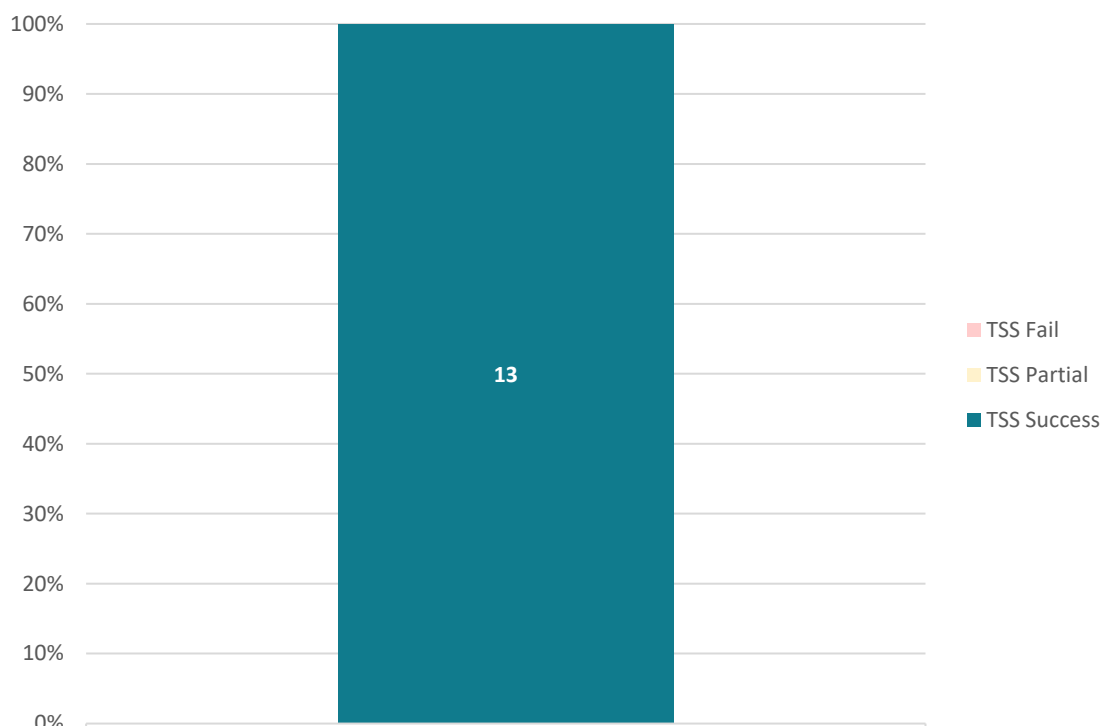


Figure 3.159: Eco-design module -Visual results of the functional evaluation for user ILSSA - Details page

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.160: Eco-design module -Tabular results of the functional evaluation for user ILSSA - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.3.2.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by effectiveness, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.8
Total	3.8

Figure 3.161: Eco-design module – Tabular results of the non-functional assessment for user ILSSA - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

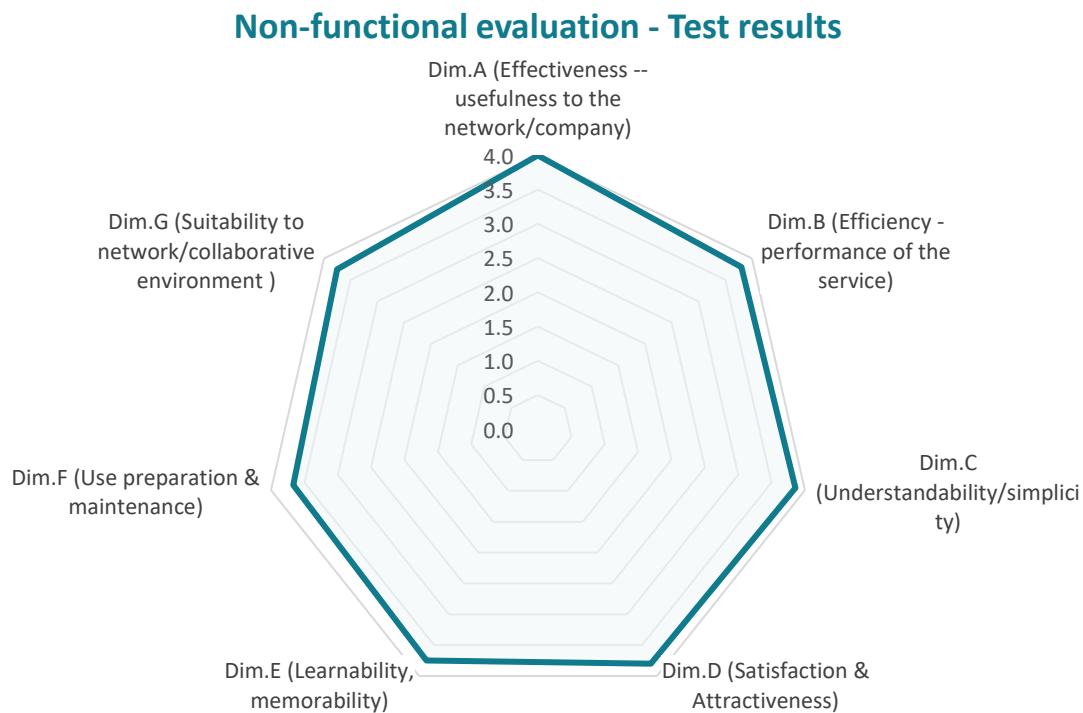


Figure 3.162: Eco-design module – Visual results of the non-functional assessment for user ILSSA - Homepage

If we consider the non-functional evaluation of the details page full score has been achieved by effectiveness and efficiency, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.8
Total	3.8

Figure 3.163: Eco-design module – Tabular results of the non-functional assessment for user ILSSA – Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

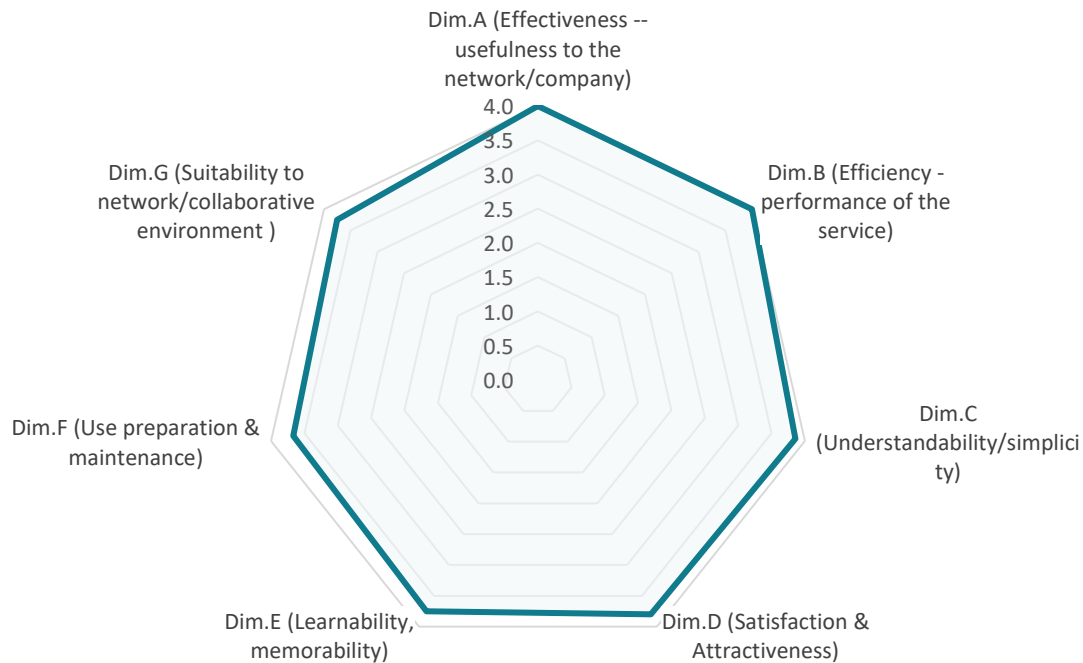


Figure 3.164: Eco-design module – Visual results of the non-functional assessment for user ILSSA – Details page

3.3.3 Evaluation tester #3 (POLLINI)


3.3.3.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN ECO" button in the "Eco-Design Module" card.

5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{Success}	11	TSS _{Actual}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Figure 3.165: Eco-design module - Functional evaluation for user POLLINI - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

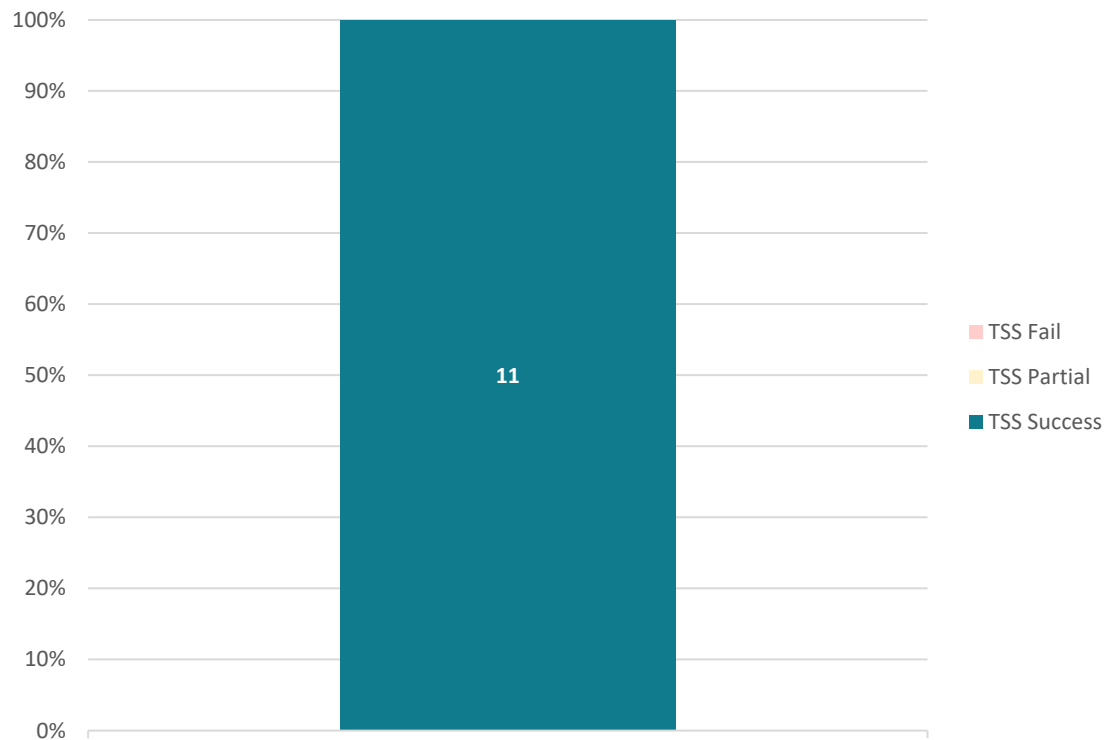


Figure 3.166: Eco-design module -Visual results of the functional evaluation for user POLLINI - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.167: Eco-design module -Tabular results of the functional evaluation for user POLLINI - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:
5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)
5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{process}	13	TSS _{material}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Figure 3.168: Eco-design module - Functional evaluation for user POLLINI - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

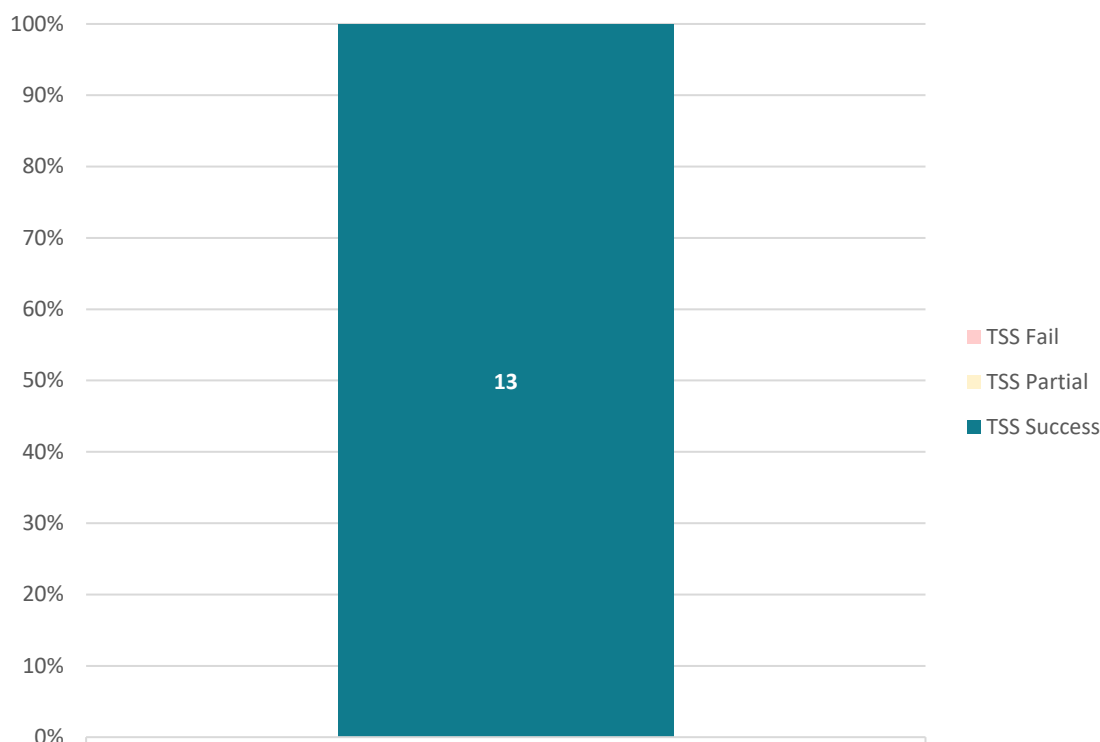


Figure 3.169: Eco-design module -Visual results of the functional evaluation for user POLLINI - Details page

Results Assessment	
Functional Dimension	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.170: Eco-design module -Tabular results of the functional evaluation for user POLLINI - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.3.3.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
Total	4.0

Figure 3.171: Eco-design module – Tabular results of the non-functional assessment for user POLLINI - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

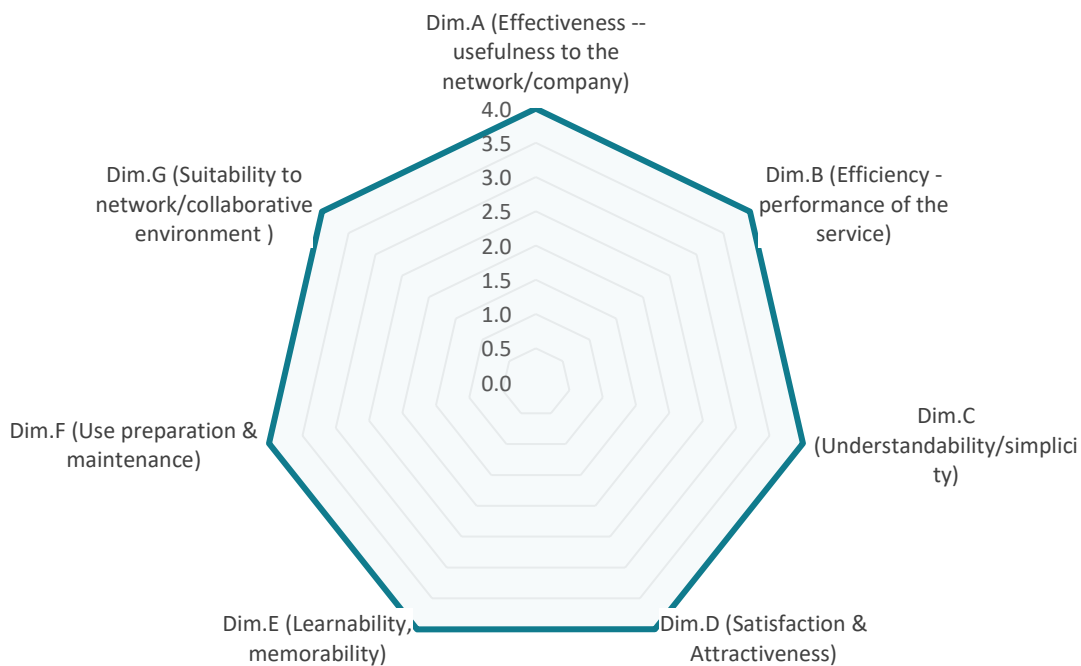


Figure 3.172: Eco-design module – Visual results of the non-functional assessment for user Pollini - Homepage

If we consider the non-functional evaluation of the details page, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
Total	4.0

Figure 3.173: Eco-design module – Tabular results of the non-functional assessment for user POLLINI – Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

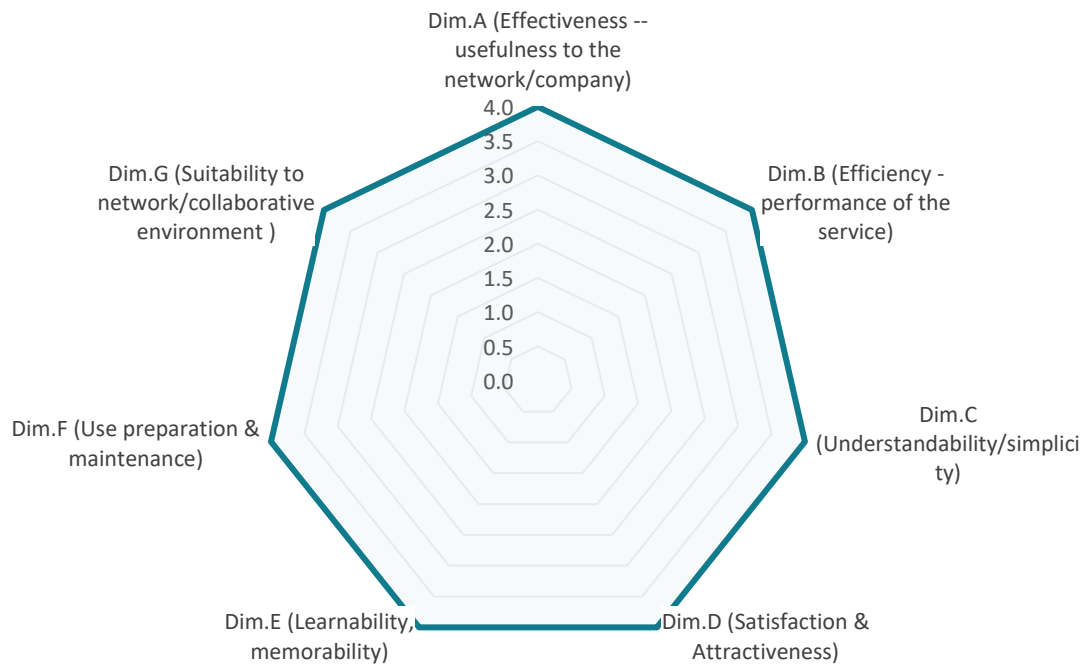


Figure 3.174: Eco-design module – Visual results of the non-functional assessment for user POLLINI – Details page

3.3.4 Evaluation tester #4 (SEAT)


3.3.4.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References					
Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{Success}	11	TSS _{Actual}	0	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Figure 3.175: Eco-design module - Functional evaluation for user SEAT - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

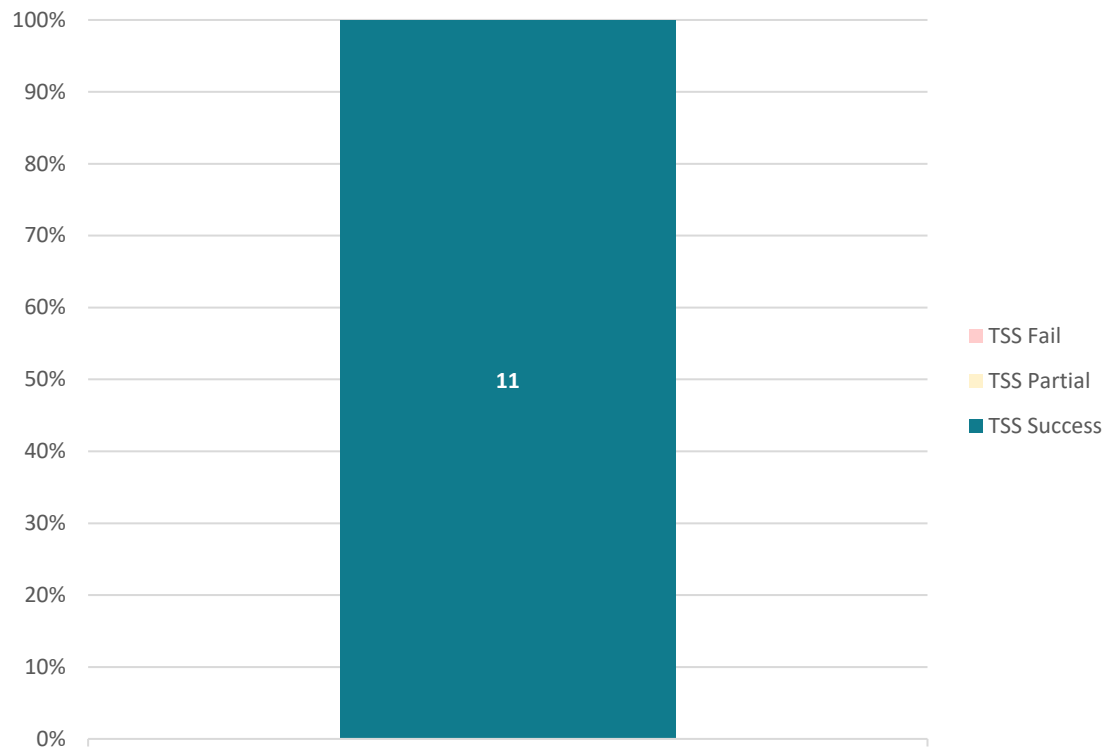



Figure 3.176: Eco-design module -Visual results of the functional evaluation for user SEAT - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.177: Eco-design module -Tabular results of the functional evaluation for user SEAT - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References					
Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform		
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Navigate to the "By weight" sub-section of the "Top 5 metals" section. 6. Click the "Details" button above the corresponding chart. 7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct 8. Export the detailed information in Excel format.					
NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity: 5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03) 5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)					
TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component.		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Figure 3.178: Eco-design module - Functional evaluation for user SEAT - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

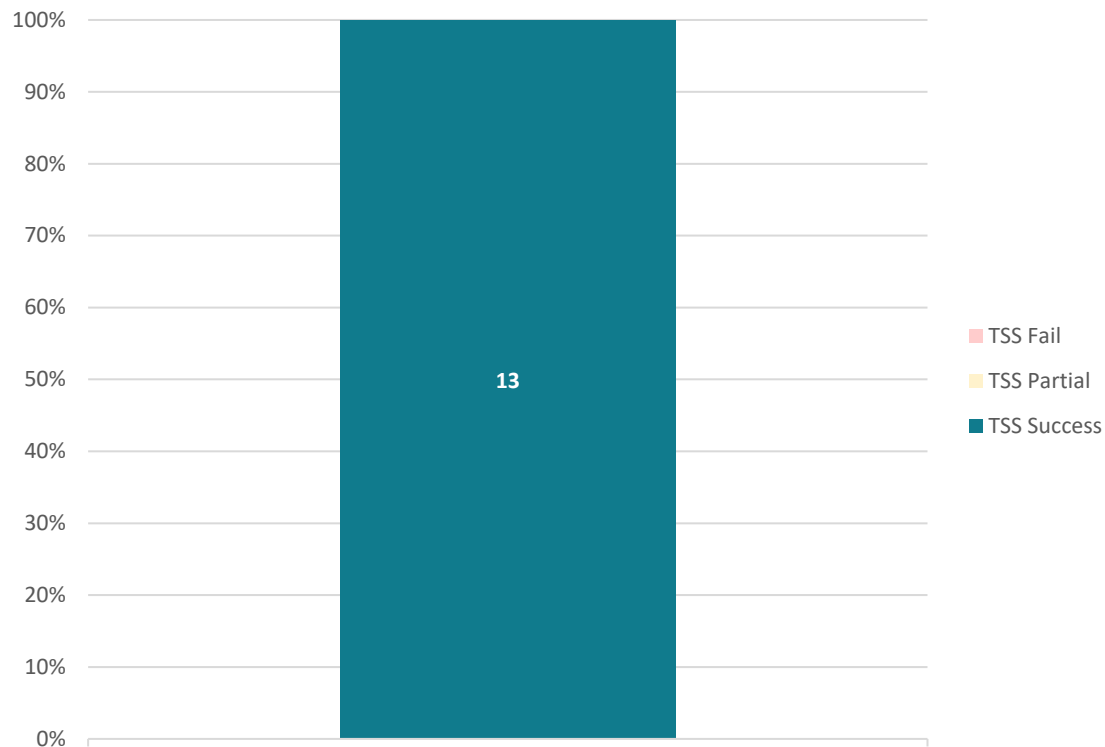


Figure 3.179: Eco-design module -Visual results of the functional evaluation for user SEAT - Details page

Results Assessment	
Functional Dimension	
TSS Results	
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.180: Eco-design module -Tabular results of the functional evaluation for user SEAT - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.3.4.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard. Some attention is instead needed by simplicity.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
Total	3.1

Figure 3.181: Eco-design module – Tabular results of the non-functional assessment for user SEAT - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

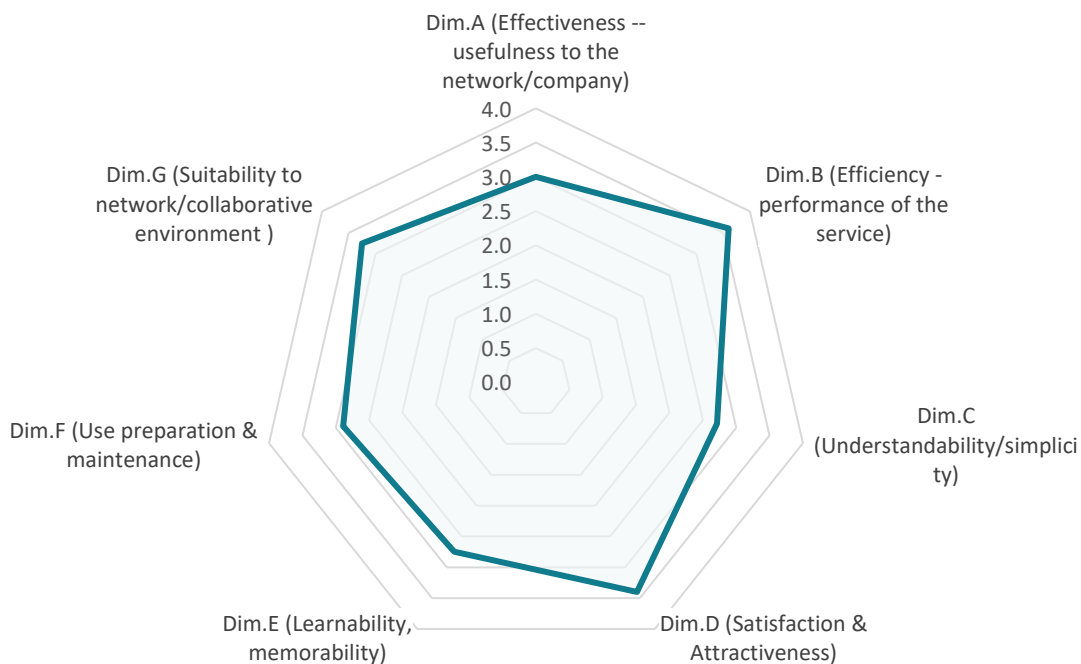


Figure 3.182: Eco-design module – Visual results of the non-functional assessment for user SEAT - Homepage

If we consider the non-functional evaluation of the details page a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.0
Dim.F (Use preparation & maintenance)	3.0
Dim.G (Suitability to network/collaborative environment)	3.0
Total	3.2

Figure 3.183: Eco-design module – Tabular results of the non-functional assessment for user SEAT – Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

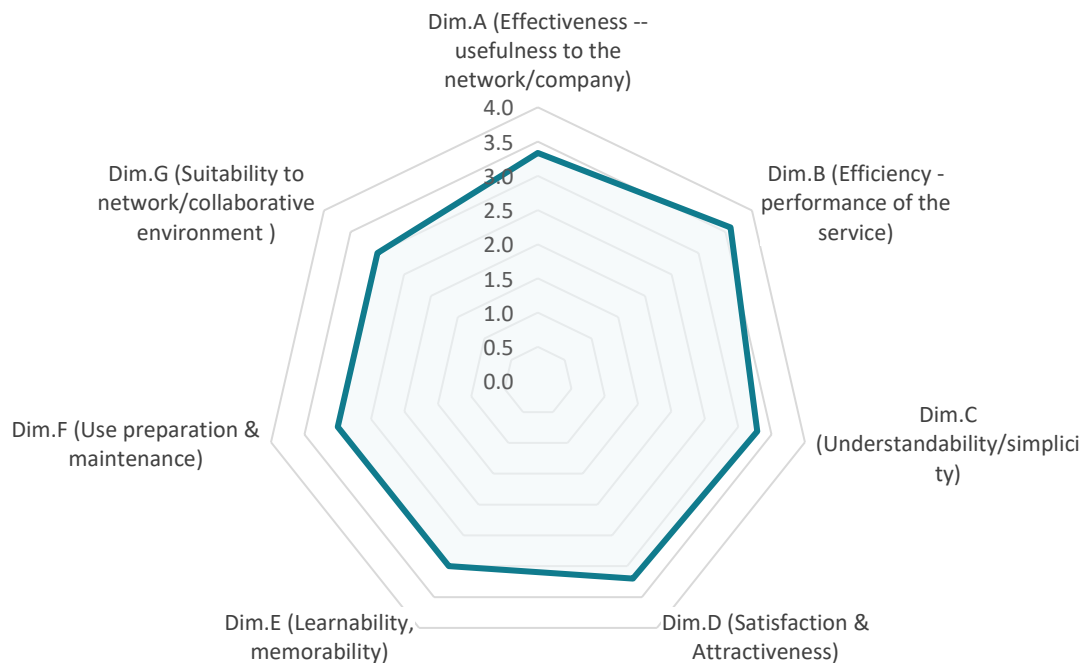


Figure 3.184: Eco-design module – Visual results of the non-functional assessment for user SEAT – Details page

3.3.5 Evaluation tester #5 (TNO)


3.3.5.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References					
Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	11	TSS _{actual}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Figure 3.185: Eco-design module - Functional evaluation for user TNO - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

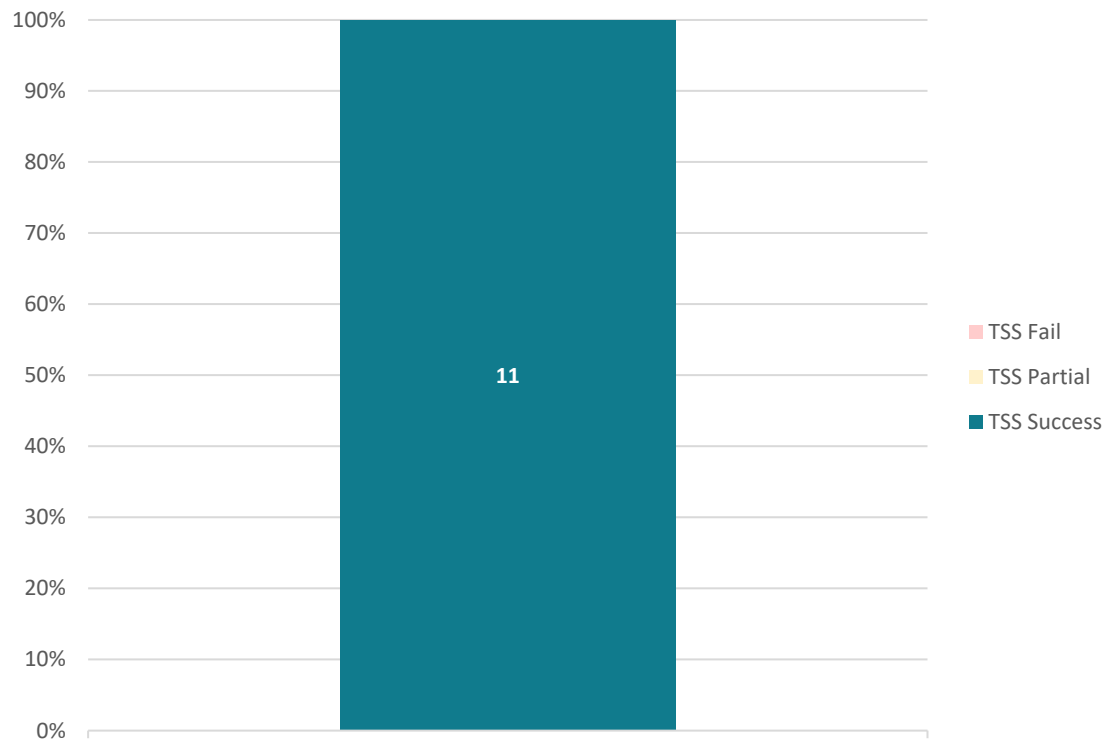


Figure 3.186: Eco-design module -Visual results of the functional evaluation for user TNO - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.187: Eco-design module -Tabular results of the functional evaluation for user TNO - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:
5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)
5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{process}	13	TSS _{material}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Figure 3.188: Eco-design module - Functional evaluation for user TNO - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

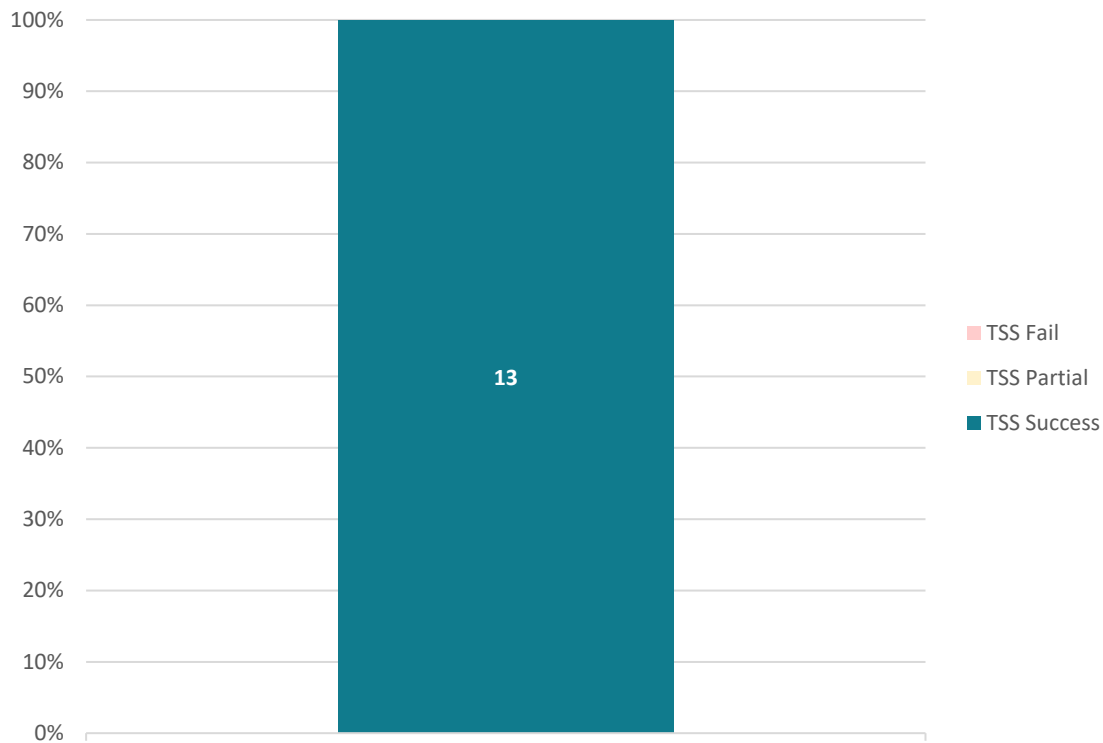


Figure 3.189: Eco-design module -Visual results of the functional evaluation for user TNO - Details page

Results Assessment	
Functional Dimension	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.190: Eco-design module -Tabular results of the functional evaluation for user TNO - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.3.5.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.4
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
Total	3.4

Figure 3.191: Eco-design module – Tabular results of the non-functional assessment for user TNO - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

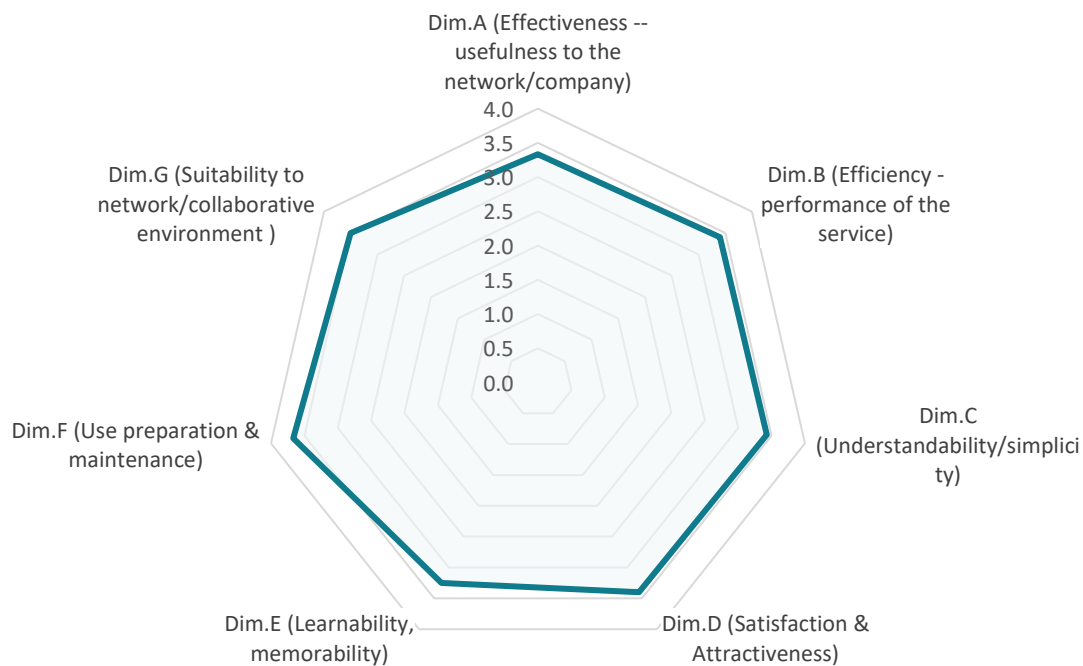


Figure 3.192: Eco-design module – Visual results of the non-functional assessment for user TNO - Homepage

If we consider the non-functional evaluation of the details page a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.2
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.0
Dim.F (Use preparation & maintenance)	3.3
Dim.G (Suitability to network/collaborative environment)	3.3
Total	3.4

Figure 3.193: Eco-design module – Tabular results of the non-functional assessment for user TNO - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

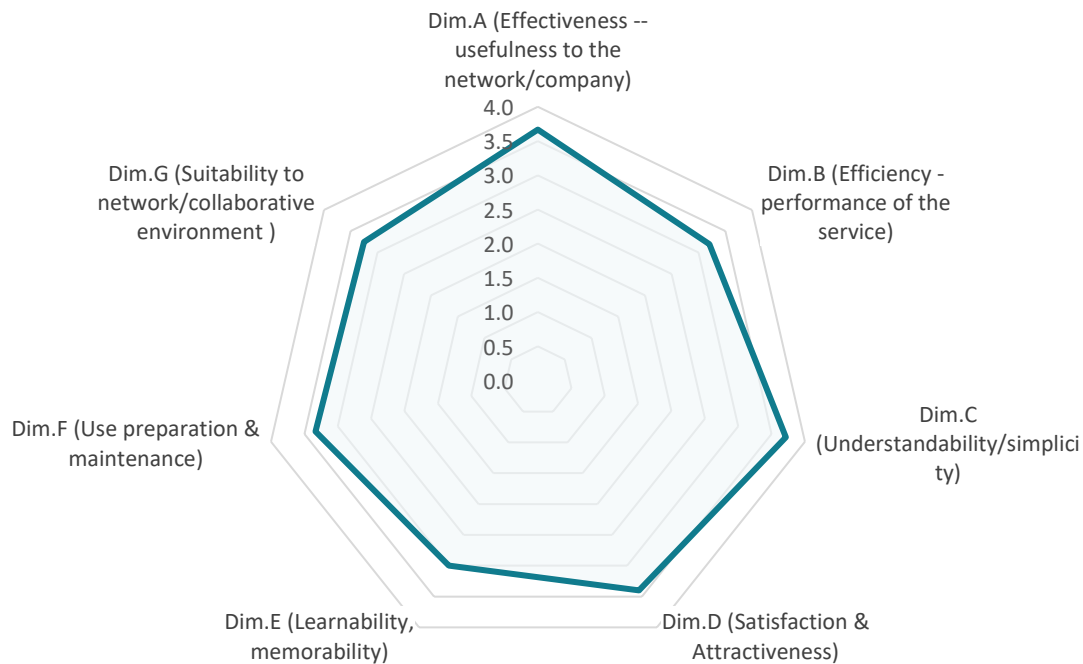


Figure 3.194: Eco-design module – Visual results of the non-functional assessment for user TNO - Details page

3.3.6 Evaluation tester #6 (UNIVAQ)

3.3.6.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a minor remark on the quality of displaying some elements in the ECO dashboard.

TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	10	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		PARTIAL	by thermodynamic rarity Al and Ag are to well displayed	
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Figure 3.195: Eco-design module - Functional evaluation for user UNIVAQ - Homepage

The evaluation shows no TSS fail with only one TSS partial which is related to the thermodynamic rarity remark above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

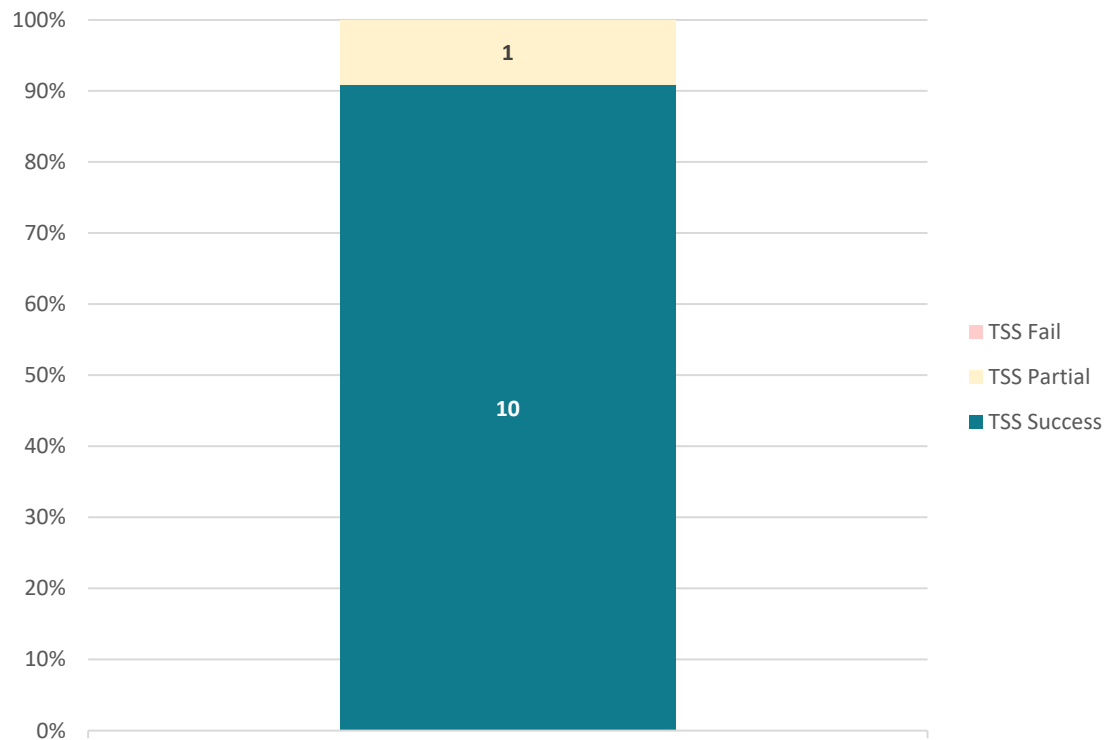



Figure 3.196: Eco-design module -Visual results of the functional evaluation for user UNIVAQ - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	10
TSS Partial	1
TSS Fail	0

Figure 3.197: Eco-design module -Tabular results of the functional evaluation for user UNIVAQ - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN ECO" button in the "Eco-Design Module" card.

5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.

6. Click the "Details" button above the corresponding chart.

7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct

8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	12	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component.		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		PARTIAL	File name is too long and some unit of measure missing	

Figure 3.198: Eco-design module - Functional evaluation for user UNIVAQ - Details page

The evaluation shows no TSS fail with only one TSS partial related to the name of the exported file as mentioned above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

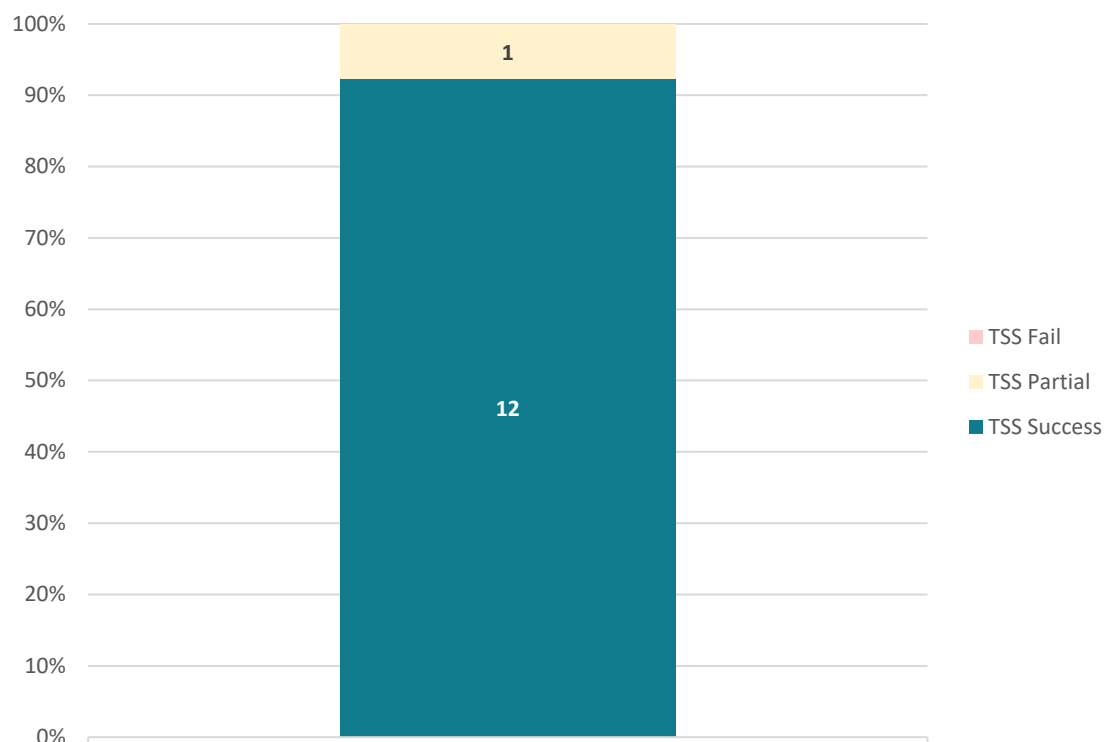


Figure 3.199: Eco-design module -Visual results of the functional evaluation for user UNIVAQ - Details page

Results Assessment	
Functional Dimension	TSS Results
TSS Success	12
TSS Partial	1
TSS Fail	0

Figure 3.200: Eco-design module -Tabular results of the functional evaluation for user UNIVAQ - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and most results are TSS Success.

3.3.6.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by efficiency, learnability and maintenance, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
Total	3.8

Figure 3.201: Eco-design module – Tabular results of the non-functional assessment for user UNIVAQ - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

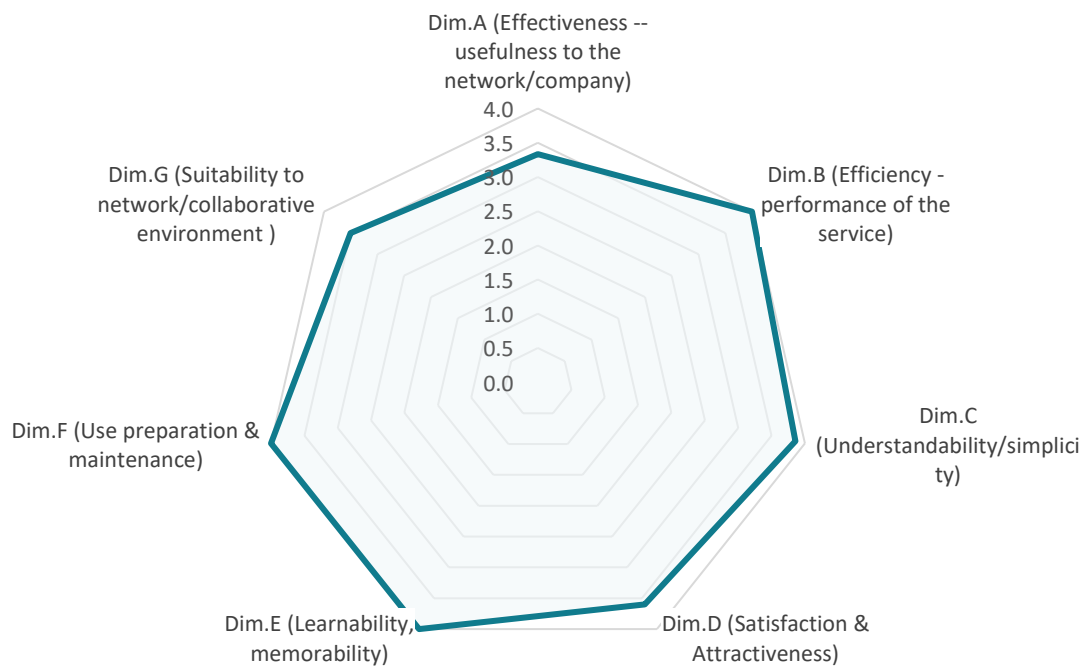


Figure 3.202: Eco-design module – Visual results of the non-functional assessment for user UNIVAQ - Homepage

If we consider the non-functional evaluation of the details page full score has been achieved by maintenance, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
Total	3.8

Figure 3.203: Eco-design module – Tabular results of the non-functional assessment for user UNIVAQ – Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

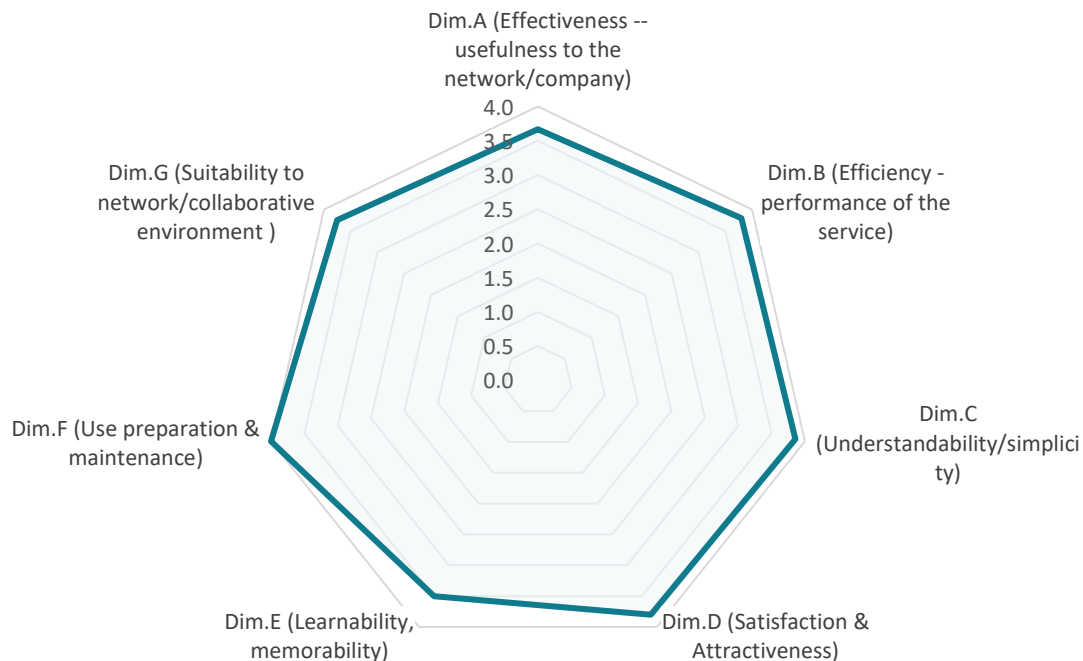


Figure 3.204: Eco-design module – Visual results of the non-functional assessment for user UNIVAQ - Details page

3.3.7 Evaluation tester #7 (WALTERPACK)

3.3.7.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis. A minor remark is provided again underlying the need to improve the chart labels when the data displayed is too small.

TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{expected}	11	TSS _{actual}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES	It's difficult to see clearly the figures of the metals with the lowest weight content	
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Figure 3.205: Eco-design module - Functional evaluation for user WALTERPACK - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

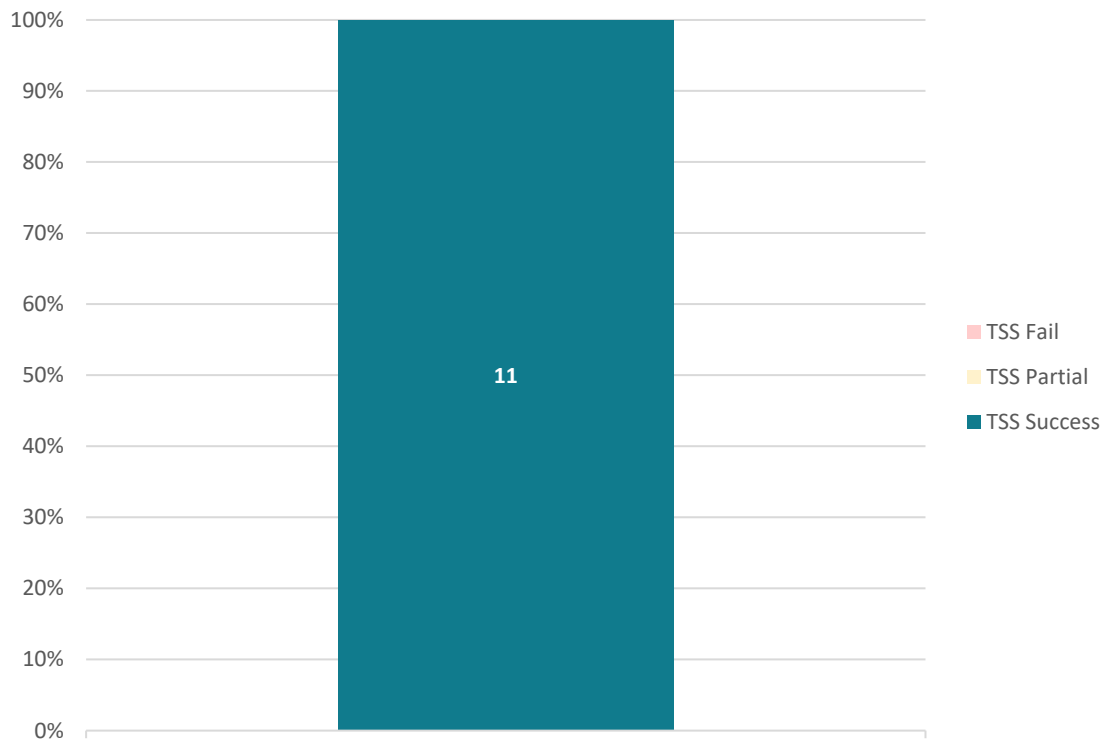



Figure 3.206: Eco-design module -Visual results of the functional evaluation for user WALTERPACK - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.207: Eco-design module -Tabular results of the functional evaluation for user WALTERPACK - Homepage

Concerning the details page, instead the test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis. A minor remark is provided regarding the exported data sheet indicating a mis formatting of some cells.



TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN ECO" button in the "Eco-Design Module" card.

5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.

6. Click the "Details" button above the corresponding chart.

7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct

8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES	The cell format of the excel file is not in %	

Figure 3.208: Eco-design module - Functional evaluation for user WALTERPACK - Details page

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

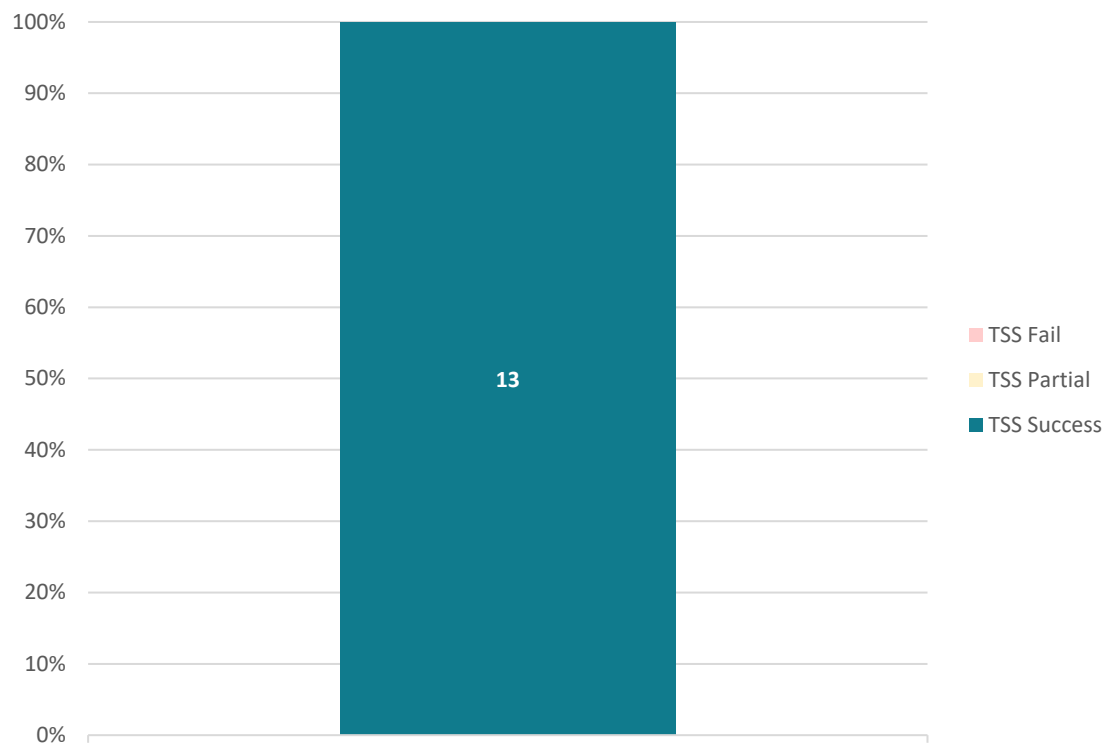


Figure 3.209: Eco-design module -Visual results of the functional evaluation for user WALTERPACK - Details page

Results Assessment	
Functional Dimension	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

Figure 3.210: Eco-design module -Tabular results of the functional evaluation for user WALTERPACK - Details page

If we consider both tests performed on the Eco-design module, the outcomes are satisfactory since no TSS Fail have been registered and all results are TSS Success.

3.3.7.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circularity Web Platform was carried out considering not only the main page of the platform but also the detail pages (for both metals and plastics) that provides additional information on materials composition, origin and more.

The testing tasks concerned the log in phase, and the assessment of the different sections dedicated to metals and plastics characterization, as well as disassemblability metrics and eco-design recommendations.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by all other dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
Total	3.9

Figure 3.211: Eco-design module – Tabular results of the non-functional assessment for user WALTERPACK - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

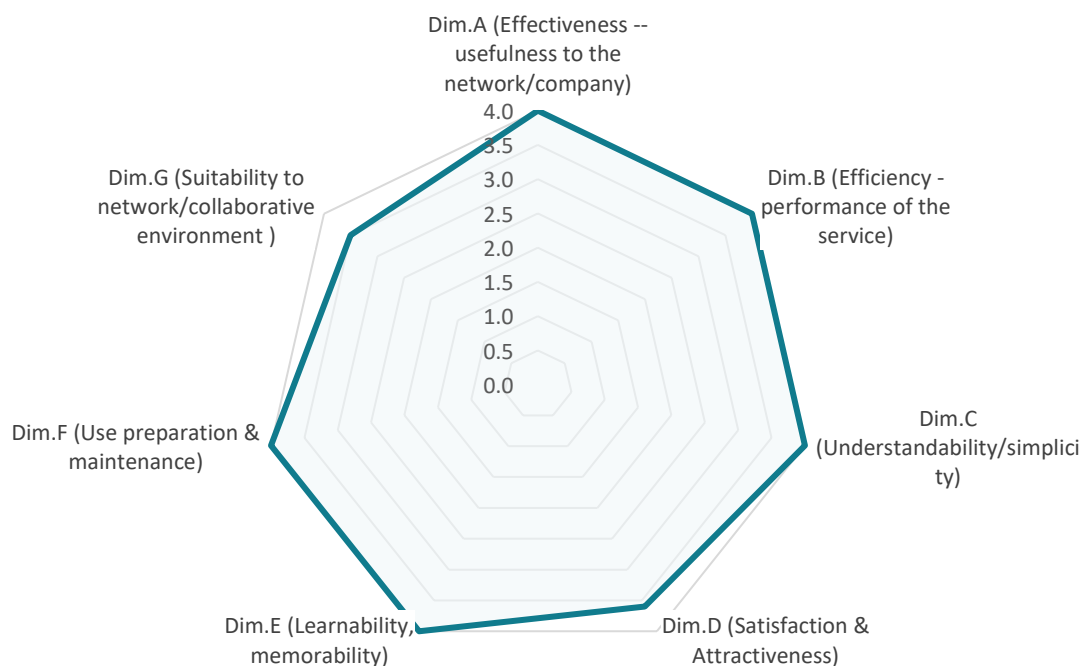


Figure 3.212: Eco-design module – Visual results of the non-functional assessment for user WALTERPACK - Homepage

If we consider the non-functional evaluation of the details page full score has been achieved by simplicity and maintenance, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
Total	3.8

Figure 3.213: Eco-design module – Tabular results of the non-functional assessment for user WALTERPACK - Details page

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

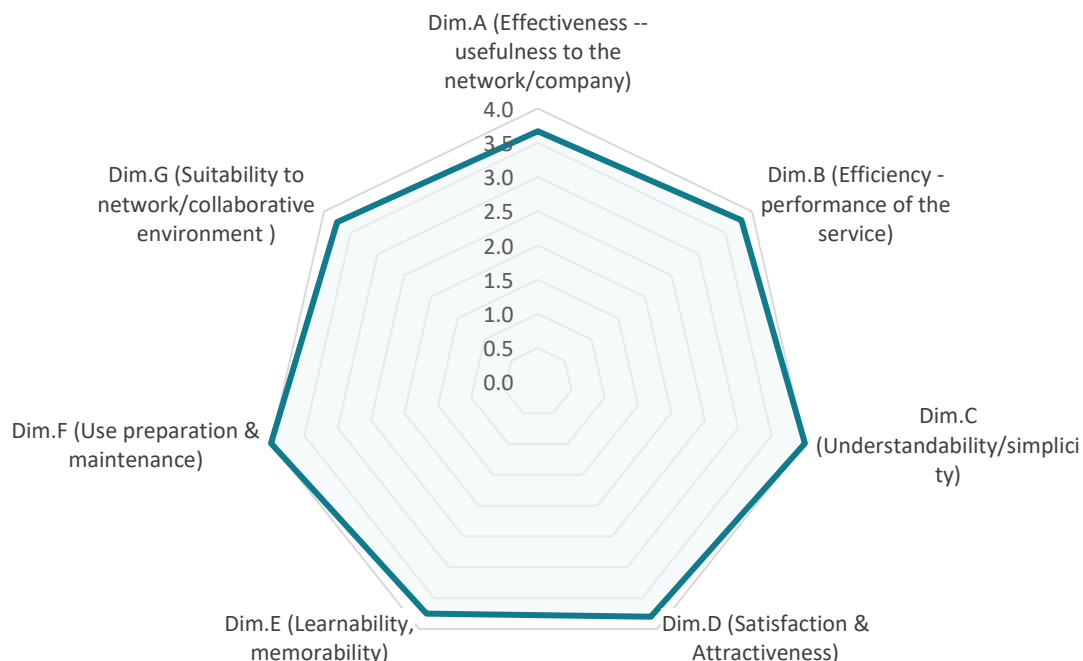


Figure 3.214: Eco-design module – Tabular results of the non-functional assessment for user WALTERPACK - Details page

3.3.8 Overall results

3.3.8.1 Functional evaluation

The functional evaluation for the Eco-design module has an overall satisfactory outcome. All evaluation testers reported most, if not all, tests successfully passed with no remarks. As can be seen in the figure below, the total number of TSS success is 166, the total number of TSS partial is 2 and the total number of TSS fail is 0.

Eco-design Module - Overall Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	166
TSS Partial	2
TSS Fail	0

Figure 3.215 – Eco-design Module - Functional evaluation overall results assessment

The only two attention points for this module have been raised by UNIVAQ:

- In the home page of the Eco-design dashboard, concerning the “Top 5 metals” section and, in particular, to the “Top 5 metals by weight” and “Top 5 metals by thermodynamic rarity” stacked bar charts. The remark suggests improving the

graphical representation of metals that are present in small quantities, as the label for such metals is displayed with a too small size.

- In the details page of the Eco-design dashboard, concerning the information exported in excel format, some fields contain names that are too long and some measurement units, although being present in the platform dashboard, are reported as missing in the exported sheet.

3.3.8.2 Non-functional evaluation

The non-functional evaluation for the Eco-design module has an overall satisfactory outcome.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.6
	Total
	3.8

Figure 3.216: Eco-design Module - Non-functional evaluation overall results assessment

3.4 Circular Advisory Tool

The Circular AI-based advisory tool comprises three modules, similarly to the Circularity Web Platform:

- Disassemblability Advisory Module: provides an assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.
- Recyclability Advisory Module: provides a ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.
- Eco-design Advisory Module: defines the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

The functional and non-functional evaluation process has been performed on all three modules individually and the assessment results are reported in the following sections.

3.4.1 Disassemblability Advisory Module

The Disassemblability Advisory Module: provides an assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

The tests have been carried out for each type of user foreseen in this platform module, as follows:

- The advisory user with visualization mode for the Circular Advisory dashboards: this user can access the three advisory dashboards (Disassemblability Advisory dashboard, Recyclability Advisory dashboard and Eco-design advisory dashboard), as well as the

necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the regular platform dashboards is foreseen for this type of user.

3.4.1.1 Evaluation tester #1 (EUROLCDs)


3.4.1.1.1 Functional Evaluation

The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{passed}	11	TSS _{total}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		YES		
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.217: Disassemblability advisory module - Functional evaluation for user EUROLCDs - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

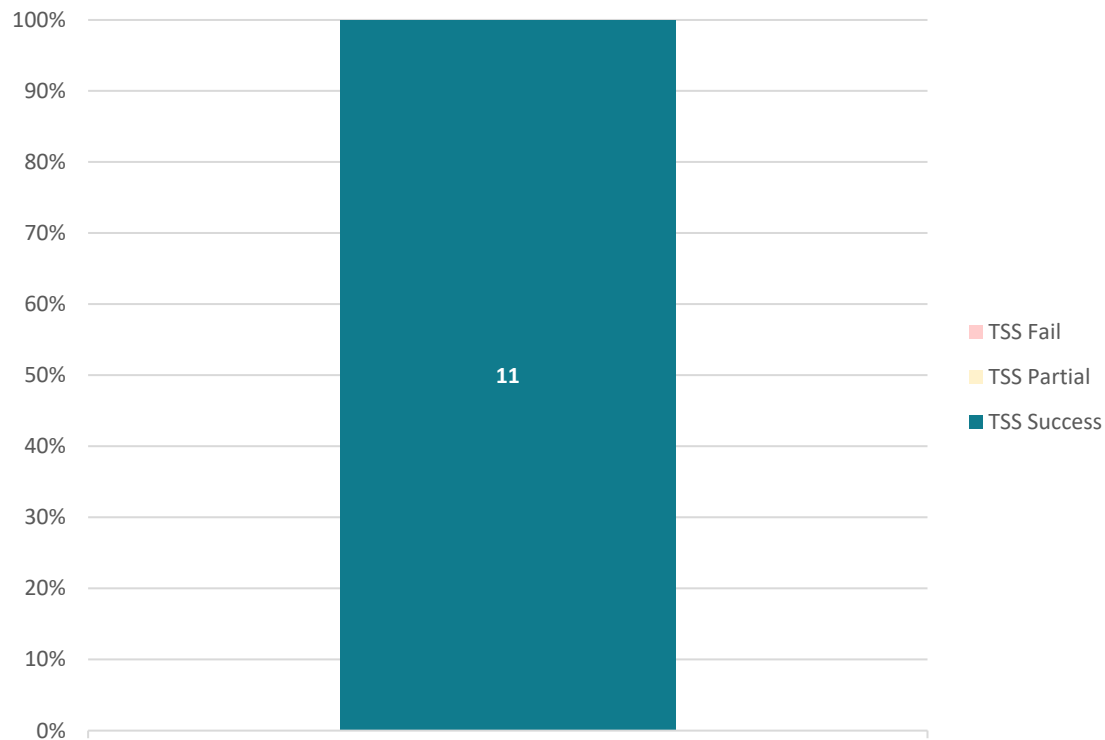


Figure 3.218: Disassemblability advisory module -Visual results of the functional evaluation for user EUROLCDs - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.219: Disassemblability advisory module -Tabular results of the functional evaluation for user EUROLCDs - Homepage

3.4.1.1.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by simplicity and maintenance, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Figure 3.220: Disassemblability advisory module -Tabular results of the non-functional evaluation for user EUROLCDs - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

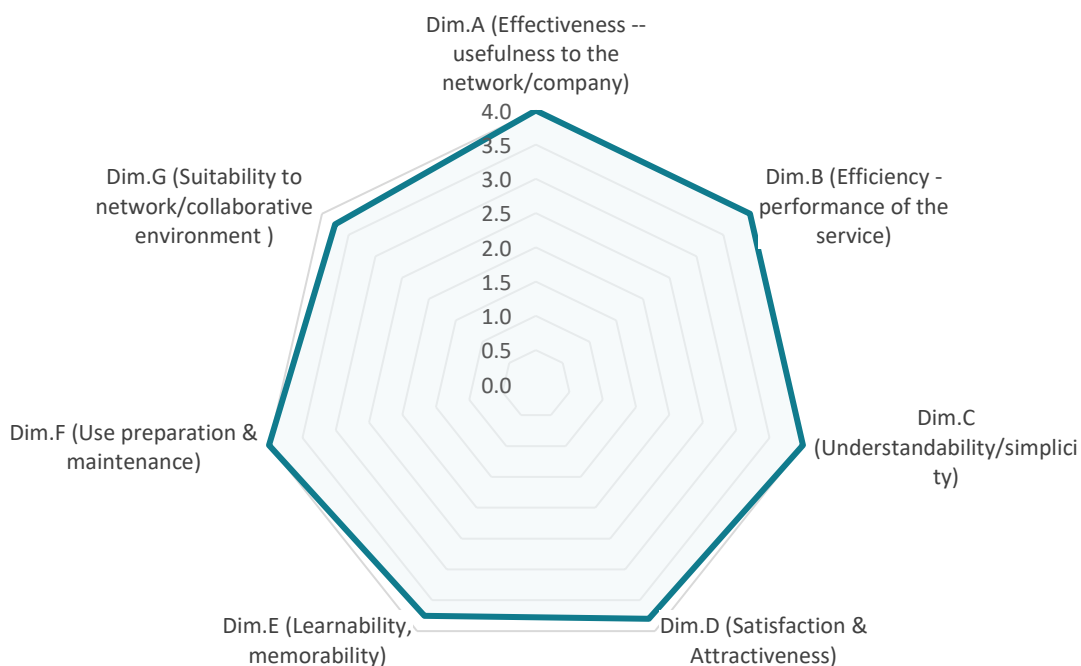


Figure 3.221: Disassemblability advisory module -Visual results of the non-functional evaluation for user EUROLCDs - Homepage

3.4.1.2 Evaluation tester #2 (ILSSA)

3.4.1.2.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Sodano)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassembly Module" card.

5. Click the "Dis advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES	No comment	
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES	No comment	
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES	No comment	
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES	No comment	
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES	No comment	
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES	No comment	
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		YES	No comment	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES	No comment	

Figure 3.222: Disassemblability advisory module - Functional evaluation for user ILSSA - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

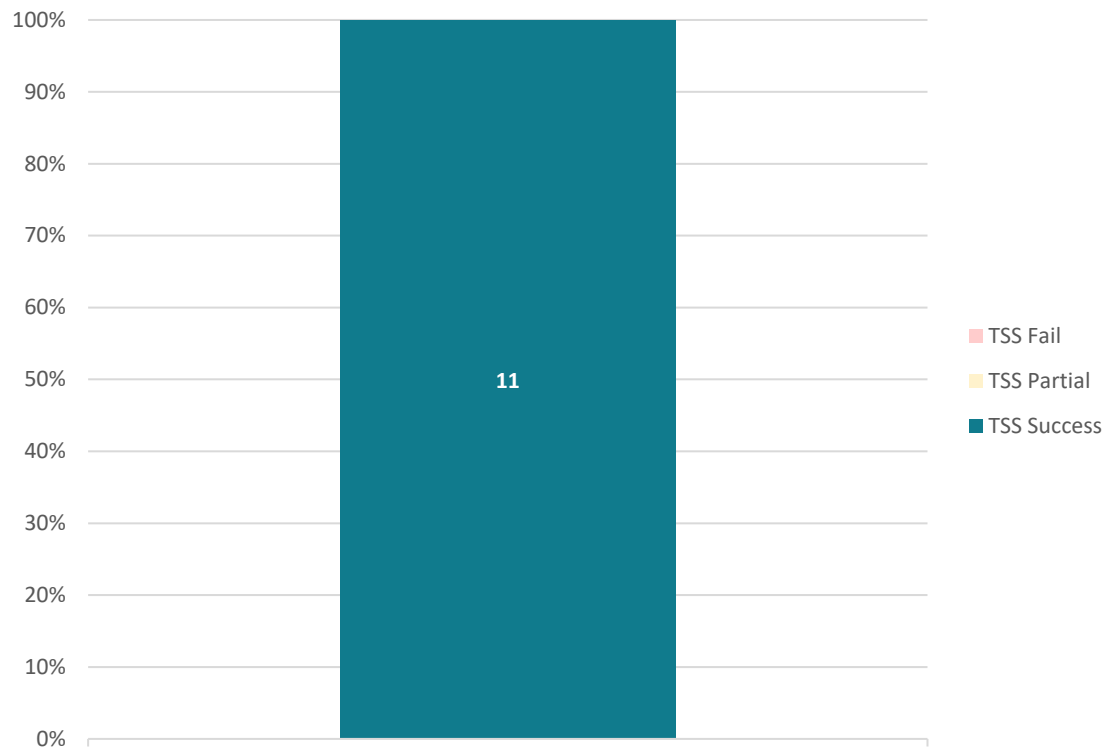


Figure 3.223: Disassemblability advisory module -Visual results of the functional evaluation for user ILSSA - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.224: Disassemblability advisory module -Tabular results of the functional evaluation for user ILSSA - Homepage

3.4.1.2.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by simplicity and memorability, while a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.5
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.7

Figure 3.225: Disassemblability advisory module -Tabular results of the non-functional evaluation for user ILSSA - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

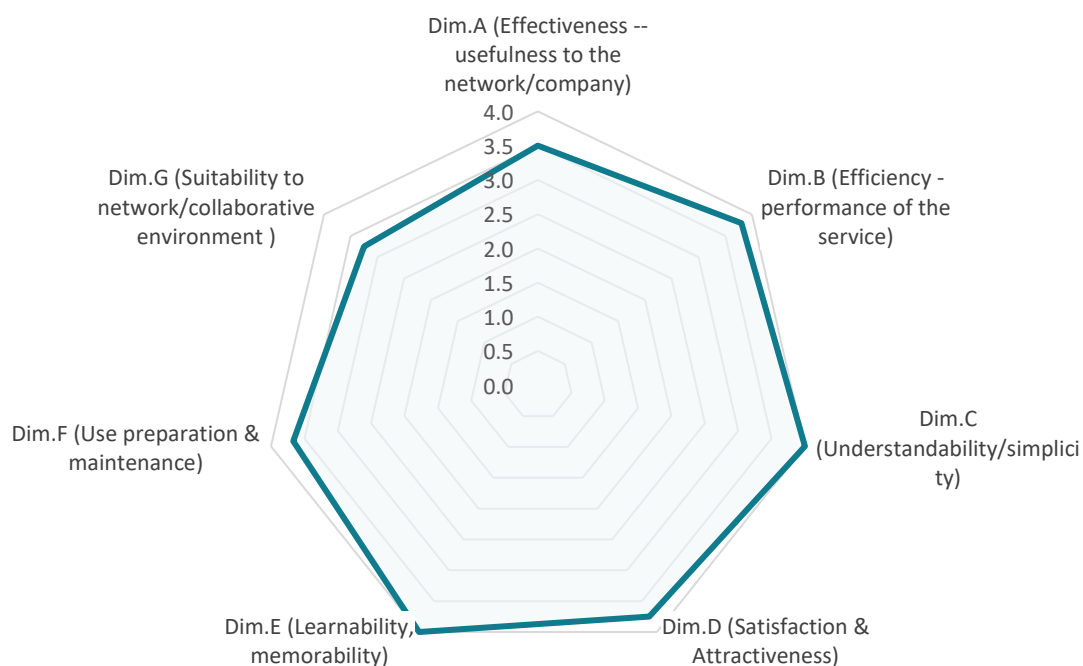


Figure 3.226: Disassemblability advisory module -Tabular results of the non-functional evaluation for user ILSSA - Homepage

3.4.1.3 Evaluation tester #3 (POLLINI)

3.4.1.3.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassembly Module" card.

5. Click the "Dis advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		YES		
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.227: Disassemblability advisory module - Functional evaluation for user POLLINI - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

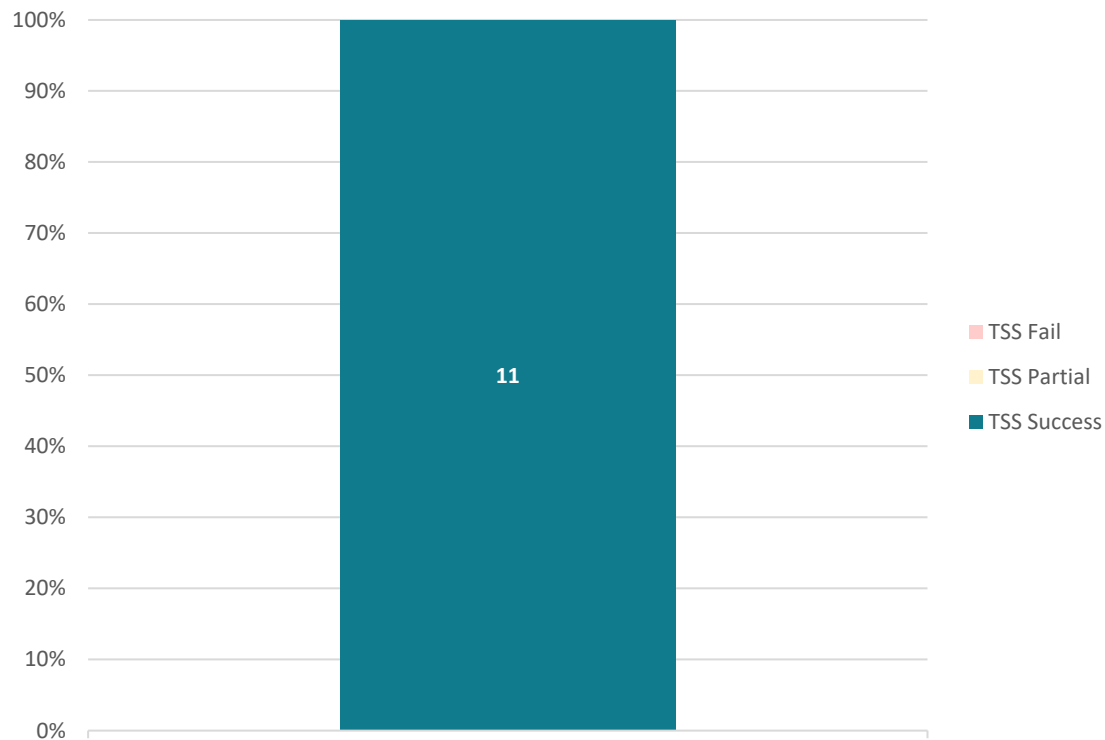


Figure 3.228: Disassemblability advisory module -Visual results of the functional evaluation for user POLLINI - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.229: Disassemblability advisory module -Tabular results of the functional evaluation for user POLLINI - Homepage

3.4.1.3.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
Total	4.0

Figure 3.230: Disassemblability advisory module -Tabular results of the non-functional evaluation for user POLLINI - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

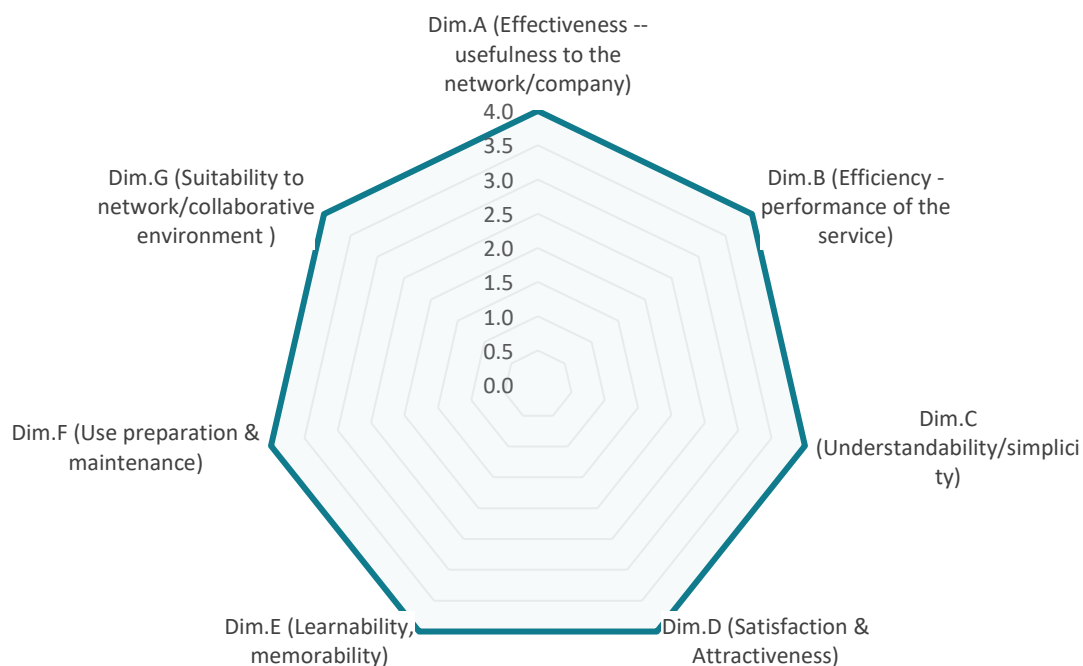


Figure 3.231: Disassemblability advisory module -Visual results of the non-functional evaluation for user POLLINI - Homepage

3.4.1.4 Evaluation tester #4 (SEAT)

3.4.1.4.1 Evaluation user #1

3.4.1.4.1.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a minor remark on the usability of the input field for the thermodynamic rarity and revenue parameters.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	Nuria Fernandez (SEAT) (Technical Conformity-Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)	
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard			

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassembly Module" card.

5. Click the "Dis advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	It is not possible to introduce more than one digit when you want to introduce a	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.232: Disassemblability advisory module - Functional evaluation for user SEAT (tester #1) - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

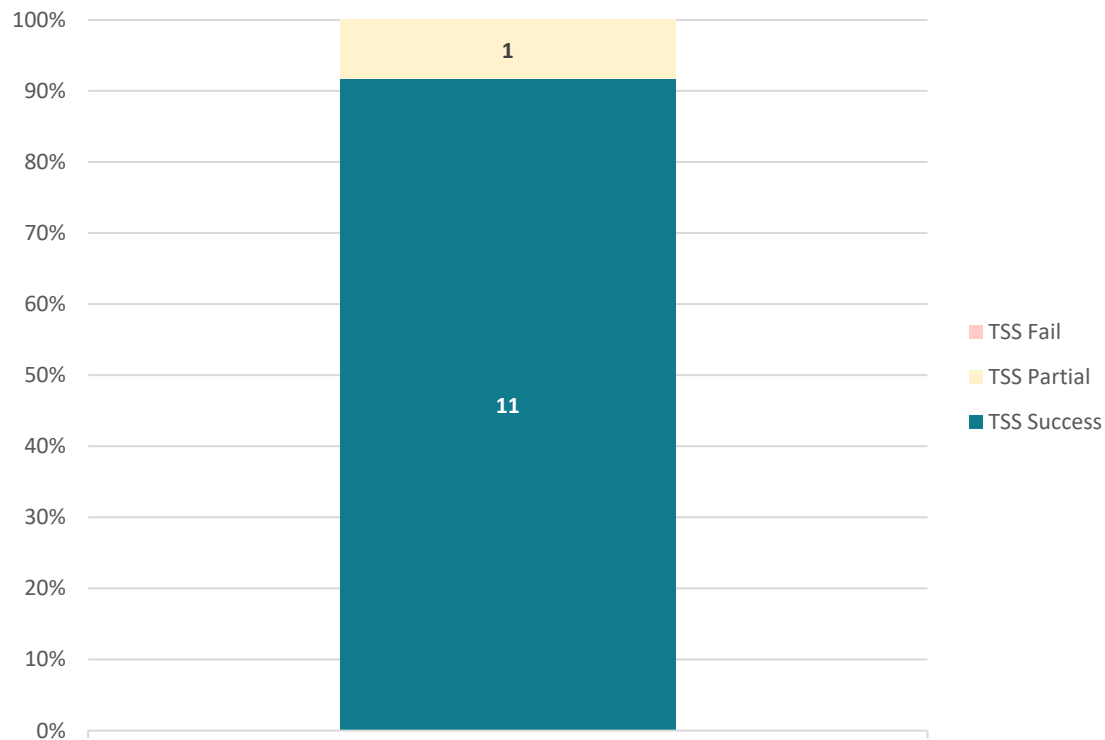


Figure 3.233: Disassemblability advisory module -Visual results of the functional evaluation for user SEAT (tester #2) - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.234: Disassemblability advisory module -Tabular results of the functional evaluation for user SEAT (tester #1) - Homepage

3.4.1.4.1.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable score has been achieved by many dimension while attention is needed on user preparation.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.3
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.2
Dim.E (Learnability, memorability)	2.5
Dim.F (Use preparation & maintenance)	2.0
Dim.G (Suitability to network/collaborative environment)	2.3
Total	2.5

Figure 3.235: Disassemblability advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #1) - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

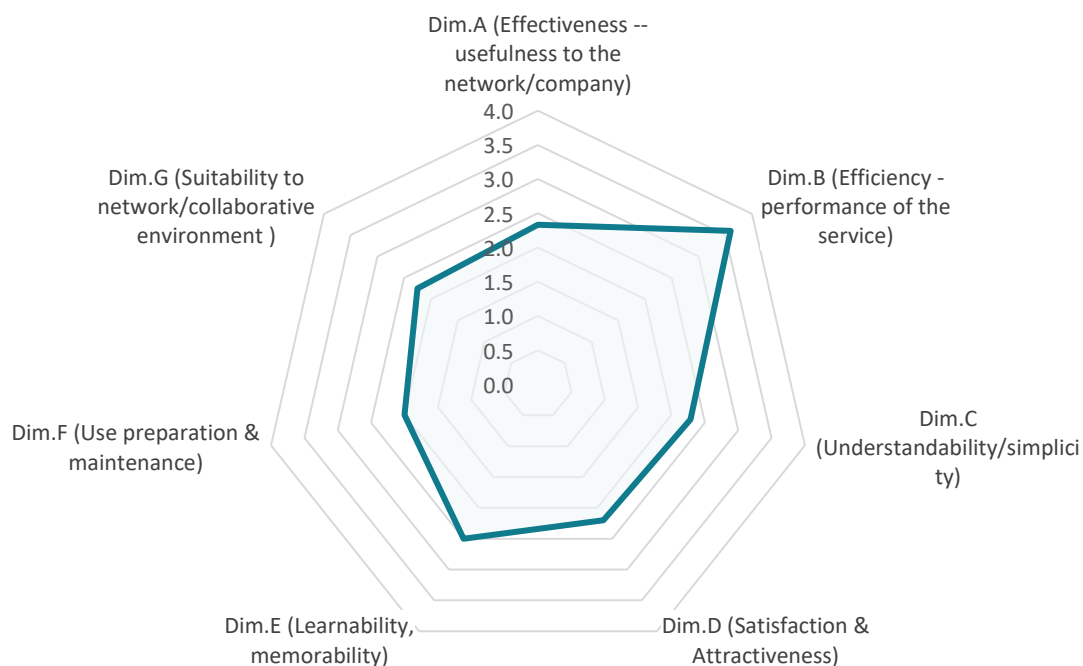


Figure 3.236: Disassemblability advisory module -Visual results of the non-functional evaluation for user SEAT (tester #1) - Homepage

3.4.1.4.2 Evaluation user #2

3.4.1.4.2.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a minor remark on the usability of the input field for the thermodynamic rarity parameter.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassembly Module" card.

5. Click the "Dis advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	It's not possible to change the value in the Thermodynamic rarity value limit	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.237: Disassemblability advisory module - Functional evaluation for user SEAT (tester #2) - Homepage

The evaluation shows no TSS fail, with only one TSS partial as described above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

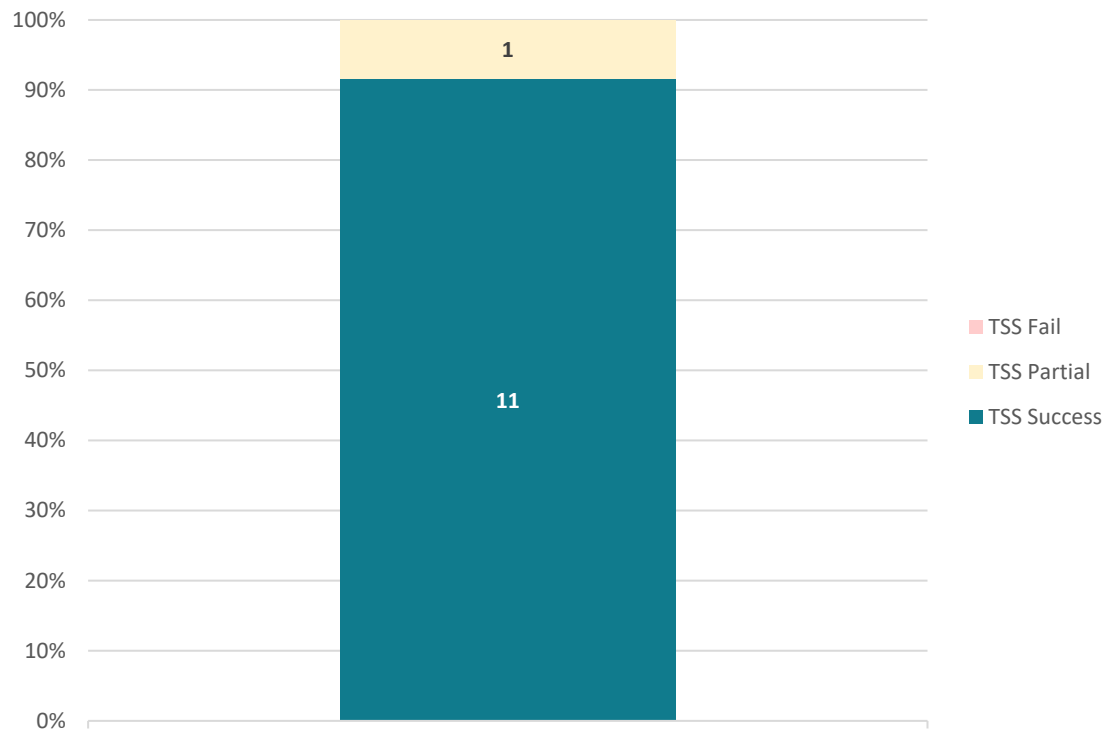


Figure 3.238: Disassemblability advisory module -Visual results of the functional evaluation for user SEAT (tester #2) - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.239: Disassemblability advisory module -Tabular results of the functional evaluation for user SEAT (tester #2) - Homepage

3.4.1.4.2.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable score has been achieved by many dimensions while attention is needed on simplicity.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.3
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.6
Dim.E (Learnability, memorability)	2.3
Dim.F (Use preparation & maintenance)	2.6
Dim.G (Suitability to network/collaborative environment)	2.5
	Total
	2.6

Figure 3.240: Disassemblability advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #2) - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

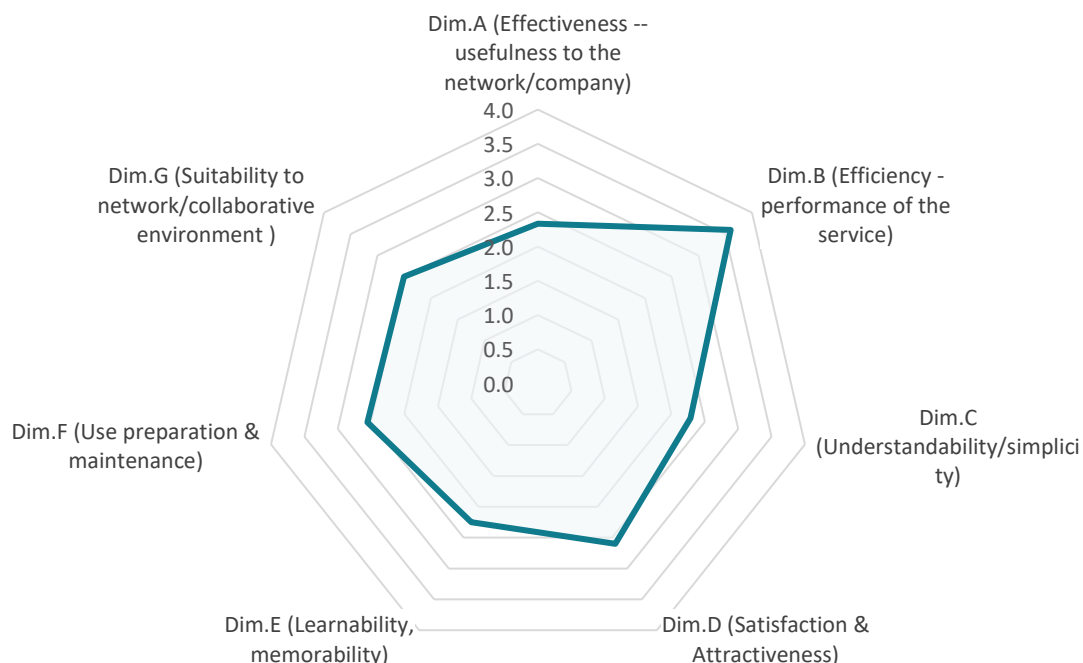


Figure 3.241: Disassemblability advisory module -Visual results of the non-functional evaluation for user SEAT (tester #2) - Homepage

3.4.1.5 Evaluation tester #5 (TNO)

3.4.1.5.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with two partial remarks on the behavior of the input filed for the “estimated disassembly cost”, “thermodynamic rarity indicator” and “revenue” metrics.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassembly Module" card.

5. Click the "Dis advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{Success}	10	TSS _{Partial}	1	TSS _{Fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		PARTIAL	any number is immediately finalized. I cannot enter anything above 9, which automatically becomes 9.0.	
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	any number is immediately finalized. I cannot enter anything above 9, which automatically becomes 9.0.	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.242: Disassemblability advisory module - Functional evaluation for user TNO - Homepage

The evaluation shows no TSS fail, with only two TSS partial related to the input field for disassembly cost and thermodynamic rarity, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

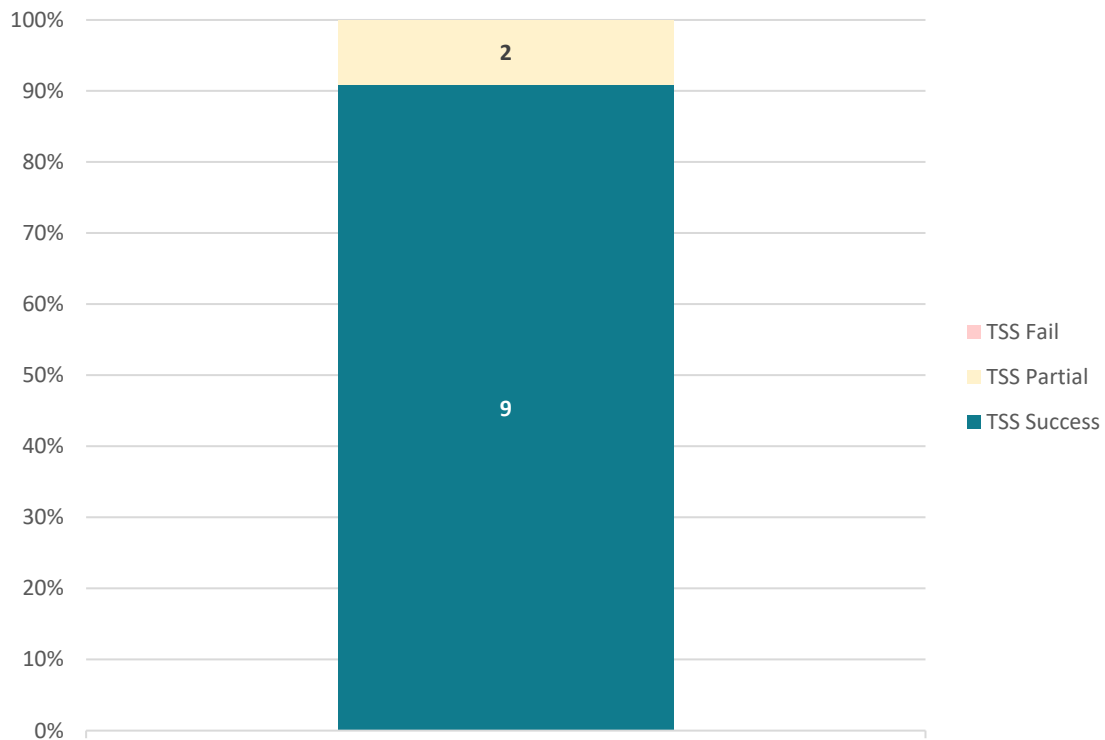


Figure 3.243: Disassemblability advisory module -Visual results of the functional evaluation for user TNO - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	10
TSS Partial	1
TSS Fail	0

Figure 3.244: Disassemblability advisory module -Tabular results of the functional evaluation for user TNO - Homepage

3.4.1.5.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Figure 3.245: Disassemblability advisory module -Tabular results of the non-functional evaluation for user TNO - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

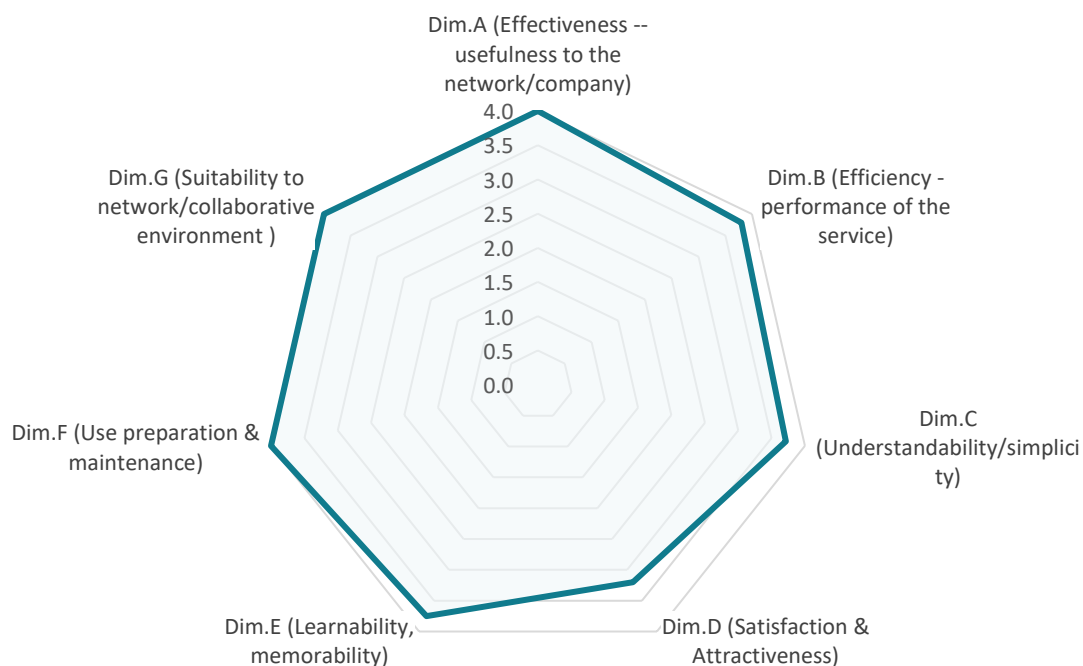


Figure 3.246: Disassemblability advisory module -Visual results of the non-functional evaluation for user TNO - Homepage

3.4.1.6 Evaluation tester #6 (UNIVAQ)

3.4.1.6.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with a partial remark on the clarity of the instructions to adjust the thermodynamic rarity and revenue indicators.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

- Access the TREASURE Circularity Web Platform.
- Login with the evaluation credentials provided.
- In the search bar, search for the "combimeter" component and select the first search result.
- Click the "OPEN DIS" button in the "Disassembly Module" card.
- Click the "Dis advisory" link on the top navbar.
- Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	I was not able to understand how to adjust them	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.247: Disassemblability advisory module - Functional evaluation for user UNIVAQ - Homepage

The evaluation shows no TSS fail, with only one TSS partial as reported above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

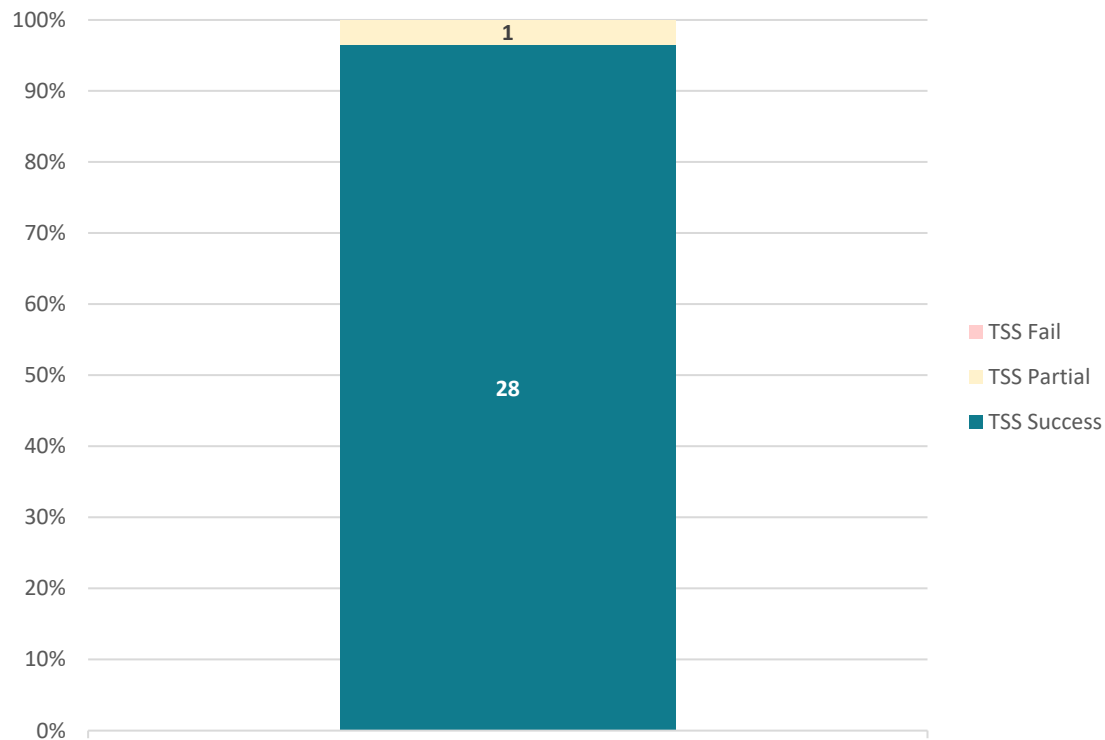


Figure 3.248: Disassemblability advisory module -Visual results of the functional evaluation for user UNIVAQ - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.249: Disassemblability advisory module -Tabular results of the functional evaluation for user UNIVAQ - Homepage

3.4.1.6.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.6
Dim.G (Suitability to network/collaborative environment)	3.5
Total	3.6

Figure 3.250: Disassemblability advisory module -Tabular results of the non-functional evaluation for user UNIVAQ - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

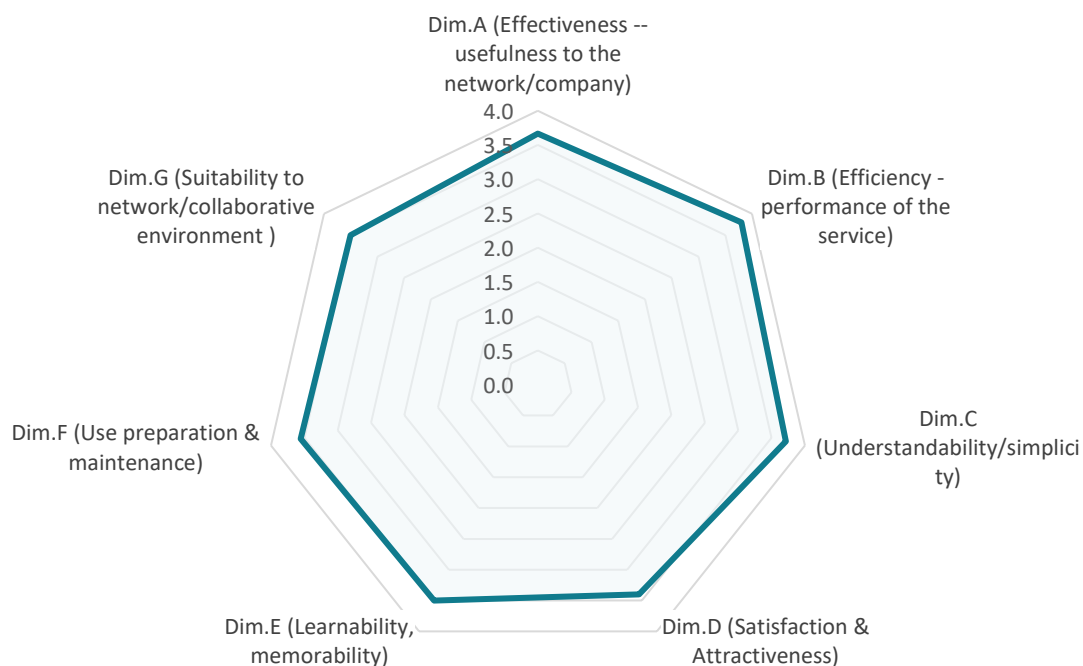


Figure 3.251: Disassemblability advisory module -Visual results of the non-functional evaluation for user UNIVAQ - Homepage

3.4.1.7 Evaluation tester #7 (WALTERPACK)

3.4.1.7.1 Functional Evaluation


The functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with a partial remark on the lack of animations when interacting with the rarity vs revenue chart.



TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform	
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)	
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard			

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN DIS" button in the "Disassembly Module" card.

5. Click the "Dis advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	The way the figures change is a bit uncomfortable. They change very rapidly and	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Figure 3.252: Disassemblability advisory module - Functional evaluation for user WALTERPACK - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

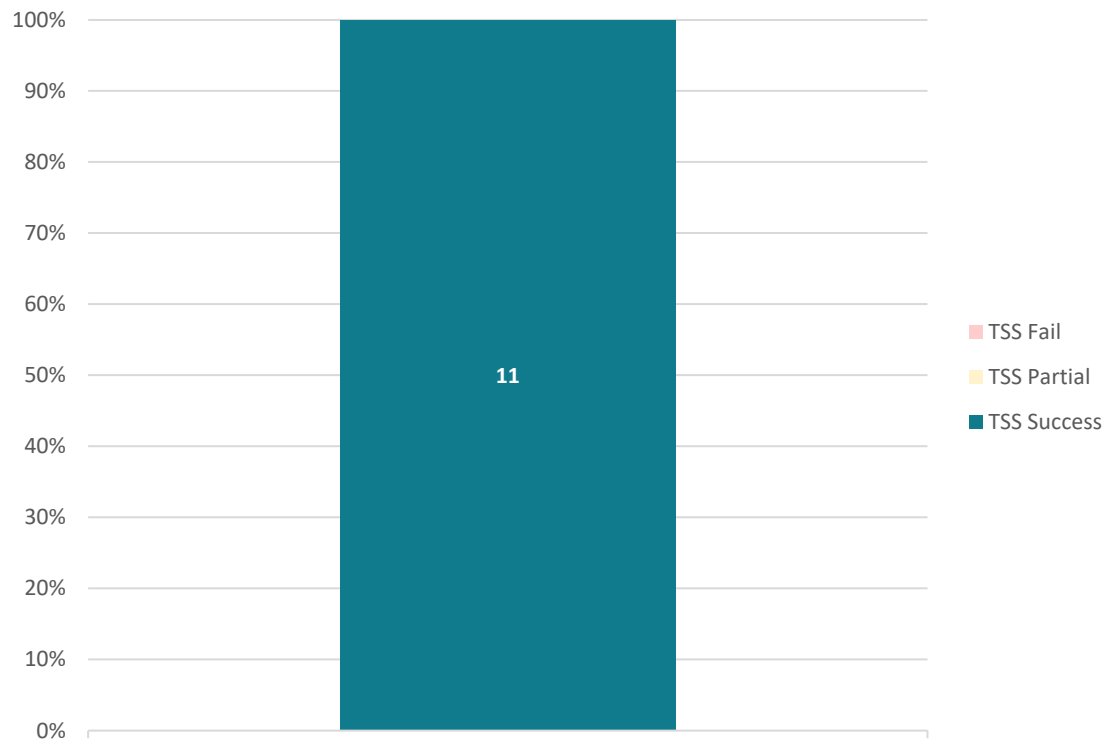


Figure 3.253: Disassemblability advisory module -Visual results of the functional evaluation for user WALTERPACK - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	11
TSS Partial	0
TSS Fail	0

Figure 3.254: Disassemblability advisory module -Tabular results of the functional evaluation for user WALTERPACK - Homepage

3.4.1.7.2 Non-functional Evaluation

The non-functional evaluation of the Disassemblability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the valuable metals present in the selected car part/component, as well as thermodynamical and economic analysis on top.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by learnability, while a reasonable score has been achieved by the rest of the dimensions. Attention is needed on satisfaction.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	2.2
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.5

Figure 3.255: Disassemblability advisory module -Tabular results of the non-functional evaluation for user WALTERPACK - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

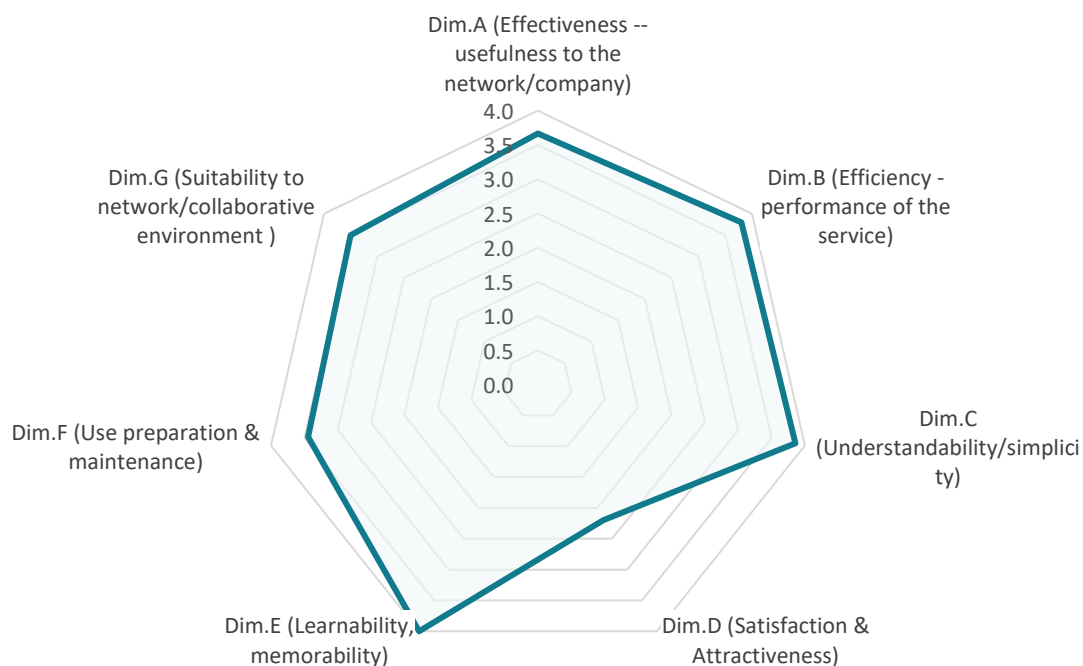


Figure 3.256: Disassemblability advisory module -Visual results of the non-functional evaluation for user WALTERPACK – Homepage

3.4.1.8 Overall results

3.4.1.8.1 Functional evaluation

The functional evaluation for the Disassemblability Advisory module has an overall satisfactory outcome. All evaluation testers reported most, if not all, tests successfully passed with no remarks. As can be seen in the figure below, the total number of TSS success is 103, the total number of TSS partial is 5 and the total number of TSS fail is 0.

Disassemblability Advisory Module - Overall Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	103
TSS Partial	5
TSS Fail	0

Figure 3.257 – Disassemblability Module - Functional evaluation overall results assessment

The five attention points for this module have been raised by SEAT, TNO and UNIVAQ:

- From SEAT, in the home page of the Disassemblability advisory dashboard, a comment has been made (from both test users) for the “Thermodynamic rarity value limit” and the “Limit value for revenue” input fields in the “Thermodynamic rarity vs revenue” section and concerns the inability from the user of inserting more than one decimal place in the input fields.
- From TNO, in the home page of the Disassemblability advisory dashboard, a comment has been made for the “Disassembly cost per hour” and “Thermodynamic rarity value limit” input fields concerning some issues when inserting numeric values in the input fields.
- From UNIVAQ, in the home page of the Disassemblability advisory dashboard, a comment has been made for the “Thermodynamic rarity value limit” input field, concerning the inability to understand how to adjust the limit in order for it to be reflected in the side chart.

3.4.1.8.2 Non-functional evaluation

The non-functional evaluation for the Disassemblability Advisory module has an overall satisfactory outcome.

Non-functional Dimension	
	Results
Dim.A (Effectiveness – usefulness to the network/company)	3.4
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.5
Dim.D (Satisfaction & Attractiveness)	3.1
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.4

Figure 3.258: Disassemblability Advisory Module - Non-functional evaluation overall results assessment

3.4.2 Recyclability Advisory Module

The Recyclability Advisory Module: provides a ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

The tests have been carried out for each type of user foreseen in this platform module, as follows:

- The advisory user with visualization mode for the Circular Advisory dashboards: this user can access the three advisory dashboards (Disassemblability Advisory dashboard,

Recyclability Advisory dashboard and Eco-design advisory dashboard), as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the regular platform dashboards is foreseen for this type of user.

3.4.2.1 Evaluation tester #1 (EUROLCDs)


3.4.2.1.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Click the "Rec advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart.	A tooltip with specific metrics about the selected recycling route is shown		YES		

Figure 3.259: Recyclability advisory module - Functional evaluation for user EUROLCDs - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

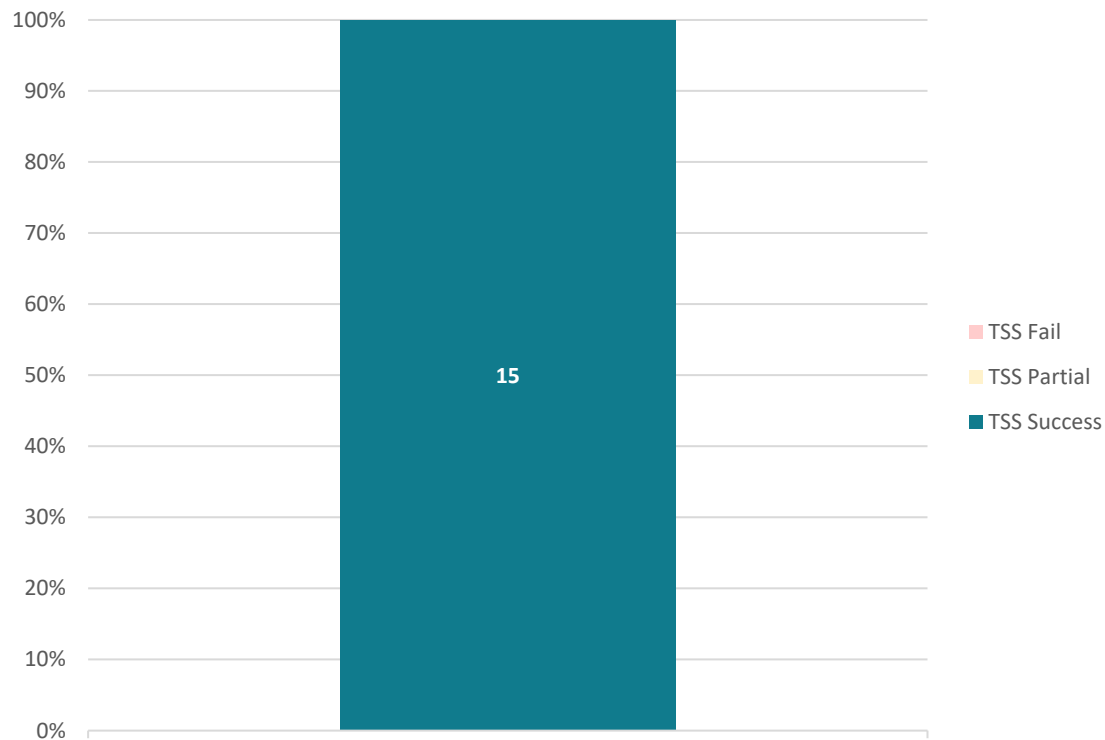


Figure 3.260: Recyclability advisory module -Visual results of the functional evaluation for user EUROLCDs - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	15
TSS Partial	0
TSS Fail	0

Figure 3.261: Recyclability advisory module -Tabular results of the functional evaluation for user EUROLCDs - Homepage

3.4.2.1.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.262: Recyclability advisory module -Tabular results of the non-functional evaluation for user EUROLCDs - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

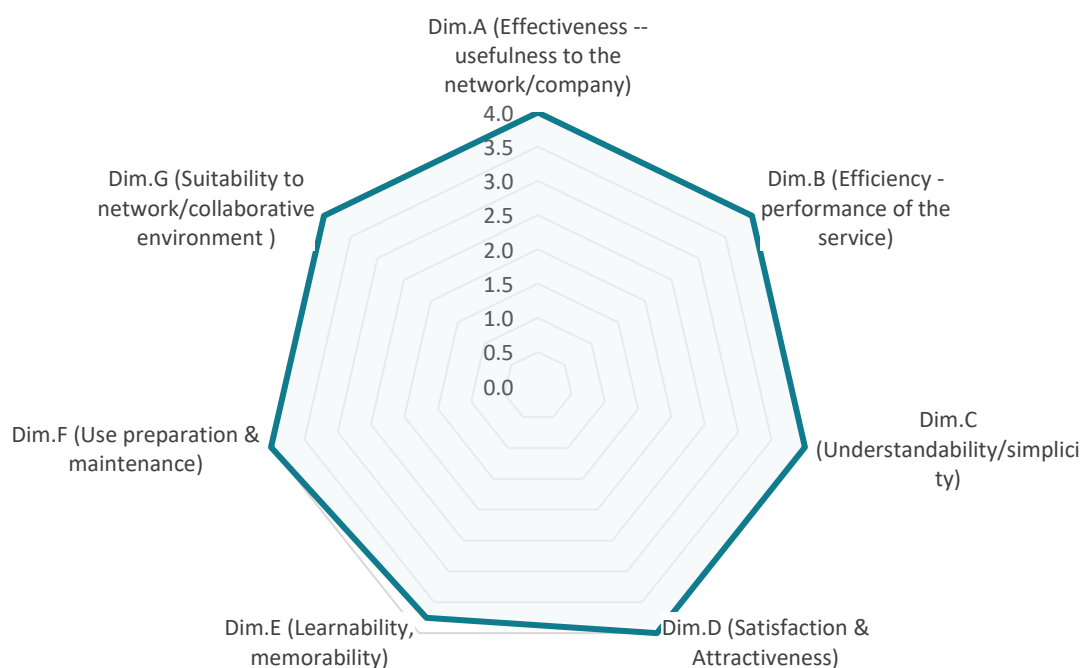


Figure 3.263: Recyclability advisory module -Visual results of the non-functional evaluation for user EUROLCDs - Homepage

3.4.2.2 Evaluation tester #2 (ILSSA)

3.4.2.2.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luaduna (ILSSA) (Environmental Manager in Grupo Lopez Sodano)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES	No comment	
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES	No comment	
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES	No comment	
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES	No comment	
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES	No comment	
Assess the revenue indicator	All relevant information for the desired section is displayed		YES	No comment	
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES	No comment	
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES	No comment	
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES	No comment	
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES	No comment	

Figure 3.264: Recyclability advisory module - Functional evaluation for user ILSSA - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

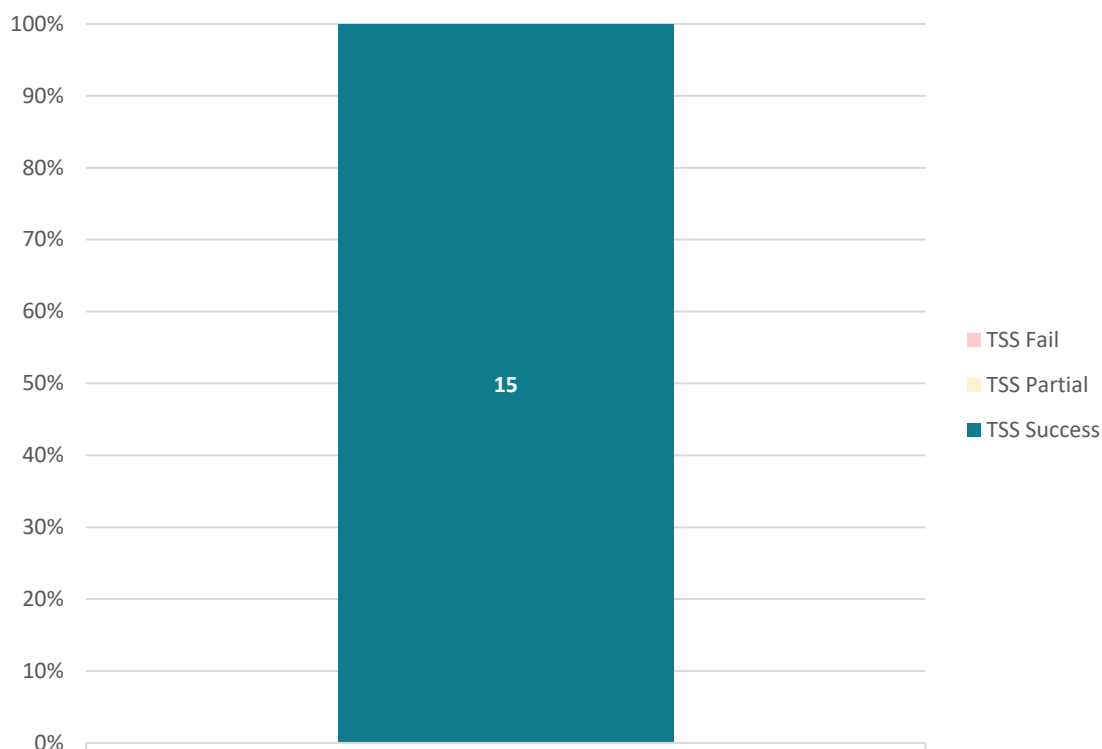


Figure 3.265: Recyclability advisory module -Visual results of the functional evaluation for user ILSSA - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	15
TSS Partial	0
TSS Fail	0

Figure 3.266: Recyclability advisory module -Tabular results of the functional evaluation for user ILSSA - Homepage

3.4.2.2.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a high score has been achieved by many dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.7

Figure 3.267: Recyclability advisory module -Tabular results of the non-functional evaluation for user ILSSA - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

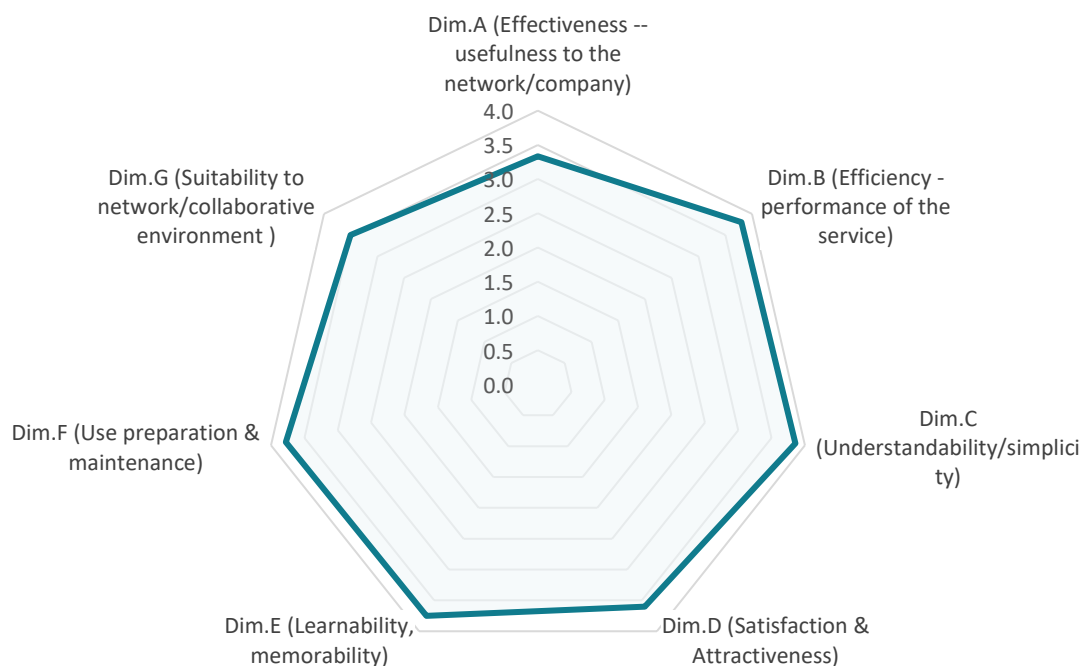


Figure 3.268: Recyclability advisory module -Visual results of the non-functional evaluation for user ILSSA - Homepage

3.4.2.3 Evaluation tester #3 (POLLINI)

3.4.2.3.1 Functional Evaluation


The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE

Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Click the "Rec advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Figure 3.269: Recyclability advisory module - Functional evaluation for user POLLINI - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

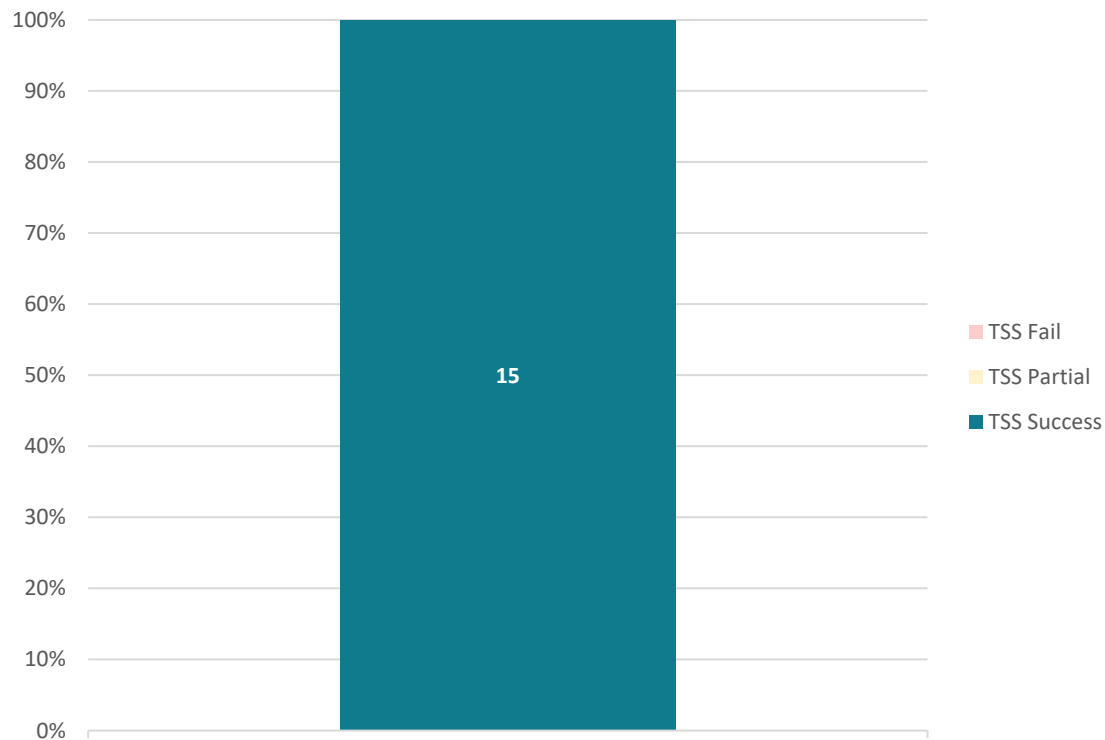


Figure 3.270: Recyclability advisory module -Visual results of the functional evaluation for user POLLINI - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	15
TSS Partial	0
TSS Fail	0

Figure 3.271: Recyclability advisory module -Tabular results of the functional evaluation for user POLLINI - Homepage

3.4.2.3.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.272: Recyclability advisory module -Tabular results of the non-functional evaluation for user POLLINI - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

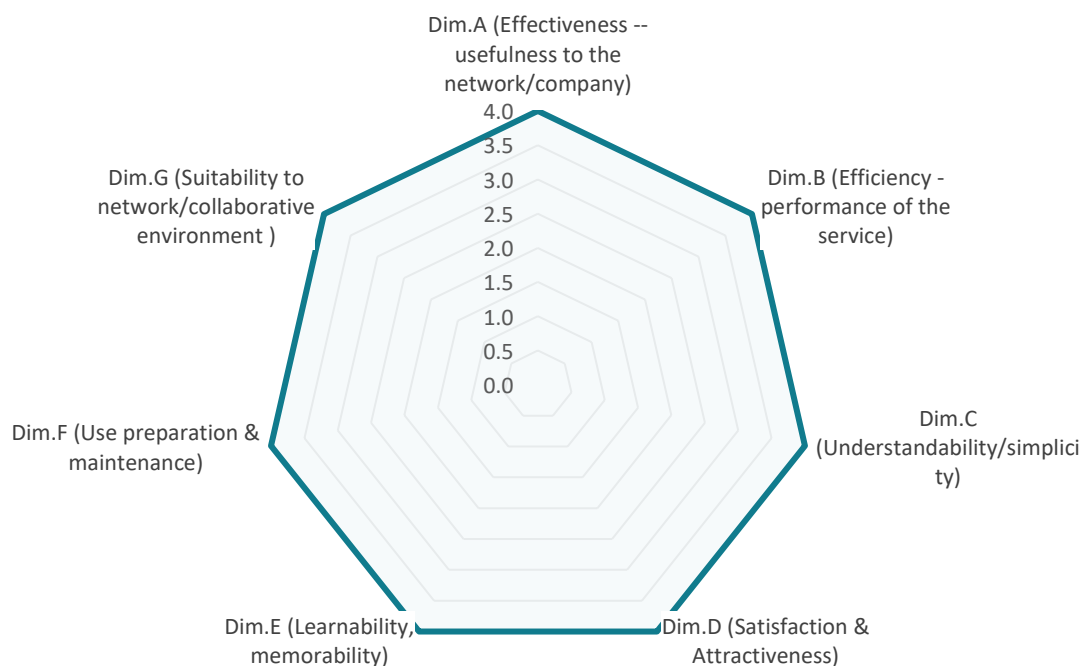


Figure 3.273: Recyclability advisory module -Visual results of the non-functional evaluation for user POLLINI - Homepage

3.4.2.4 Evaluation tester #4 (SEAT)

3.4.2.4.1 Evaluation user #1

3.4.2.4.1.1 Functional Evaluation


The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References					
Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Nuria Fernández (SEAT) (Technical Conformity-Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)		
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Click the "Rec advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Figure 3.274: Recyclability advisory module - Functional evaluation for user SEAT (tester #1) - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

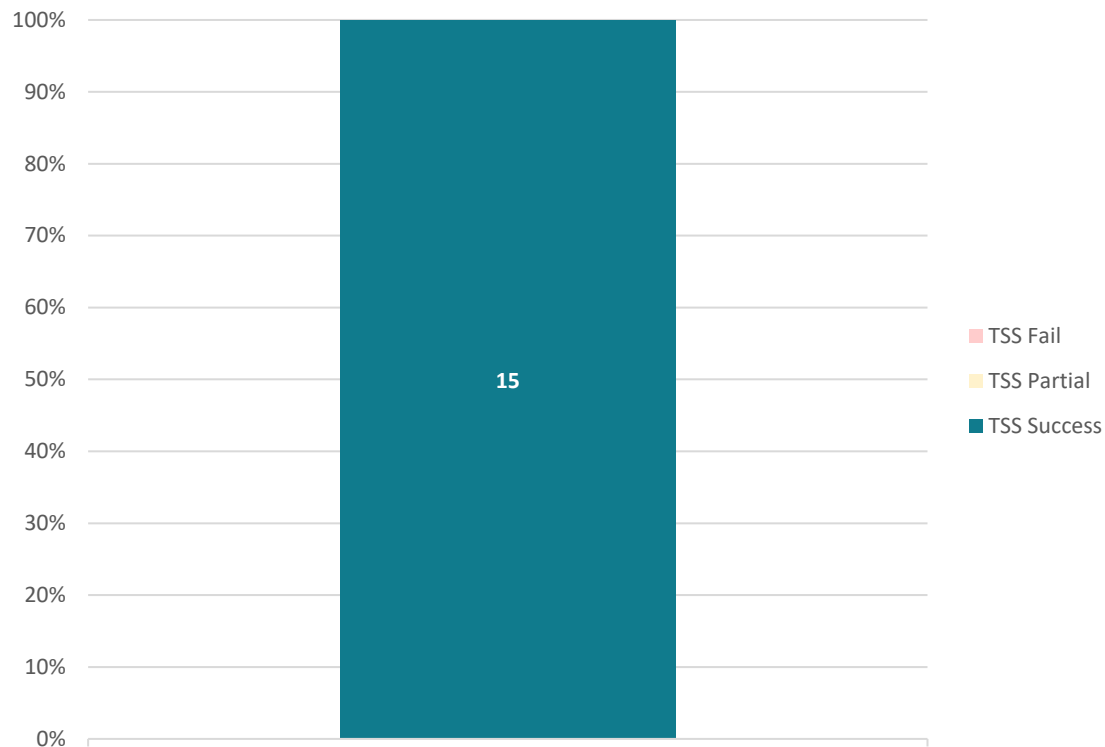


Figure 3.275: Recyclability advisory module -Visual results of the functional evaluation for user SEAT (tester #1) - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	15
TSS Partial	0
TSS Fail	0

Figure 3.276: Recyclability advisory module -Visual results of the functional evaluation for user SEAT (tester #2) - Homepage

3.4.2.4.1.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage reasonable score has been achieved by many dimensions, while attention is needed on learnability.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.0
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.6
Dim.E (Learnability, memorability)	2.0
Dim.F (Use preparation & maintenance)	2.1
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.5

Figure 3.277: Recyclability advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #1) - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

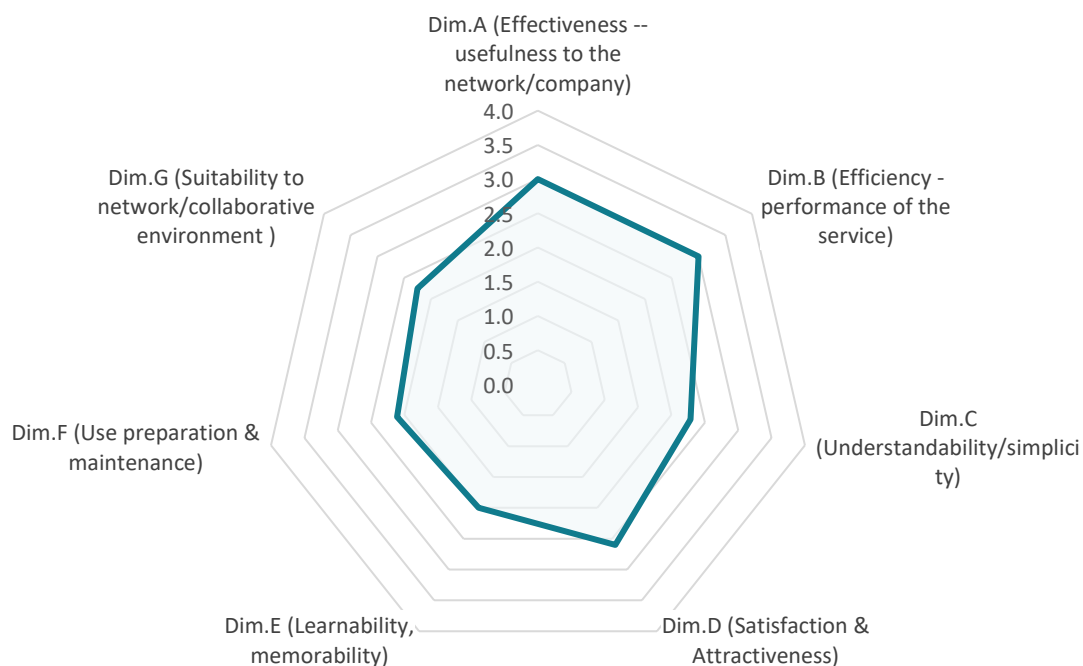


Figure 3.278: Recyclability advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #1) - Homepage

3.4.2.4.2 Evaluation user #2

3.4.2.4.2.1 Functional Evaluation


The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.



TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References					
Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)		
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Click the "Rec advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Figure 3.279: Recyclability advisory module - Functional evaluation for user SEAT (tester #2) - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

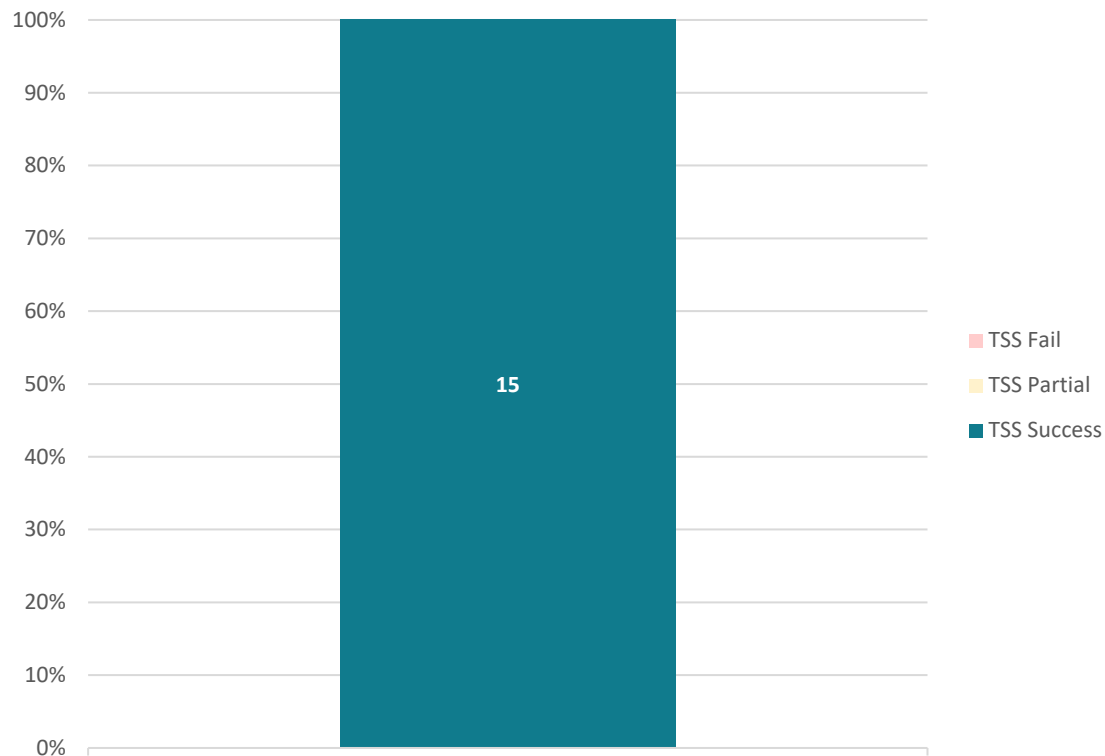


Figure 3.280: Recyclability advisory module -Visual results of the functional evaluation for user SEAT (tester #2) - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	15
TSS Partial	0
TSS Fail	0

Figure 3.281: Recyclability advisory module -Tabular results of the functional evaluation for user SEAT (tester #2) - Homepage

3.4.2.4.2.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable score has been achieved by many dimensions, while attention is needed by simplicity.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.0
Dim.D (Satisfaction & Attractiveness)	2.4
Dim.E (Learnability, memorability)	2.0
Dim.F (Use preparation & maintenance)	2.4
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.4

Figure 3.282: Recyclability advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #2) - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

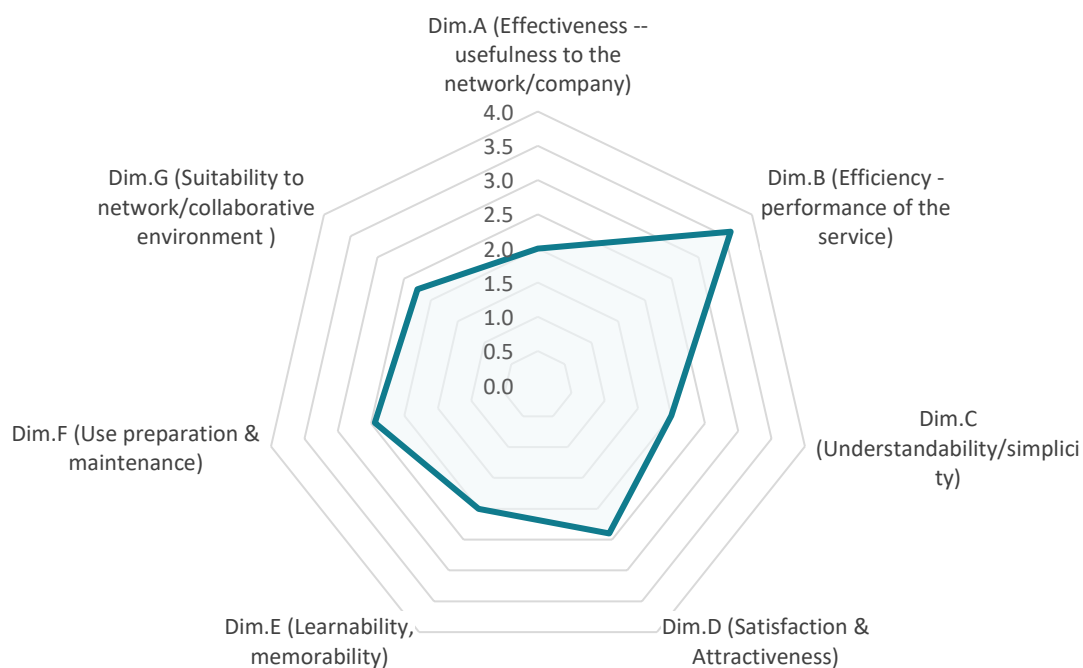


Figure 3.283: Recyclability advisory module -Visual results of the non-functional evaluation for user SEAT (tester #2) - Homepage

3.4.2.5 Evaluation tester #5 (TNO)

3.4.2.5.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a partial remark concerning the cutting of a chart and the indication that the documentation to support total cost and recycling routes risks can be improved with more meaningful messages.


 TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet					
Test Case References					
Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)		
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN REC" button in the "Recyclability Module" card. 5. Click the "Rec advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{Success}	14	TSS _{Partial}	1	TSS _{Fail}	0
Functionalities		Expected Results		Passed	Remarks
Access to the Circularity Web Platform		Circularity Web Platform shows login page		YES	
Login to the Platform		User successfully logged in		YES	
User redirected to home page		Home page correctly opened		YES	
Search for "combimeter" car part		List of relevant car parts shows up		YES	
Select component to visualize		Modules selection page is shown for the selected component		YES	
Click the "OPEN REC" button in the "Recyclability"		Recyclability dashboard is shown for the selected component		YES	
Click the "Rec advisory" link on the top navbar.		Recyclability advisor dashboard correctly opened		YES	
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section		All relevant information for the desired table is displayed		YES	
Press the info button at the right of one recycling route		The "DIS & REC route X" popup appears		YES	
Assess the materials in the "DIS & REC route X" table		All relevant information for the desired table is displayed		YES	
Assess the revenue indicator		All relevant information for the desired section is displayed		YES	
Adjust the "Total cost" value		The "Profit" indicator updates accordingly		YES	no value at profit
Press the "Close" ("X") button		The "DIS & REC route X" popup closes		YES	
Assess the "Graphical integration approach" sub-section		All relevant information for the desired section is displayed		PARTIAL	Graphic is cut off when zooming in. Increase window size?
Hover with the mouse over a recycling route in the chart		A tooltip with specific metrics about the selected recycling route is shown		YES	Medium risk: (-1)? Why the (-1)?

Figure 3.284: Recyclability advisory module - Functional evaluation for user TNO - Homepage

The evaluation shows no TSS fail, with only one TSS partial related to the way the chart is displayed as reported above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

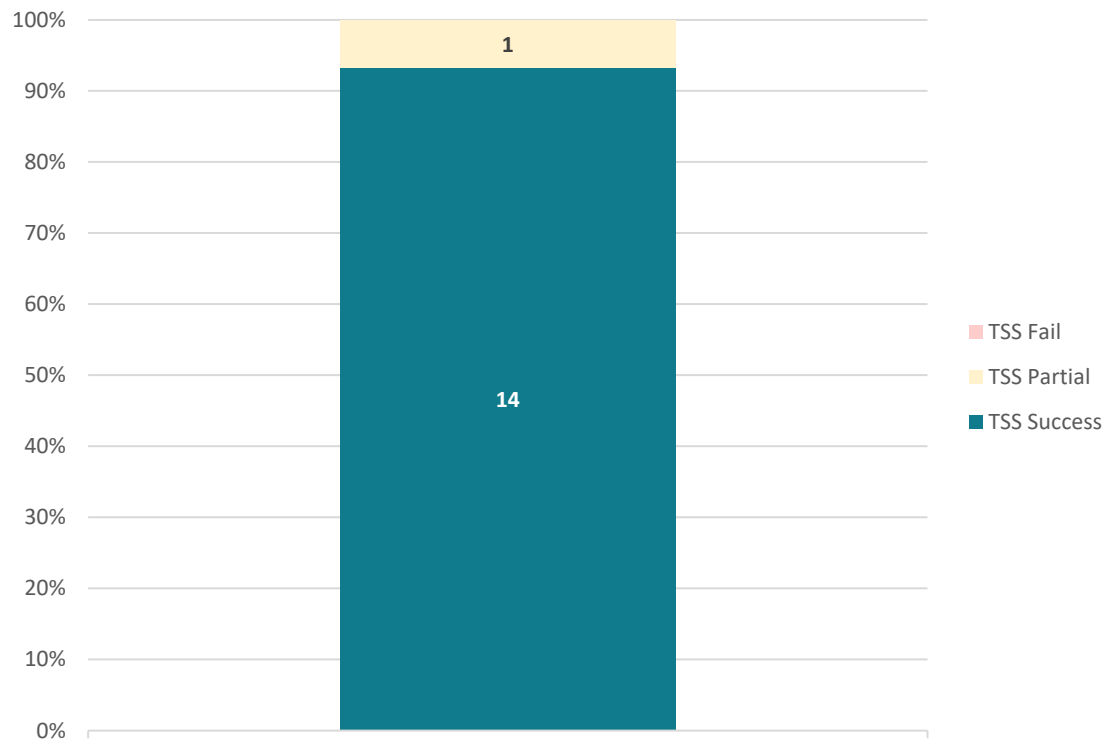


Figure 3.285: Recyclability advisory module -Visual results of the functional evaluation for user TNO - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	14
TSS Partial	1
TSS Fail	0

Figure 3.286: Recyclability advisory module -Tabular results of the functional evaluation for user TNO - Homepage

3.4.2.5.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.287: Recyclability advisory module -Tabular results of the non-functional evaluation for user TNO - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

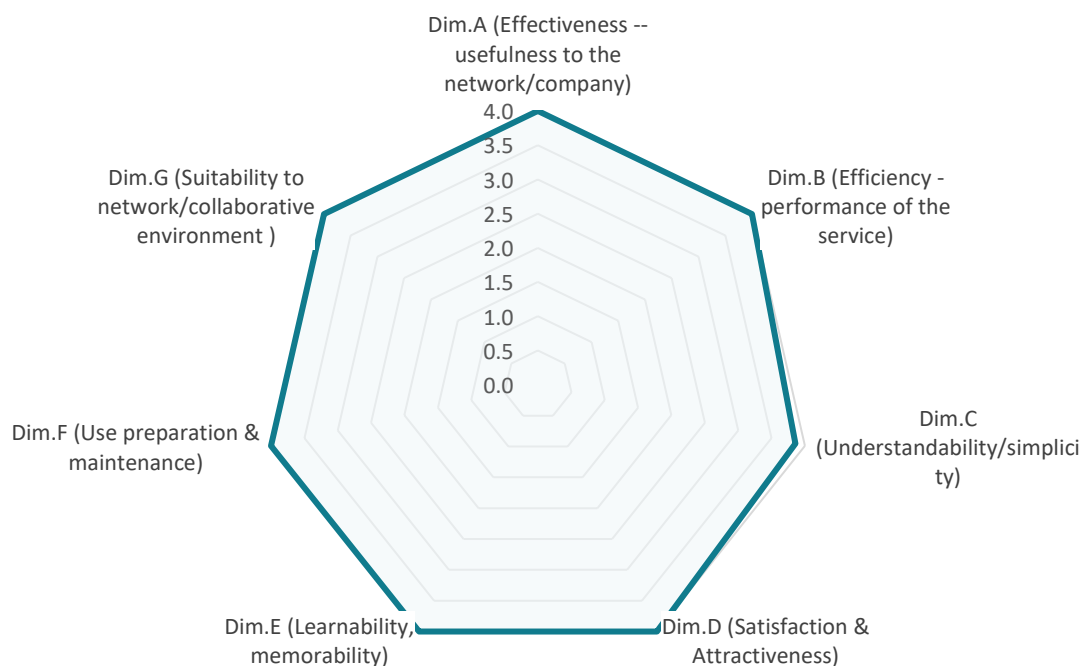


Figure 3.288: Recyclability advisory module -Visual results of the non-functional evaluation for user TNO - Homepage

3.4.2.6 Evaluation tester #6 (UNIVAQ)


3.4.2.6.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a minor remark concerning the lack of indication of the extraction method used in the assessment.



TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.

2. Login with the evaluation credentials provided.

3. In the search bar, search for the "combimeter" component and select the first search result.

4. Click the "OPEN REC" button in the "Recyclability Module" card.

5. Click the "Rec advisory" link on the top navbar.

6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{passed}	14	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		PARTIAL	The method for metals extraction is not mentioned, end-user should be interested on it	
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Figure 3.289: Recyclability advisory module - Functional evaluation for user UNIVAQ - Homepage

The evaluation shows no TSS fail, with only one TSS partial related to an unclear description in the recycling routes section as reported above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

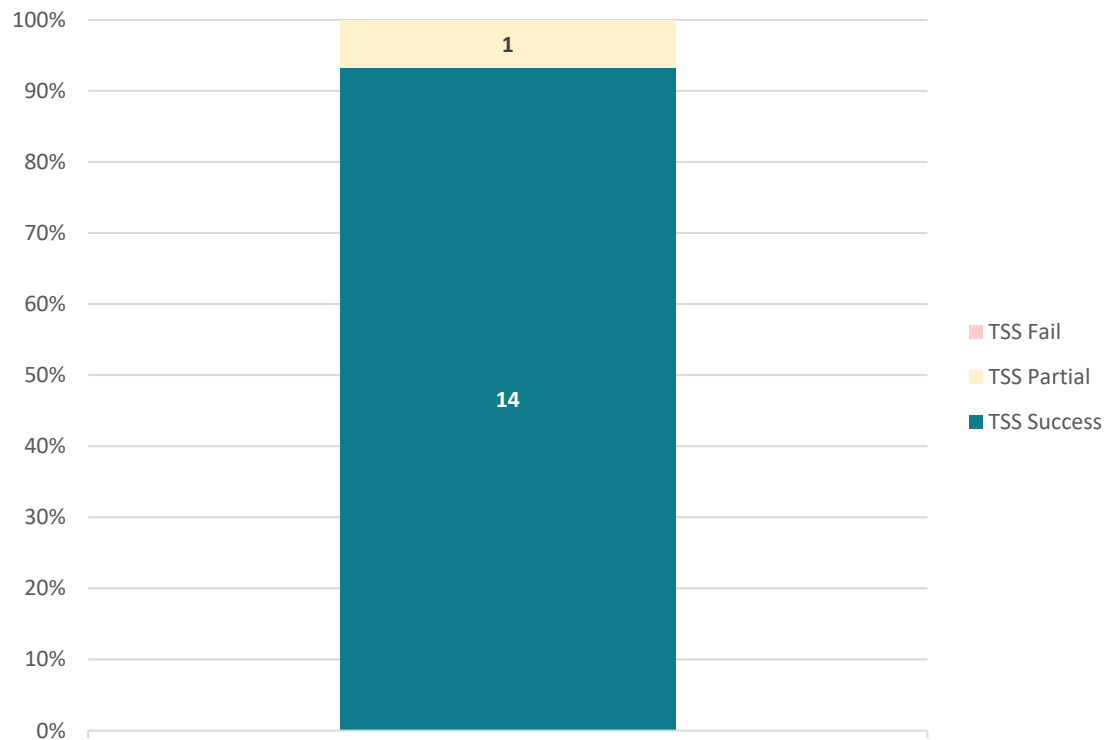


Figure 3.290: Recyclability advisory module -Visual results of the functional evaluation for user UNIVAQ - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	14
TSS Partial	1
TSS Fail	0

Figure 3.291: Recyclability advisory module -Tabular results of the functional evaluation for user UNIVAQ - Homepage

3.4.2.6.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by efficiency, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.0
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.4

Figure 3.292: Recyclability advisory module -Tabular results of the non-functional evaluation for user UNIVAQ - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

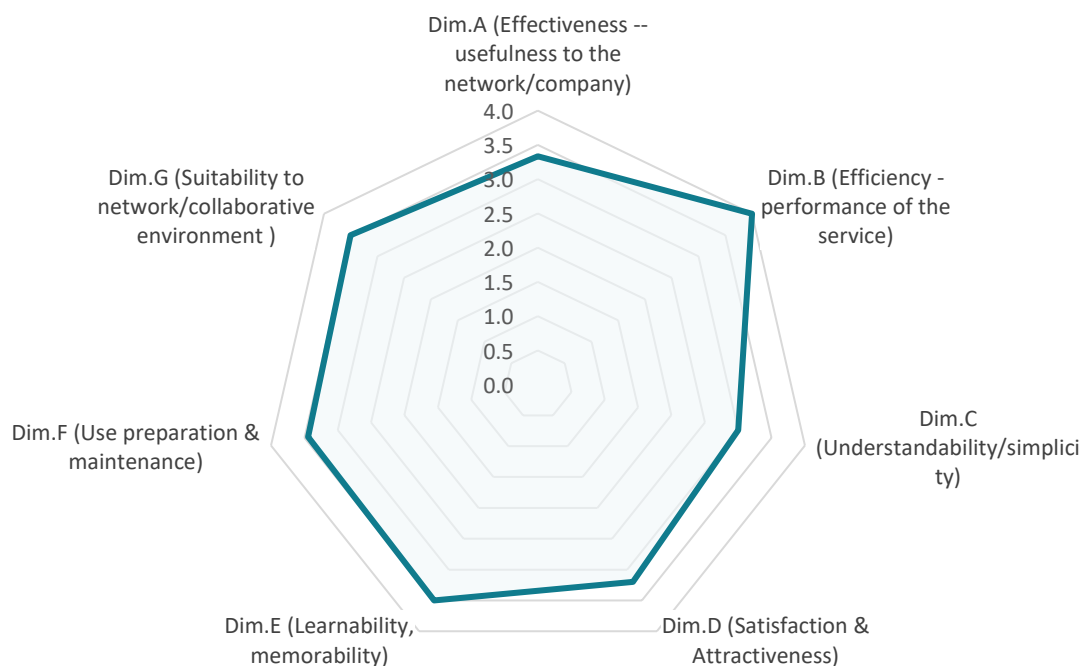


Figure 3.293: Recyclability advisory module -Visual results of the non-functional evaluation for user UNIVAQ - Homepage

3.4.2.7 Evaluation tester #7 (WALTERPACK)

3.4.2.7.1 Functional Evaluation

The functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@btggroup.com) Technical: Mattia Calabresi (mattia.calabresi@btggroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Figure 3.294: Recyclability advisory module - Functional evaluation for user WALTERPACK - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

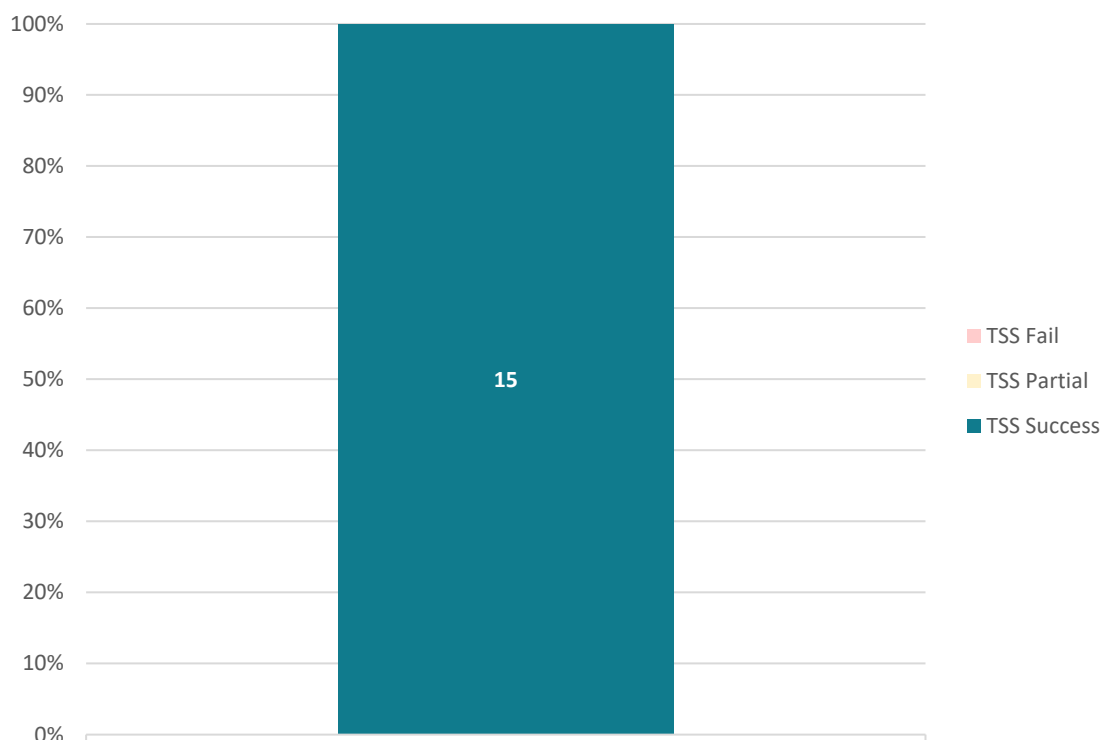


Figure 3.295: Recyclability advisory module -Visual results of the functional evaluation for user WALTERPACK - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	15
TSS Partial	0
TSS Fail	0

Figure 3.296: Recyclability advisory module -Tabular results of the functional evaluation for user WALTERPACK - Homepage

3.4.2.7.2 Non-functional Evaluation

The non-functional evaluation of the Recyclability module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the ranking of most convenient recyclability routes starting from the analysis performed by the Recycling Simulation Tool and further complemented by a socio-economic impact assessment.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by effectiveness and learnability, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Figure 3.297: Recyclability advisory module -Tabular results of the non-functional evaluation for user WALTERPACK - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

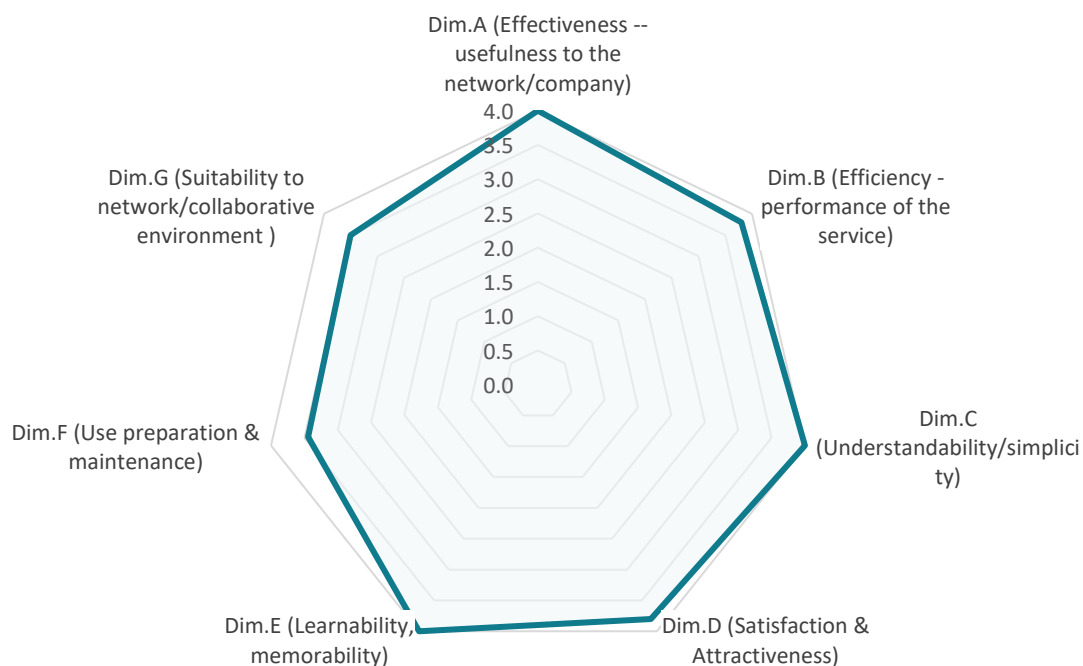


Figure 3.298: Recyclability advisory module -Visual results of the non-functional evaluation for user WALTERPACK – Homepage

3.4.2.8 Overall results

3.4.2.8.1 Functional evaluation

The functional evaluation for the Recyclability Advisory module has an overall satisfactory outcome. All evaluation testers reported most, if not all, tests successfully passed with no remarks. As can be seen in the figure below, the total number of TSS success is 118, the total number of TSS partial is 2 and the total number of TSS fail is 0.

Recyclability Advisory Module - Overall Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	118
TSS Partial	2
TSS Fail	0

Figure 3.299 – Recyclability Module - Functional evaluation overall results assessment

The two attention points for this module have been raised by TNO and UNIVAQ:

- From TNO, in the home page of the Recyclability advisory dashboard, a comment has been made for the “Graphical integration approach” 3D chart, concerning the fact that the chart gets cut off when zooming to closer inspect a recycling route.
- From UNIVAQ, in the home page of the Recyclability advisory dashboard, a comment has been made for the recycling routes table, concerning the lack of explanation on the extraction process performed in order to gain the metals, indicating that this process could be of interest by any dashboard user.

3.4.2.8.2 Non-functional evaluation

The non-functional evaluation for the Recyclability Advisory module has an overall satisfactory outcome.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.5
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.4
Dim.D (Satisfaction & Attractiveness)	3.5
Dim.E (Learnability, memorability)	3.4
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.4
	Total
	3.5

Figure 3.300: Recyclability Advisory Module - Non-functional evaluation overall results assessment

3.4.3 Eco-design Advisory Module

The Eco-design Advisory Module: defines the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

The tests have been carried out for each type of user foreseen in this platform module, as follows:

- The advisory user with visualization mode for the Circular Advisory dashboards: this user can access the three advisory dashboards (Disassemblability Advisory dashboard, Recyclability Advisory dashboard and Eco-design advisory dashboard), as well as the necessary in-between pages necessary for him/her to navigate the platform in a coherent way. No access to the regular platform dashboards is foreseen for this type of user.

3.4.3.1 Evaluation tester #1 (EUROLCDs)

3.4.3.1.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet						
Test Case References						
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform			
Actors involved	EuroLCds	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)			
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard					
Test Script						
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.						
TSS _{Success}	27	TSS _{Partial}	0	TSS _{Fail}	0	
Functionalities	Expected Results			Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page			YES		
Login to the Platform	User successfully logged in			YES		
User redirected to home page	Home page correctly opened			YES		
Search for "combimeter" car part	List of relevant car parts shows up			YES		
Select component to visualize	Modules selection page is shown for the selected component			YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component			YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened			YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section			YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section			YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown			YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears					
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears			YES		
Press the "X" button	The feedbacks popup closes			YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed			YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart			YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed			YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears					
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly			YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed			YES		
lick the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab			YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly			YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh			YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed			YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears			YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format			YES	button can have info that pdf file is expected	
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format			YES	button can have info that pdf file is expected	
Assess the "Comments" section	All relevant information for the desired section is displayed			YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed			YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format			YES	button can have info that png is expected	

Figure 3.301: Eco-design advisory module - Functional evaluation for user EUROLCDs - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

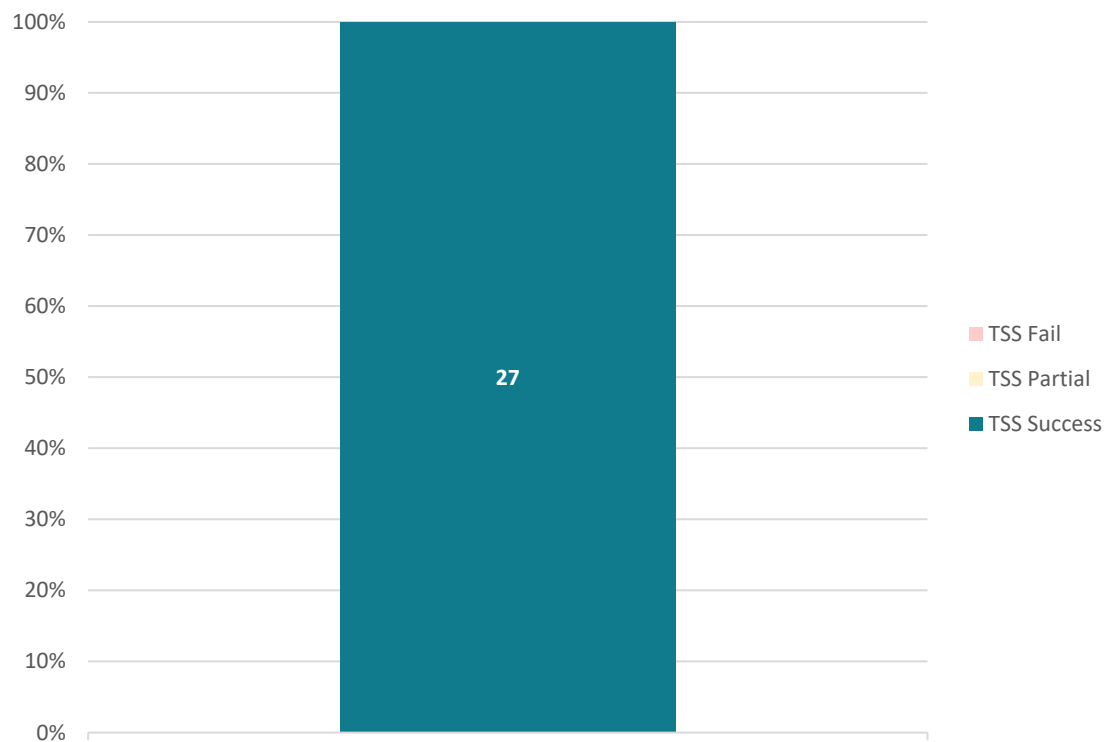


Figure 3.302: Eco-design advisory module -Visual results of the functional evaluation for user EUROLCD5 - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	27
TSS Partial	0
TSS Fail	0

Figure 3.303: Eco-design advisory module -Tabular results of the functional evaluation for user EUROLCD5 - Homepage

3.4.3.1.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.9

Figure 3.304: Eco-design advisory module -Tabular results of the non-functional evaluation for user EUROLCDs - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

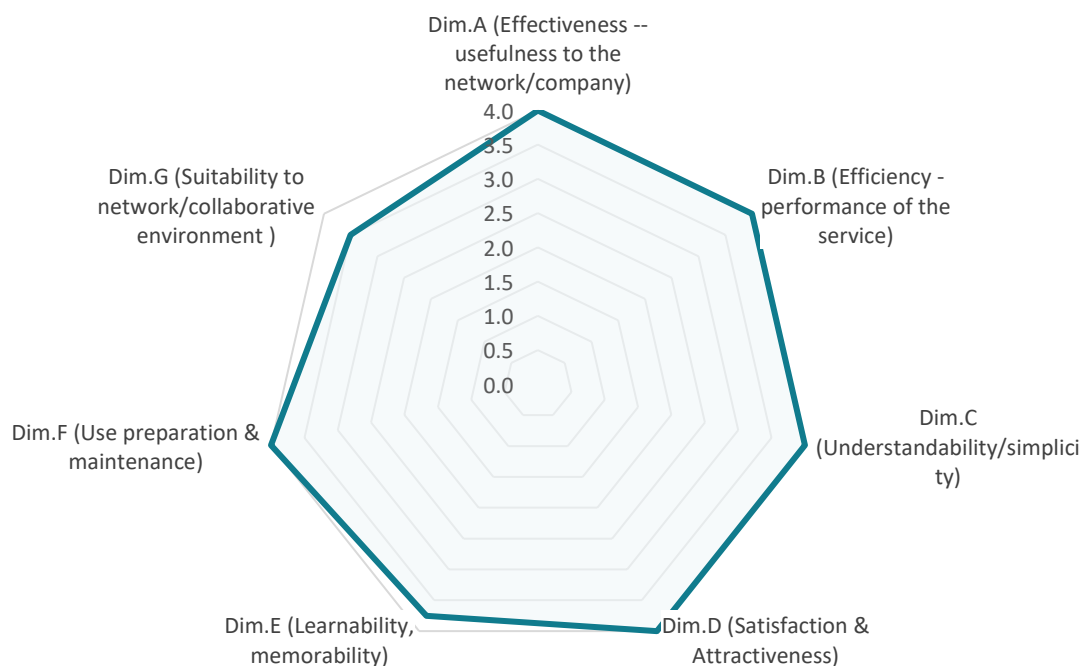


Figure 3.305: Eco-design advisory module -Visual results of the non-functional evaluation for user EUROLCDs - Homepage

3.4.3.2 Evaluation tester #2 (ILSSA)

3.4.3.2.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet					
Test Case References					
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Marcelo Liendo Luqueña (ILSSA) (Environmental Manager in Grupo Lopez Sodano)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES	No comment	
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES	No comment	
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES	No comment	
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES	No comment	
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES	No comment	
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES	No comment	
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES	No comment	
Press the "X" button	The feedbacks popup closes		YES	No comment	
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES	No comment	
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES	No comment	
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES	No comment	
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES	No comment	
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES	No comment	
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES	No comment	
lick the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES	No comment	
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES	No comment	
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES	No comment	
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES	No comment	
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES	No comment	
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES	No comment	
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES	No comment	
Assess the "Comments" section	All relevant information for the desired section is displayed		YES	No comment	
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES	No comment	
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES	No comment	

Figure 3.306: Eco-design advisory module - Functional evaluation for user ILSSA - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

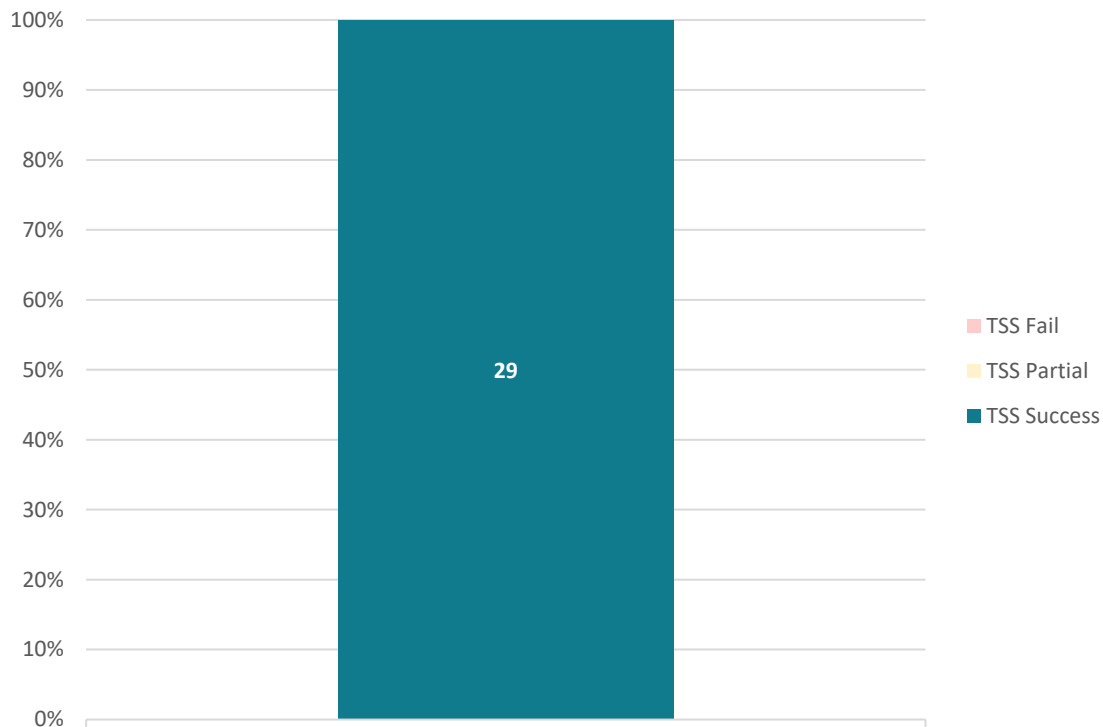


Figure 3.307: Eco-design advisory module -Visual results of the functional evaluation for user ILSSA - Homepage

Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Figure 3.308: Eco-design advisory module -Tabular results of the functional evaluation for user ILSSA - Homepage

3.4.3.2.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Figure 3.309: Eco-design advisory module -Tabular results of the non-functional evaluation for user ILSSA - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

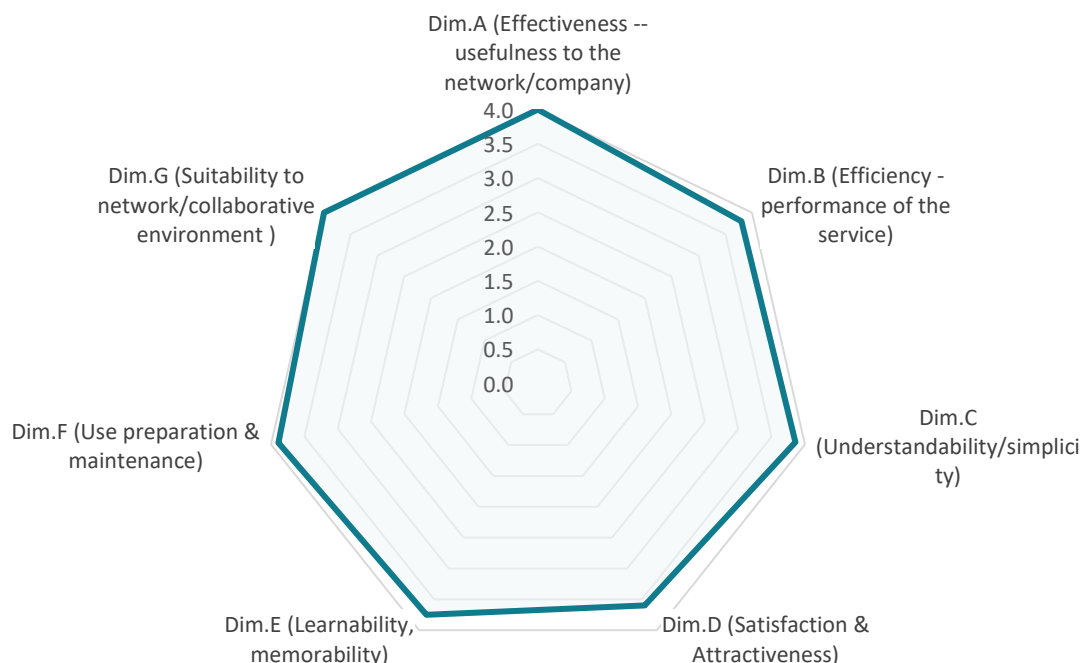


Figure 3.310: Eco-design advisory module -Visual results of the non-functional evaluation for user ILSSA - Homepage

3.4.3.3 Evaluation tester #3 (POLLINI)

3.4.3.3.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet						
Test Case References						
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform			
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)			
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard					
Test Script						
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.						
TSS _{success}	29	TSS _{total}	0	TSS _{fail}	0	
Functionalities	Expected Results		Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES			
Login to the Platform	User successfully logged in		YES			
User redirected to home page	Home page correctly opened		YES			
Search for "combimeter" car part	List of relevant car parts shows up		YES			
Select component to visualize	Modules selection page is shown for the selected component		YES			
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES			
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES			
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES			
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES			
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES			
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES			
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES			
Press the "X" button	The feedbacks popup closes		YES			
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES			
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES			
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES			
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES			
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES			
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES			
lick the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES			
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES			
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES			
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES			
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES			
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES			
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES			
Assess the "Comments" section	All relevant information for the desired section is displayed		YES			
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES			
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES			

Figure 3.311: Eco-design advisory module - Functional evaluation for user POLLINI - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

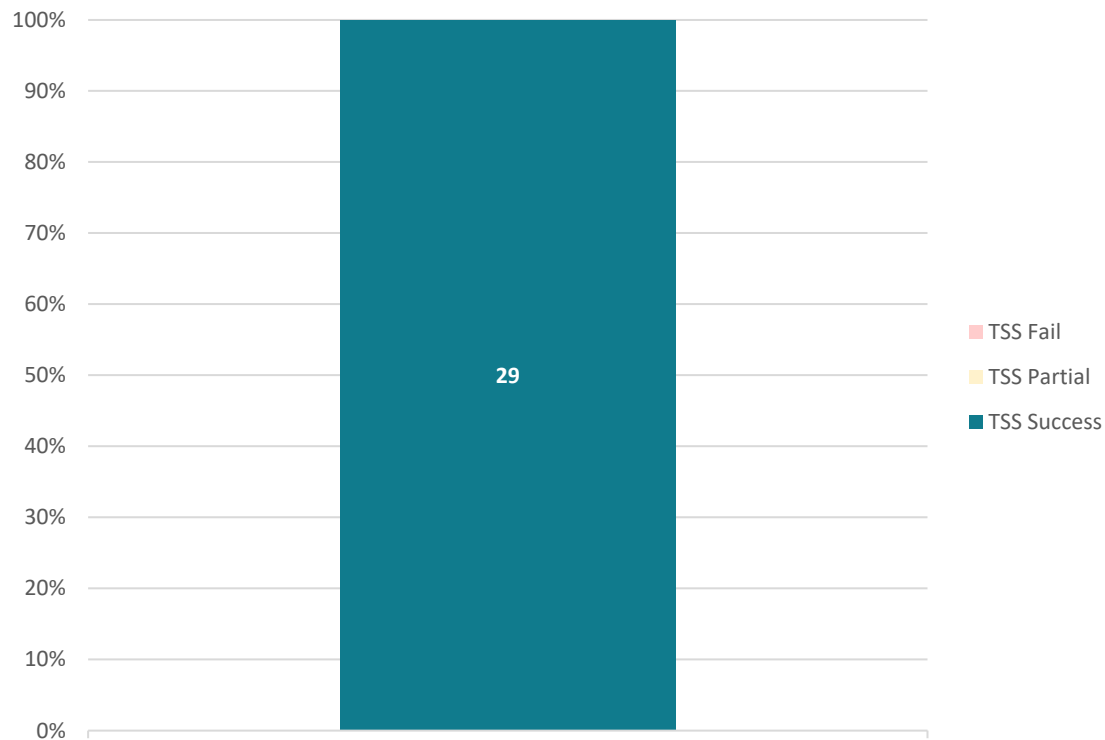


Figure 3.312: Eco-design advisory module -Visual results of the functional evaluation for user POLLINI - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Figure 3.313: Eco-design advisory module -Tabular results of the functional evaluation for user POLLINI - Homepage

3.4.3.3.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage, a full score has been achieved by all dimensions, indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.314: Eco-design advisory module -Tabular results of the non-functional evaluation for user POLLINI - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

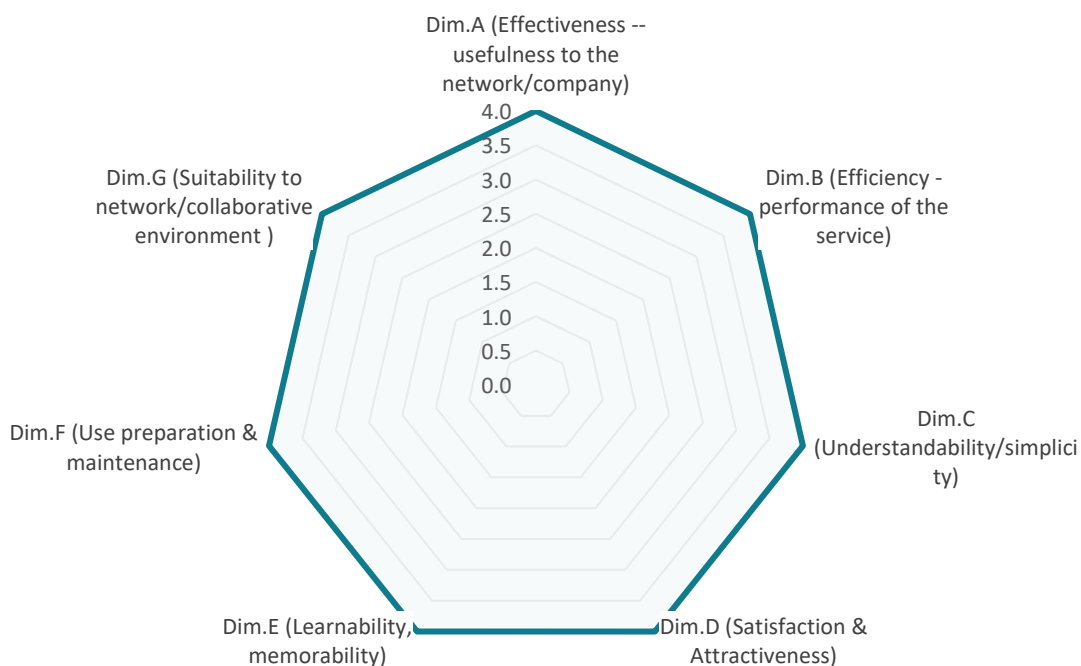


Figure 3.315: Eco-design advisory module -Visual results of the non-functional evaluation for user POLLINI - Homepage

3.4.3.4 Evaluation tester #4 (SEAT)

3.4.3.4.1 Evaluation user #1

3.4.3.4.1.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet					
Test Case References					
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Núria Fernández (SEAT) (Technical Conformity-Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)		
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

Figure 3.316: Eco-design advisory module - Functional evaluation for user SEAT (tester #1) - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

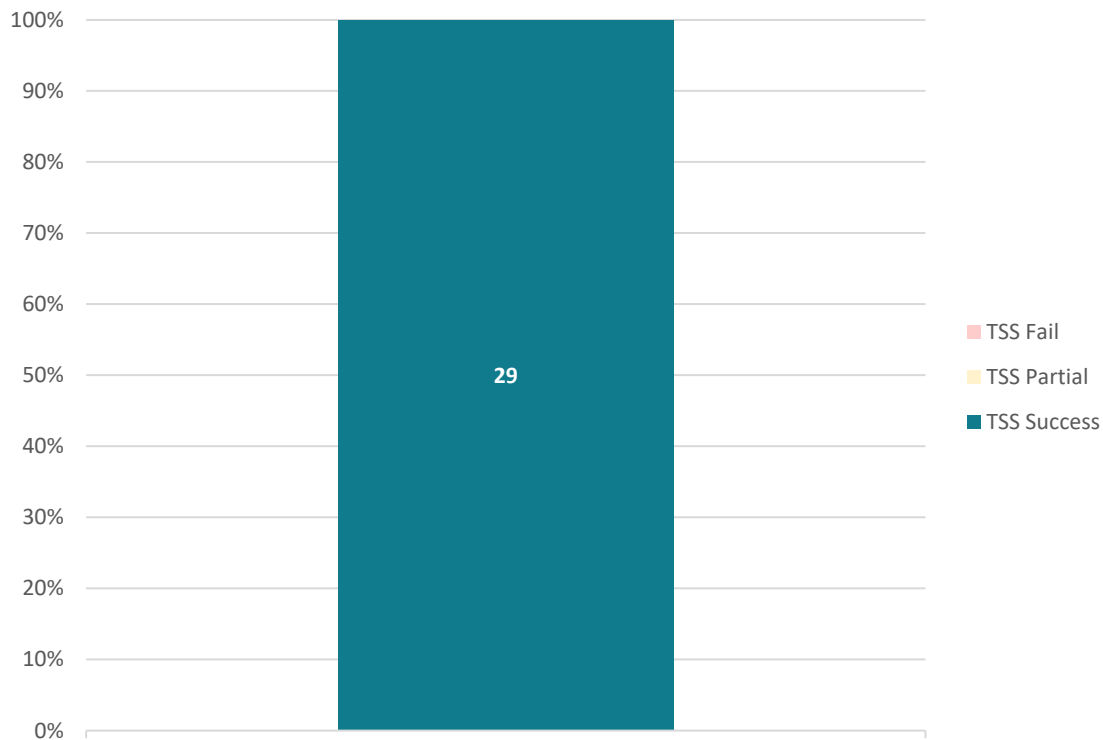


Figure 3.317: Eco-design advisory module -Visual results of the functional evaluation for user SEAT (tester #1) - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	27
TSS Partial	2
TSS Fail	0

Figure 3.318: Eco-design advisory module -Tabular results of the functional evaluation for user SEAT (tester #1) - Homepage

3.4.3.4.1.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable score has been achieved by many dimensions, while attention is needed by user preparation.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.0
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.4
Dim.E (Learnability, memorability)	1.5
Dim.F (Use preparation & maintenance)	2.0
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.4

Figure 3.319: Eco-design advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #1) - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

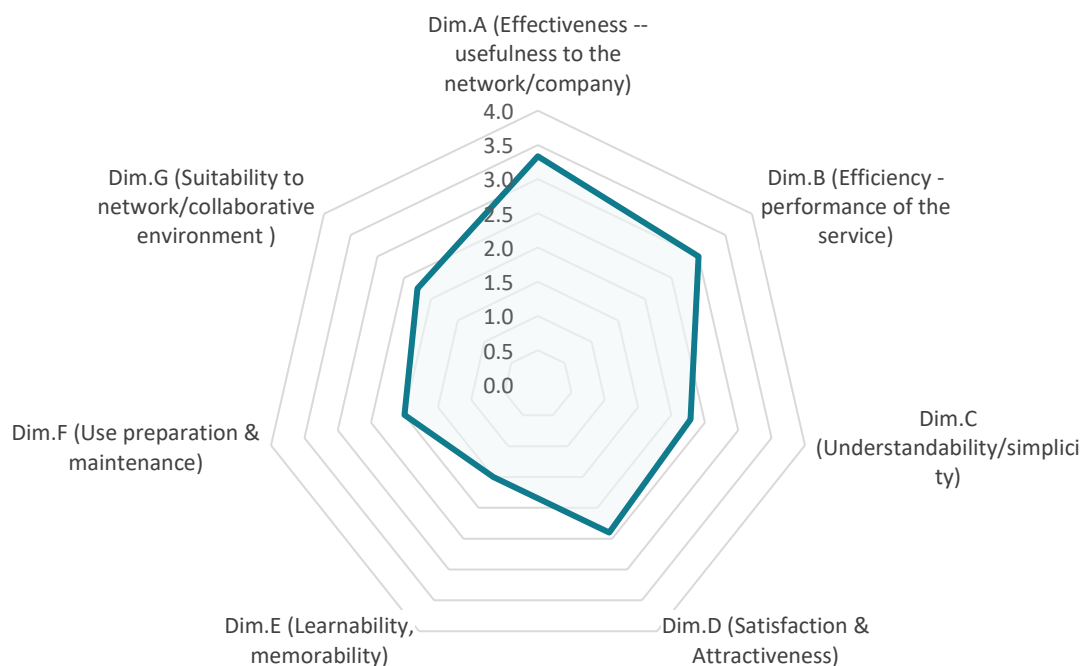


Figure 3.320: Eco-design advisory module -Visual results of the non-functional evaluation for user SEAT (tester #1) - Homepage

3.4.3.4.2 Evaluation user #2

3.4.3.4.2.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.


<div> TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet</div>					
Test Case References					
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@bdtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bdtgroup.com)		
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
lick the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

Figure 3.321: Eco-design advisory module - Functional evaluation for user SEAT (tester #2) - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

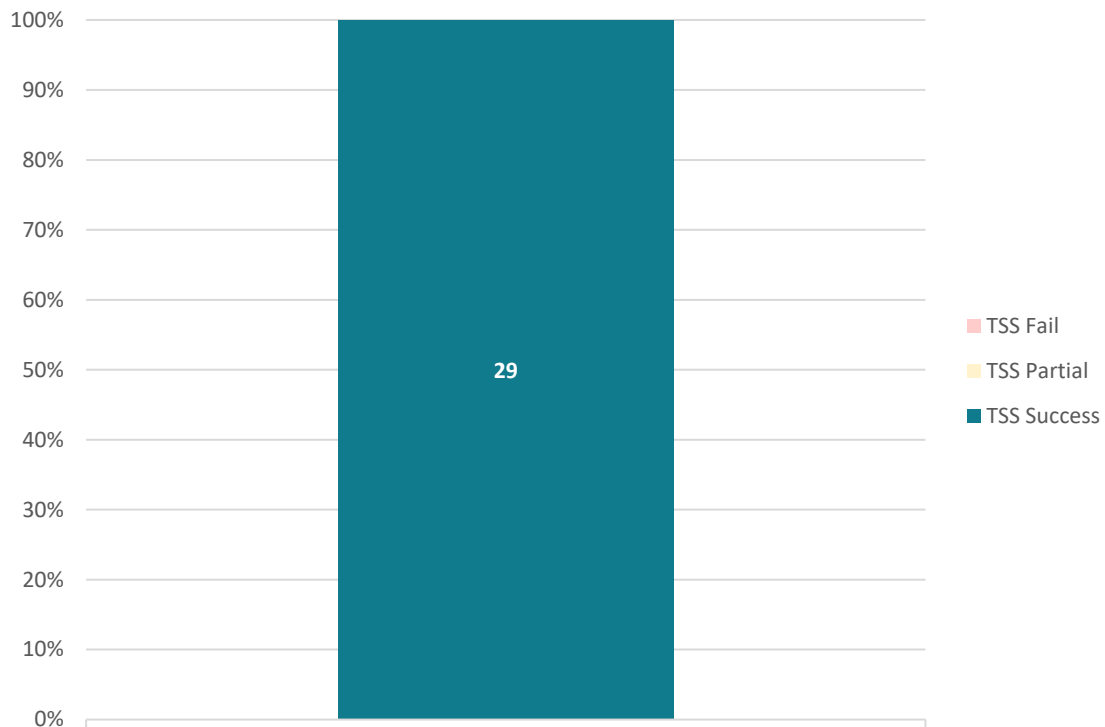


Figure 3.322: Eco-design advisory module -Visual results of the functional evaluation for user SEAT (tester #2) - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Figure 3.323: Eco-design advisory module -Visual results of the functional evaluation for user SEAT (tester #2) - Homepage

3.4.3.4.2.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage a reasonable score has been achieved by many dimensions, while attention is needed by learnability.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.7
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.1
Dim.D (Satisfaction & Attractiveness)	2.6
Dim.E (Learnability, memorability)	2.0
Dim.F (Use preparation & maintenance)	2.4
Dim.G (Suitability to network/collaborative environment)	2.5
	Total
	2.6

Figure 3.324: Eco-design advisory module -Tabular results of the non-functional evaluation for user SEAT (tester #2) - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

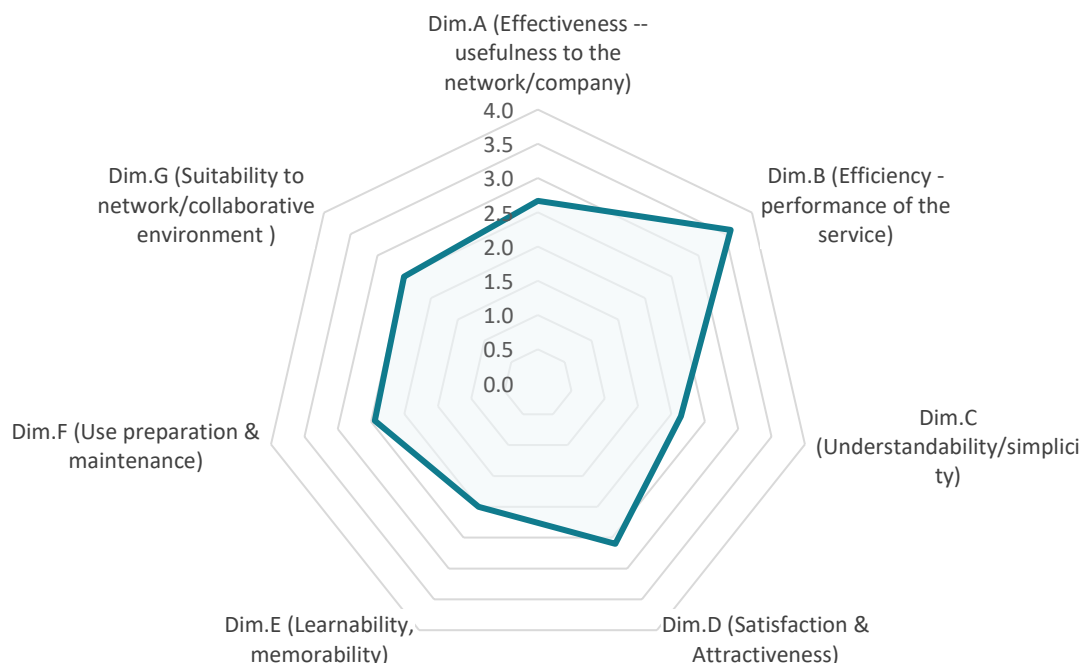


Figure 3.325: Eco-design advisory module -Visual results of the non-functional evaluation for user SEAT (tester #2) - Homepage

3.4.3.5 Evaluation tester #5 (TNO)

3.4.3.5.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with no remark from the test user, suggesting a satisfactory status for the dashboard under analysis.

TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet					
Test Case References					
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@btgroup.com) Technical: Mattia Calabresi (mattia.calabresi@btgroup.com)		
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
lick the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES	better resolution is necessary though	

Figure 3.326: Eco-design advisory module - Functional evaluation for user TNO - Homepage

The evaluation shows no TSS fail, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

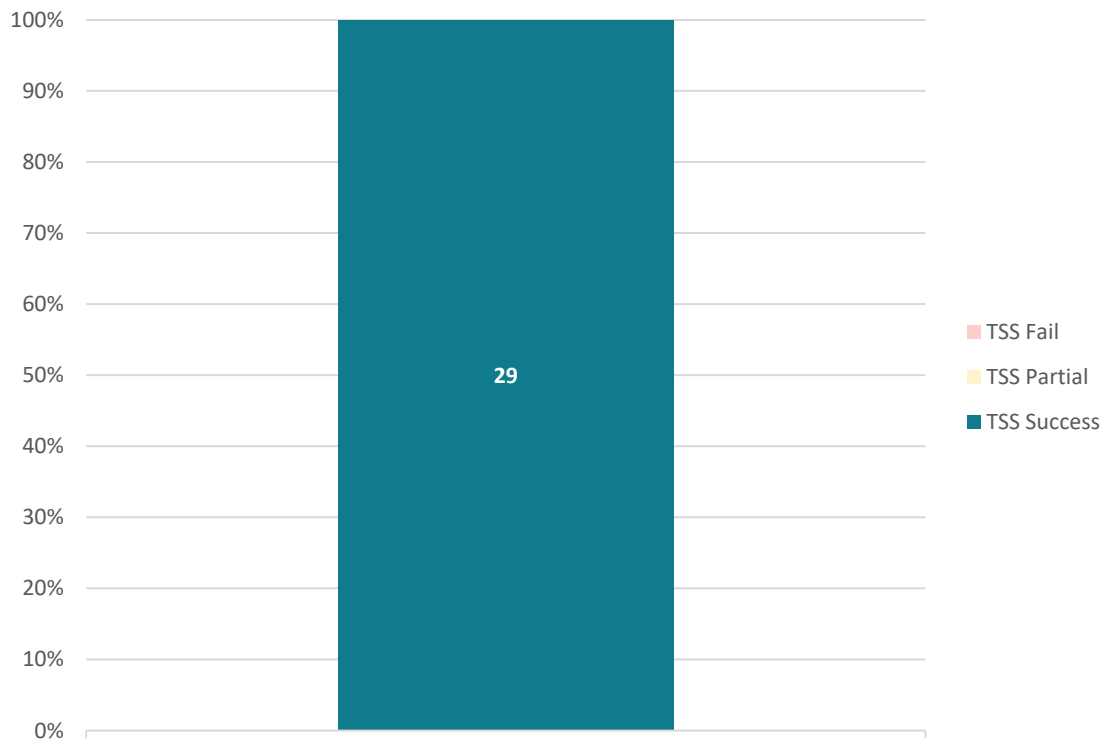


Figure 3.327: Eco-design advisory module -Visual results of the functional evaluation for user TNO - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Figure 3.328: Eco-design advisory module -Tabular results of the functional evaluation for user TNO - Homepage

3.4.3.5.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Figure 3.329: Eco-design advisory module -Tabular results of the non-functional evaluation for user TNO - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

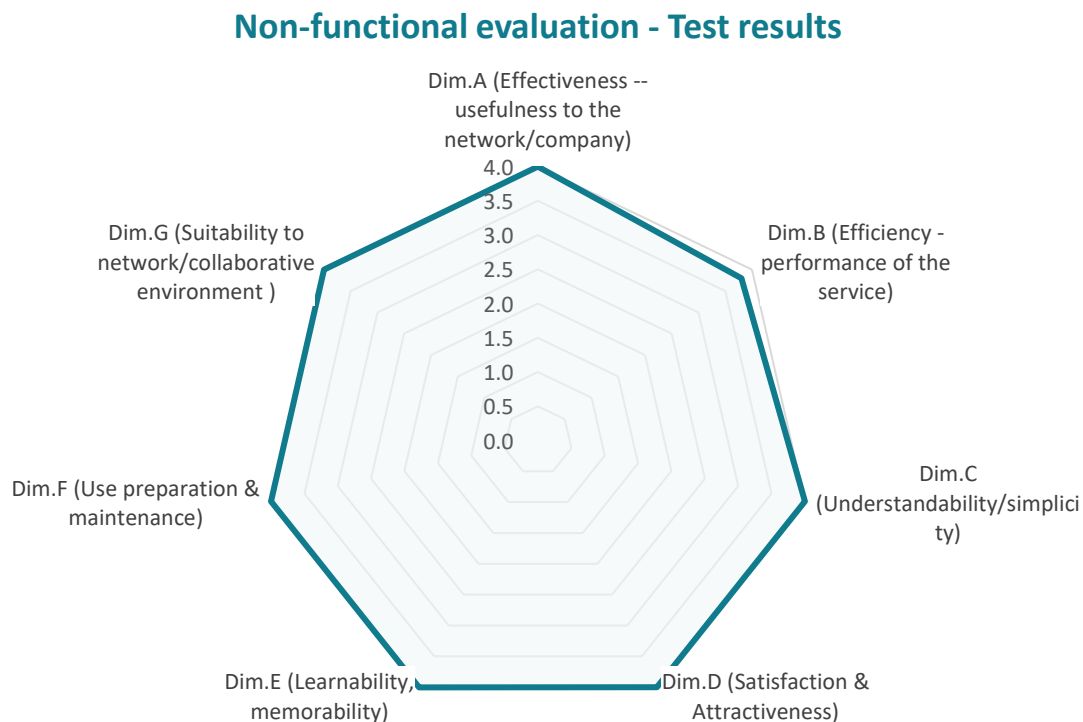


Figure 3.330: Eco-design advisory module -Visual results of the non-functional evaluation for user TNO - Homepage

3.4.3.6 Evaluation tester #6 (UNIVAQ)

3.4.3.6.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with only a partial remark concerning the image quality of the support material.

TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet					
Test Case References					
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)		
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	28	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
lick the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		PARTIAL	Yes, but the quality of the picture is poor	

Figure 3.331: Eco-design advisory module - Functional evaluation for user UNIVAQ - Homepage

The evaluation shows no TSS fail, with only one TSS partial related to the image quality of the support material as reported above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

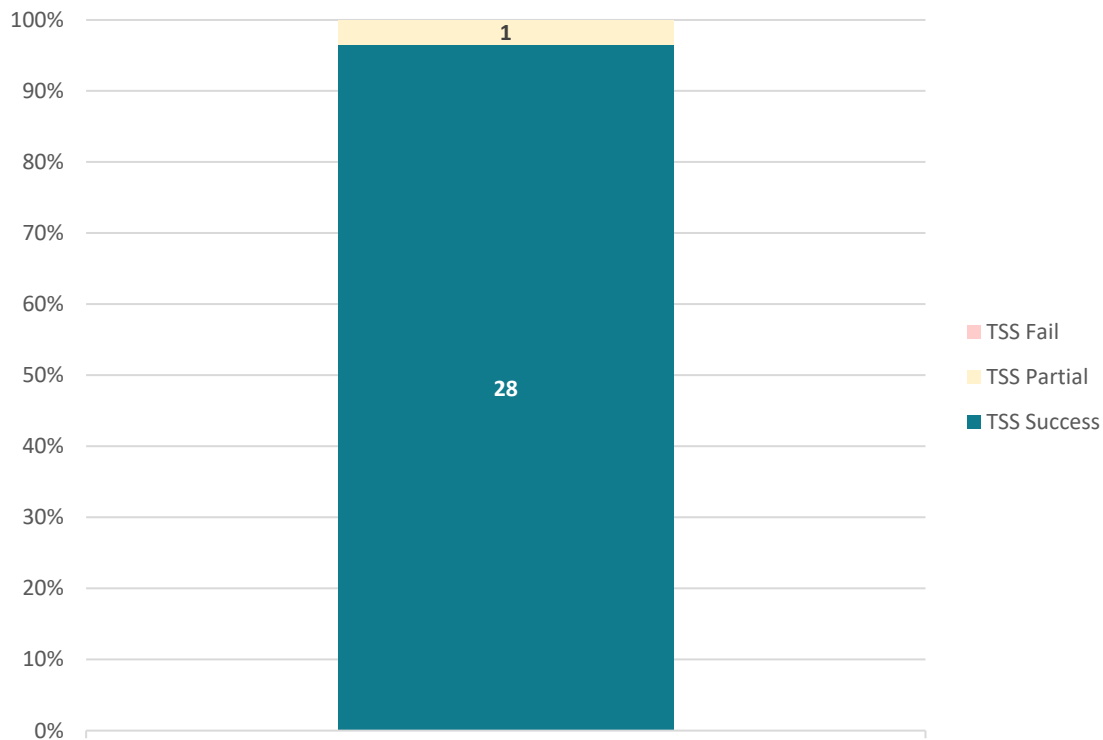


Figure 3.332: Eco-design advisory module -Visual results of the functional evaluation for user UNIVAQ - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	28
TSS Partial	1
TSS Fail	0

Figure 3.333: Eco-design advisory module -Tabular results of the functional evaluation for user UNIVAQ - Homepage

3.4.3.6.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by effectiveness and simplicity, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.6
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Figure 3.334: Eco-design advisory module -Tabular results of the non-functional evaluation for user UNIVAQ - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

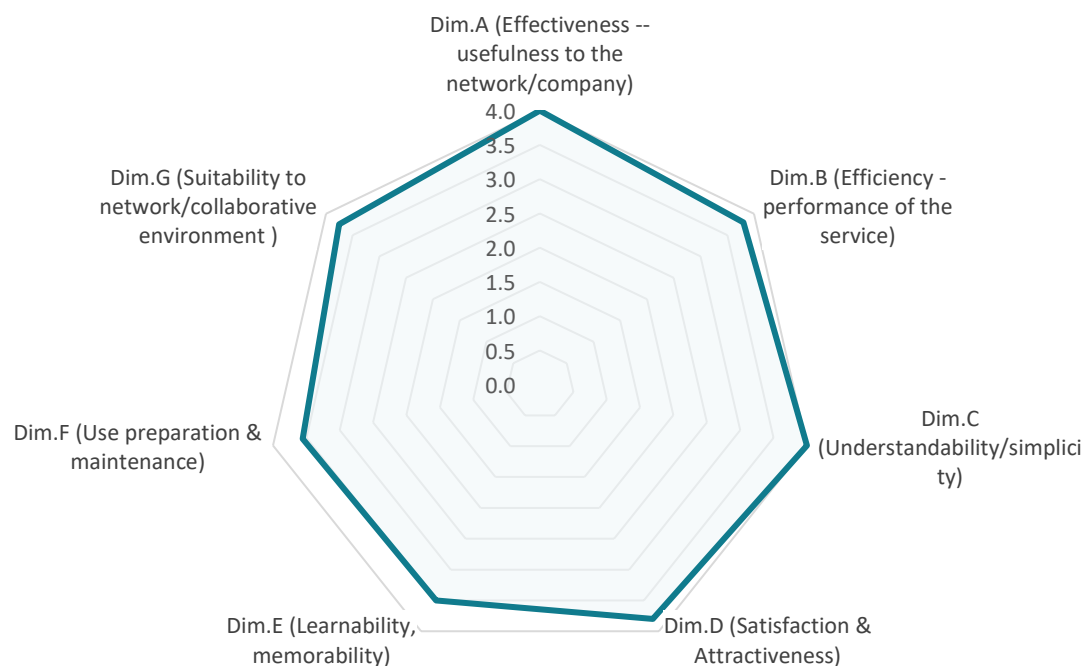


Figure 3.335: Eco-design advisory module -Visual results of the non-functional evaluation for user UNIVAQ - Homepage

3.4.3.7 Evaluation tester #7 (WALTERPACK)

3.4.3.7.1 Functional Evaluation

The functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the functional assessments for the current tester. First, the compiled functional evaluation is provided, followed by a description of the results, then the test results

bar chart is shown with the relative TSS results table. This procedure is repeated for the dashboard homepage and for the other pages under assessment within this module.

The test sheet below shows all tests have passed successfully, with a minor remark when it comes to the naming convention for the popup menu.


<div> TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet</div>					
Test Case References					
Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform		
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@bxtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@bxtgroup.com)		
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard				
Test Script					
1. Access the TREASURE Circularity Web Platform. 2. Login with the evaluation credentials provided. 3. In the search bar, search for the "combimeter" component and select the first search result. 4. Click the "OPEN ECO" button in the "Eco-Design Module" card. 5. Click the "Eco advisory" link on the top navbar. 6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.					
TSS _{success}	28	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		PARTIAL	The popup says "Assessment"	
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

Figure 3.336: Eco-design advisory module - Functional evaluation for user WALTERPACK - Homepage

The evaluation shows no TSS fail, with only one TSS partial related to the clarity of a popup menu as reported above, granting a satisfactory score overall, as visible in the figure below.

Functional evaluation - Test results

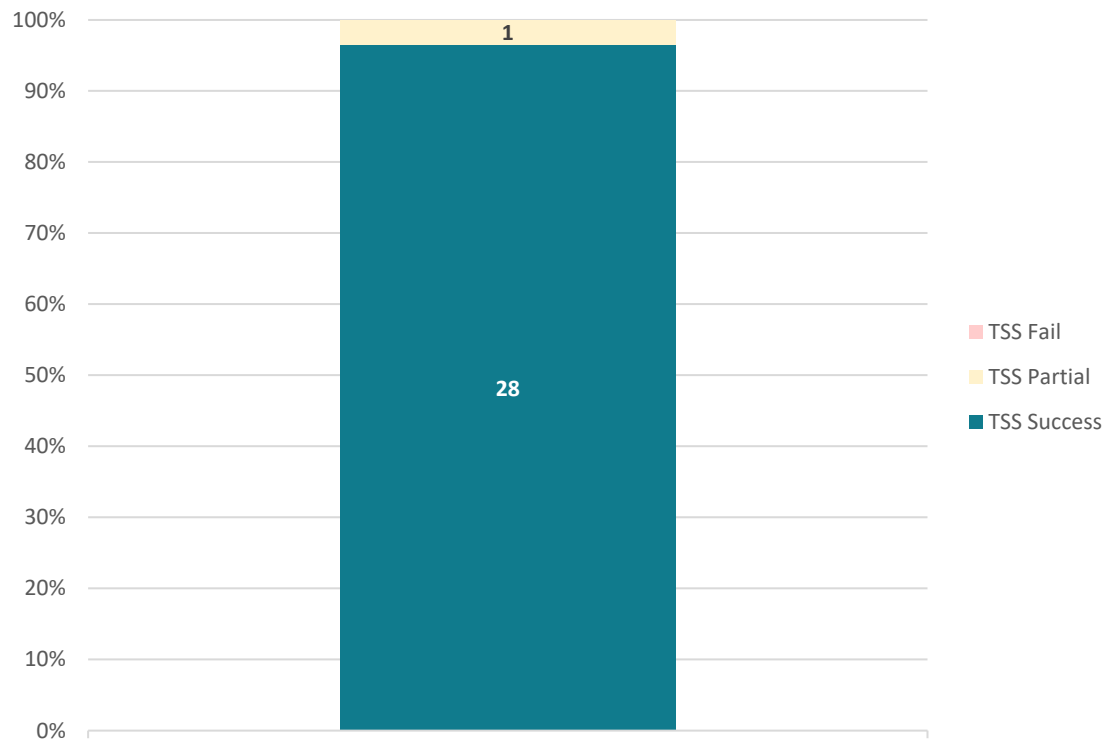


Figure 3.337: Eco-design advisory module -Visual results of the functional evaluation for user WALTERPACK - Homepage

Results Assessment	
Functional Dimension	TSS Results
TSS Success	28
TSS Partial	1
TSS Fail	0

Figure 3.338: Eco-design advisory module -Tabular results of the functional evaluation for user WALTERPACK - Homepage

3.4.3.7.2 Non-functional Evaluation

The non-functional evaluation of the Eco-design module of the Circular Advisory tool was carried out considering the information provided in the main advisory dashboard.

The testing tasks concerned the log in phase, and the assessment on the compliance level of the existing and improved design with specific guidelines using a radar graphic that highlights key impact factors to compare the reference design with the best-case one.

Below are listed the non-functional assessments for the current tester. First, the results table is provided accompanied by a summary of the test performed, then the test results radar chart is reported with a general overview on the evaluation.

If we consider the non-functional evaluation of the homepage full score has been achieved by many dimensions, while a high score has been achieved by the rest of the dimensions indicating an overall satisfaction with the dashboard.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Figure 3.339: Eco-design advisory module -Tabular results of the non-functional evaluation for user WALTERPACK - Homepage

The results are graphically visualized through the radar chart in the figure below that allows to understand at a glance the assessment results and areas of potential improvement.

Non-functional evaluation - Test results

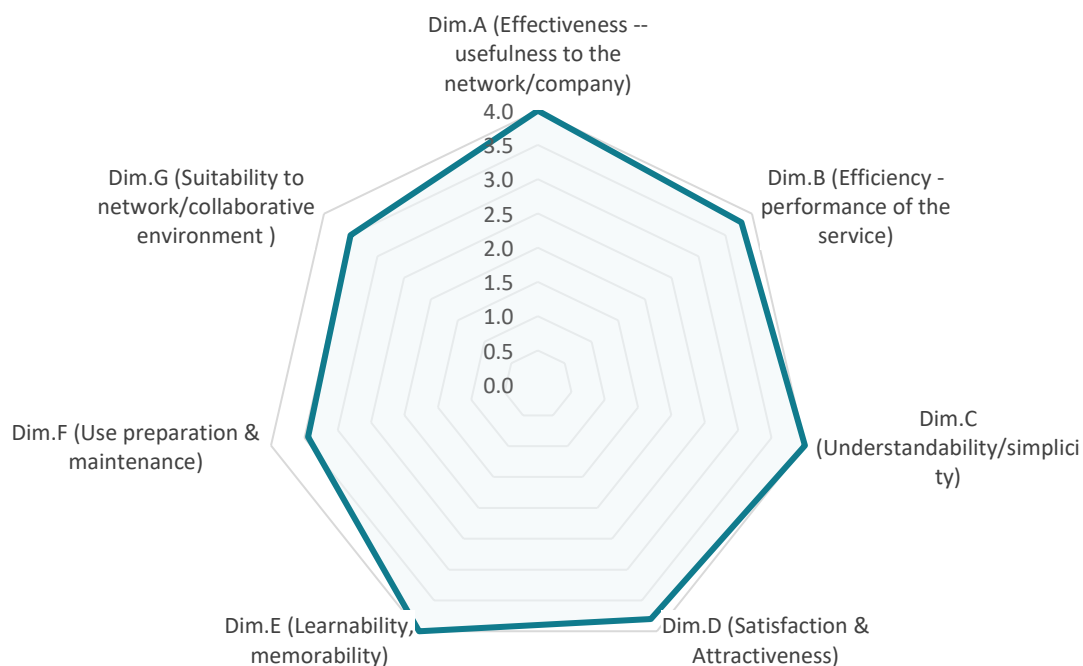


Figure 3.340: Eco-design advisory module -Visual results of the non-functional evaluation for user WALTERPACK – Homepage

3.4.3.8 Overall results

3.4.3.8.1 Functional evaluation

The functional evaluation for the Eco-design Advisory module has an overall satisfactory outcome. All evaluation testers reported most, if not all, tests successfully passed with no remarks. As can be seen in the figure below, the total number of TSS success is 228, the total number of TSS partial is 2 and the total number of TSS fail is 0.

Eco-design Advisory Module - Overall Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	228
TSS Partial	2
TSS Fail	0

Figure 3.341 – Eco-design Module - Functional evaluation overall results assessment

The two attention points for this module have been raised by UNIVAQ and WALTERPACK:

- From UNIVAQ, in the home page of the Eco-design advisory dashboard, a comment has been made for the “Metal Wheel” supporting material concerning the low resolution of the image to be downloaded.
- From WALTERPACK, in the home page of the Eco-design advisory dashboard, a comment has been made for the “Level of circularity improvement” popup, indicating that the text could be clarified further.

3.4.3.8.2 Non-functional evaluation

The non-functional evaluation for the Eco-design Advisory module has an overall satisfactory outcome.

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.8
Dim.B (Efficiency - performance of the service)	3.7
Dim.C (Understandability/simplicity)	3.5
Dim.D (Satisfaction & Attractiveness)	3.5
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.4
	Total
	3.5

Figure 3.342: Eco-design Advisory Module - Non-functional evaluation overall results assessment

4 Lessons learned

By analyzing the functional and non-functional assessments from the different end-users, it is possible to spot some common traits and patterns that have been expressed during the testing activities. Here are reported the lessons learned from the final round of test assessments for the TREASURE Circularity Web Platform and the Circular Advisory Tool.

In general, different types of users belonging to different backgrounds and having different domain knowledge can interpret the various dimensions in different ways. The platform needs to adapt to the different requirements of the users to better offer its services independently on the type of user. In particular, for each module a dedicated attention is needed to allow the main target audience to easily understand the tools at disposal and how to use them. On the other hand, the same dashboards need to be revised in such a way that they allow also non-domain-expert users to at least grasp the general concept and benefits in using the module; therefore, adaptability is a key lesson to be further considered. In general, experts in one field found easier to understand and utilize the dashboards that are more in line with their qualification while finding some difficulties in interacting with the dashboard not relevant to their usual activities.

All the aspects here considered have been taken into account when outlining the conclusions and future work related to the platform and advisory modules improvement. The full list of considerations is reported in the next chapter.

5 Conclusions and Next Steps

The Evaluation process carried out in T4.6 had as major goal testing all technical developments performed in T4.4. and T4.5, thus concerning both the Circularity Web Platform and the Circular Advisory Tool. The validation activities have been executed taking into consideration 2 major elements: the purpose of the specific platform component to check the system availability for the key sections relevant for the user; and the type of users that operates on the modules according to the authorization protocol and domain of expertise.

In this deliverable the test of TREASURE platform has been reported. The two major sections of the document describe: i) the process followed to prepare, accomplish and measure the test of the system and ii) the test execution (test sheet – test report and evaluation analysis) where a specific sub-section has been devoted for each module of the TREASURE platform.

Overall, a total amount of 1135 tests have been executed. A detailed description of functional and non-functional evaluations of the system have been performed approaching the project platform from 6 different perspectives:

- I. Circularity Web Platform
 - Disassemblability Module:
 - Regular user of the disassemblability dashboards: the functional and non-functional evaluation was carried out considering not only the main page of the platform but also the detail pages (referenced as Level 1 and Level 2) that provides additional information on the assessment of specific data about a car part/component disassemblability difficulty and required tools.
 - Recyclability module:
 - Regular user of the recyclability dashboards: the functional and non-functional evaluation was carried out considering not only the main page of the platform but also the detail page that provides additional information on the assessment of specific data about individual recycling rates for a car part/component.
 - Eco-design module:
 - Regular user of the eco-design dashboards: the functional and non-functional evaluation was carried out considering not only the main page of the platform but also the detail page that provides additional information on the assessment of specific data about individual metals present in a car part/component.
- II. Circular Advisory Tool:
 - Disassemblability Advisory Module
 - Advisory user of the circular advisory dashboards: the functional and non-functional evaluation was carried out considering the main page of the module.
 - Recyclability Advisory Module
 - Advisory user of the circular advisory dashboards: the functional and non-functional evaluation was carried out considering the main page of the module.
 - Eco-design Advisory Module

- Advisory user of the circular advisory dashboards: the functional and non-functional evaluation was carried out considering the main page of the module.

In these perspectives the focus of the assessment has been put on the usage of the system by different kind of end-users (BoL, EoL and Domain experts); this approach was selected as it allows to gain feedback from a diverse audience that provides a well-rounded feedback from different perspectives.

By analyzing all data extracted from the functional and non-functional assessments, it is possible to identify some trends related to the feedback provided by the users. In particular:

- Concerning the functional evaluation, a series of minor improvements can be performed relative to the chart visualizations that present some inconsistencies or hard to read values. Another attention point has been identified in the form of the provided indications on how to interact with certain features of the dashboards (e.g. interactive chart thresholds or numeric inputs for revenue and profit margins); these sometimes outlined an improper behavior when it comes to data insertion to update the interactive charts. Finally, in accordance with the non-functional evaluation results, a general trend has been identified around the need for improved guidelines, explanations and tooltips to guide the user through the various dashboard. These last complaints mainly come from users that are not very familiar with a particular portion of the platform and thus need additional support to better exploit the capabilities of the different modules.
- Concerning the non-functional evaluation, the general sentiment around the circularity platform and advisory tool is positive: almost all end-users found the module dashboards filled with useful information; users were overall satisfied with the usefulness of the platform and its efficiency, efficacy, performance and lean towards collaboration. The main attention points have been identified around learnability, that is the ability for the user to quickly memorize the dashboard features and use the effectively from the beginning, and clarity that is the ability of the user to clearly understand the purpose of the various modules and their usage and scope. Such attention points are fully aligned with the results of the functional assessment and are mainly expressed, in turn, by users that are far from the domain of usage of the platform module, suggesting that further effort can be put in improving the design of the modules to allow easier onboarding of the users, even the less knowledgeable ones.

Overall, the received results of the test are satisfactory and in line with expectations for both functional and non-functional tests. In general, the TREASURE platform has been rated as good in all its different perspectives.

Space for improvements have been extracted from the testers' reports and summarized here below. This will be the starting point for the improvement of the system after the end of the project.

The next steps identified from users functional and non-functional assessments are listed below:

- Concerning the Circularity Web Platform:

- Concerning the Disassemblability module:
 - Fix the chart label as it is too small when the corresponding percentage value is low in the pie charts of the disassemblability dashboard.
- Concerning the Recyclability module:
 - Provide a reading key for the details table related to the individual recycling rates in the REC dashboard.
 - Provide a tooltip to better describe the level-2 total recycling rate.
 - Provide a fallback message when no recycling rate can be shown for the selected recycling route.
 - Allow removal of the comment from the author.
- Concerning the Eco-design module:
 - Improve clarity of Ag and Al elements display in the ECO dashboard.
 - Optimize file name for the exported report and add measurement units in the excel sheet exported from the details page of the ECO dashboard.
 - Fix chart label too small when the corresponding percentage value is low in the pie chart of the ECO dashboard.
- Concerning the Circular Advisory Tool:
 - Concerning the Disassemblability advisory module:
 - Increase the number of digits of the numerical input box in the thermodynamic rarity value limit box of the DIS advisory dashboard.
 - Add the possibility to adjust the upper and lower bounds for the thermodynamic rarity value limit in the DIS advisory dashboard.
 - Fix the numeric input not allowing decimal values above 9 in the thermodynamic rarity value limit input box in the DIS advisory dashboard.
 - Provide a tooltip explaining how to adjust the metrics in the DIS advisory dashboard.
 - Add smoother animations when adjusting the thermodynamic rarity vs revenue chart in the DIS advisory dashboard.
 - Concerning the Recyclability advisory module:
 - Improve the chart responsiveness when zoomed to prevent cutting the corners in the REC advisory dashboard.
 - Add information tooltip to explain risk values in the recycling route tooltip in the REC advisory dashboard.
 - Add the initial value for the profit metric in the recycling route tooltip of the REC advisory dashboard.
 - Include an explanation about the method to extract metals in the top table of the REC advisory dashboard.
 - Concerning the Eco-design advisory module:
 - Add information about the file type to be downloaded in the download buttons for pdf reports and image supporting material in the ECO advisory dashboard.
 - Increase the resolution of the MARAS metal wheel provided as supporting material in the ECO advisory dashboard.

- Adjust the naming convention for the guidelines popup in the guidelines radar chart of the ECO advisory dashboard.

As can be derived from above, the next steps will be mainly focused in addressing the outcome of the functional and non-functional assessments as described above, improving the usability of the dashboards and favoring easier adoption from less expert users. Furthermore, additional activities will be carried out according to the reported plan provided from WP8 deliverables.

Abbreviations

SQuaRE	Systems and software Quality Requirements and Evaluation
CE	Circular Economy
GUI	Graphic user interface
TSS	Test Sheet Score

Annexes

The full test reports are provided as annex attached at the present document.



TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCds	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	27	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears				
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears				
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES	button can have info that pdf file is expected	
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES	button can have info that pdf file is expected	
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES	button can have info that png is expected	

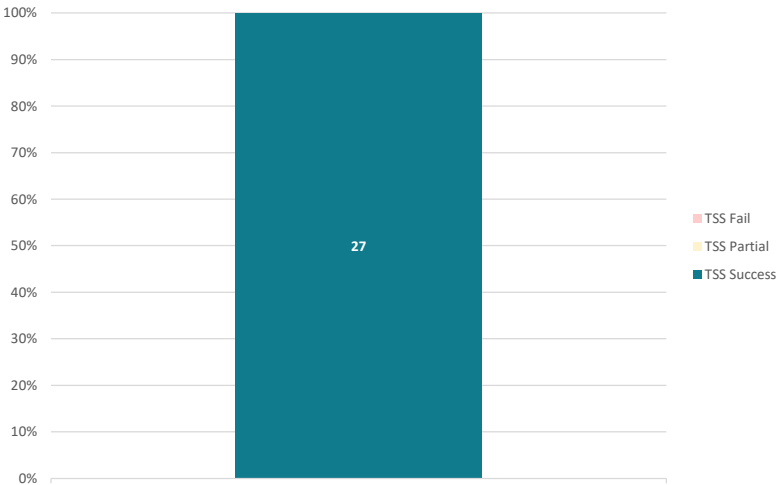
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	
A4	What could be improved to make more value of the tool/service?	4
Dim.B (Efficiency - performance of the service)		Total 4.0
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	4
B5	The service structure allows flexible & fast performance of the tasks.	4
B6	What could be improved to make more value of the tool/service?	
Dim.C (Understandability/simplicity)		Total 4.0
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4
C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	4

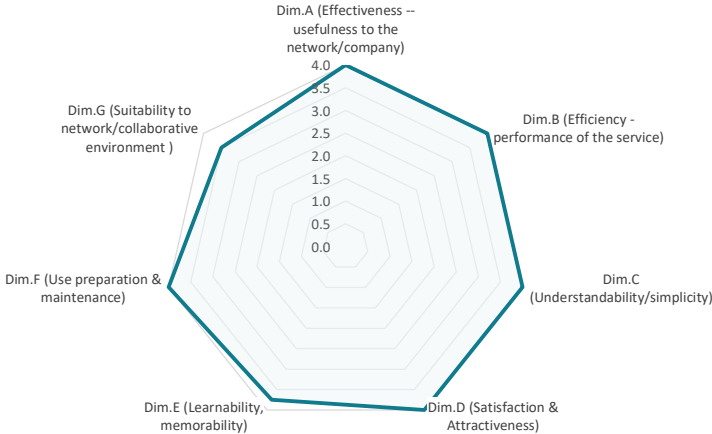
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	27
TSS Partial	0
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

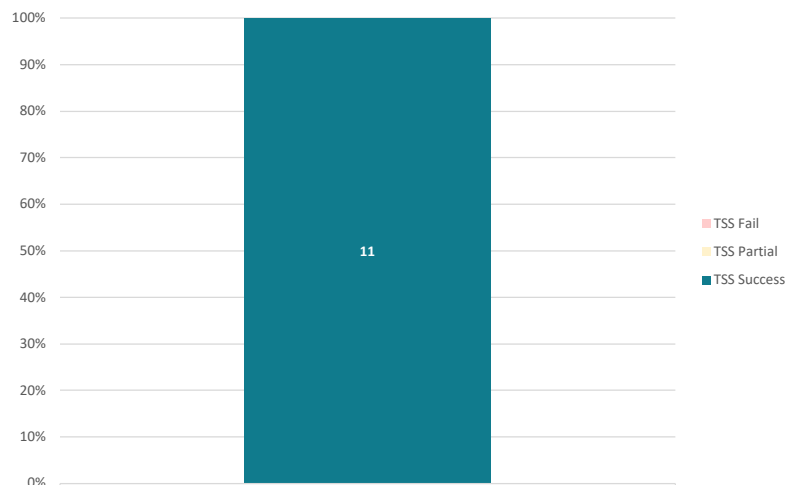
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassembly Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		YES		
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.			
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4		
C7	The output of the service is clear and understandable.	4		

C8	What could be improved to make more value of the tool/service?		
Dim.D (Satisfaction & Attractiveness)		Total	3.8
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	3.8
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	3	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.8
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	3	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

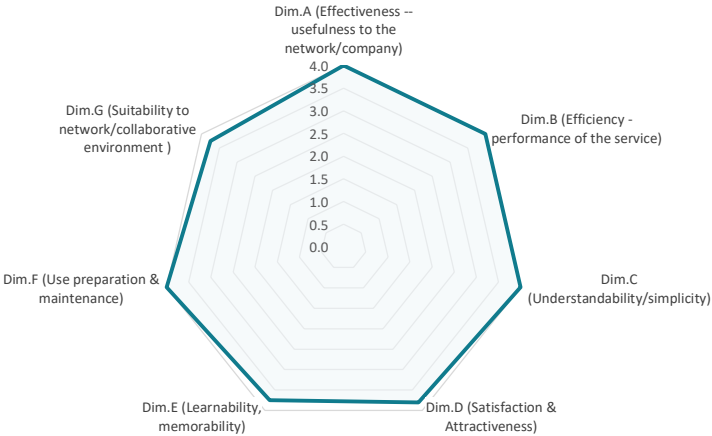
Functional evaluation - Test results



Non-functional Dimension	
Results	
Dim.A (Effectiveness -- usefulness to the network/company)	4.0

Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

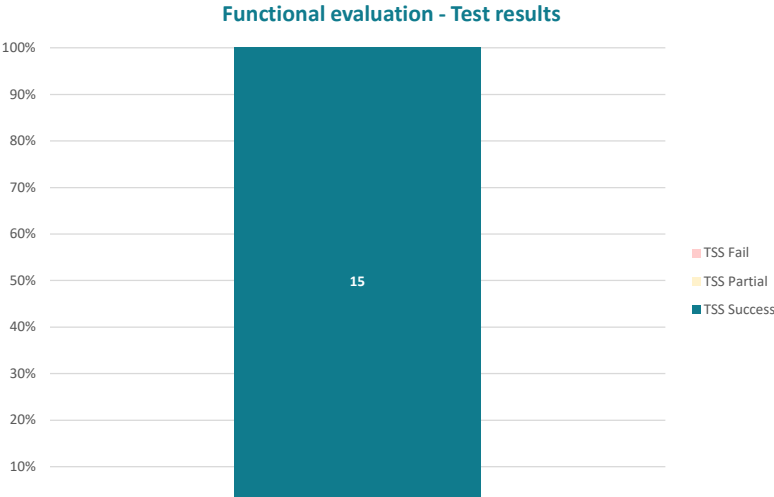
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Non-Functional Evaluation

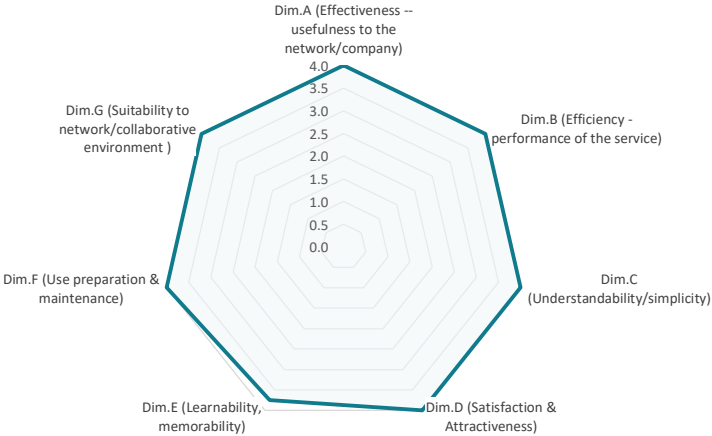
Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.		
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	

C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		15
TSS Partial		0
TSS Fail		0



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

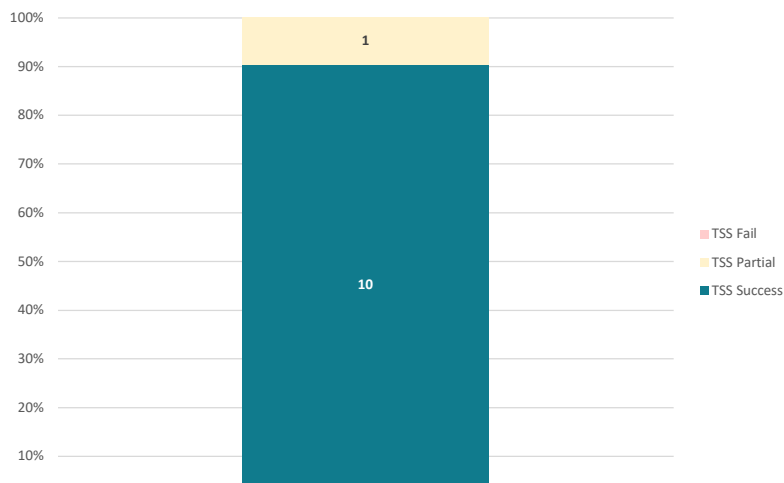
TSS _{success}	10	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		PARTIAL	In material cost side the costs are barely visible	
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	2.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	2	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.4
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	2	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.3
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

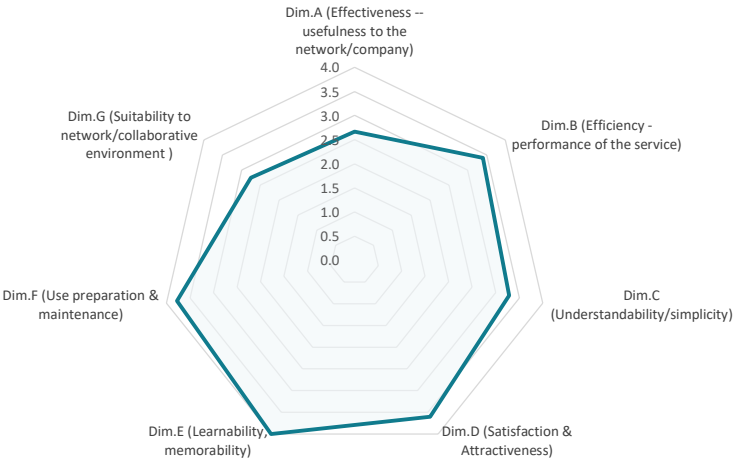
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
There could be a dedicated page to add all the necessary information about the companies costs and in the necessary places it can be adjusted		
Dim.E (Learnability, memorability)		Total4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Mobile phone compatability		
Dim.G (Suitability to network/collaborative environment)		Total2.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	2
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		10
TSS Partial		1
TSS Fail		

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	2.8
	Total
	3.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

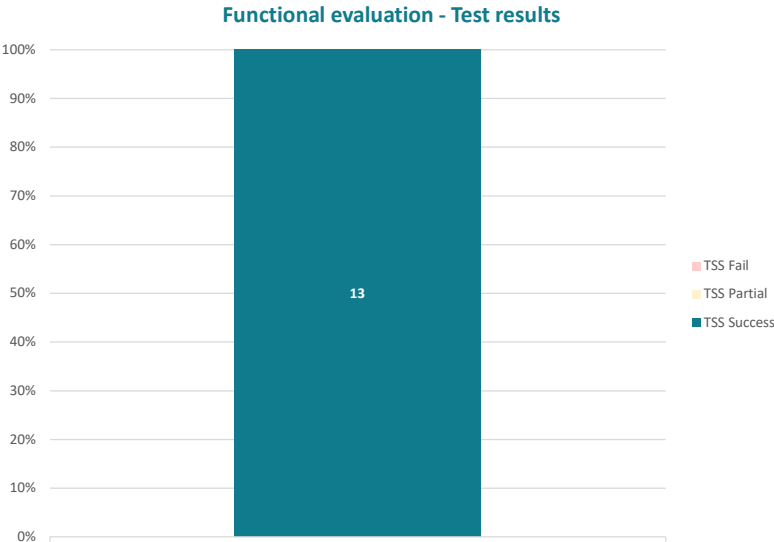
6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Non-Functional Evaluation

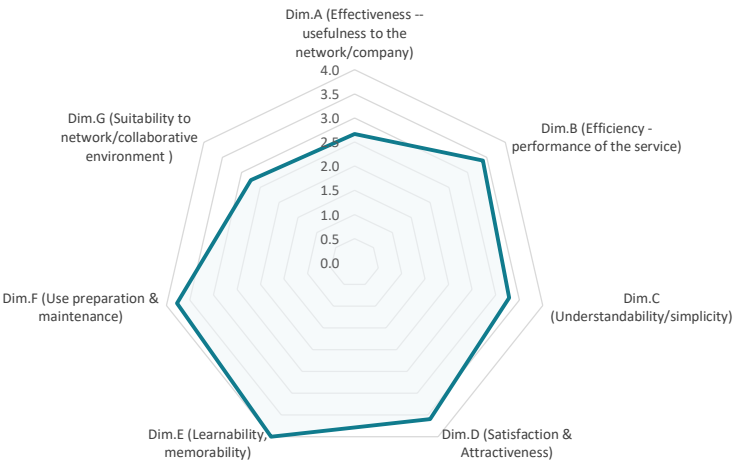
Dim.A (Effectiveness -- usefulness to the network/company)		Total	2.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	2	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.4
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	2	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.3
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3	

C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
There could be a dedicated page to add all the necessary information about the companies costs and in the necessary places it can be adjusted		
Dim.E (Learnability, memorability)		
Total		4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Mobile phone compatability		
Dim.G (Suitability to network/collaborative environment)		
Total		2.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	2
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	2.8
	Total
	3.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		PARTIAL		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service? Unfortunately our company are not direct related to the car industry, so we cannot apply this platform in its full potential		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	3	
B6	What could be improved to make more value of the tool/service? It could be more flexible offering different pathways to find desired result. For example, use visual search options in cases, where the user do not have direct knowledge of the technical part name, w		
Dim.C (Understandability/simplicity)		Total	3.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

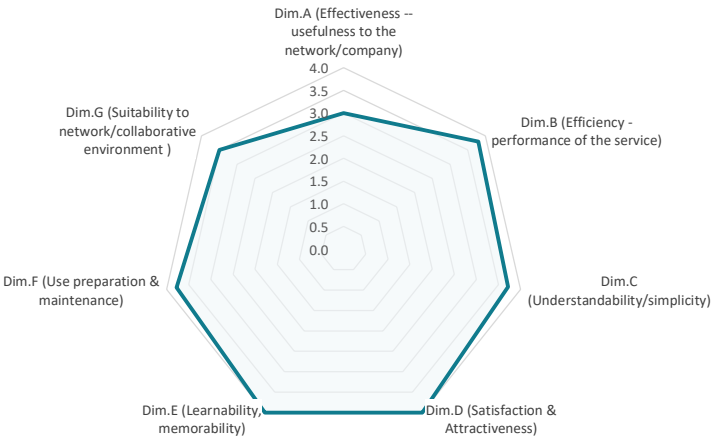
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	I'm not convinced that it is possible to find a car part without knowing it's technical name. So, the user must have some knowledge or other search options could be implemented.	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.7

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.3
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		

C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

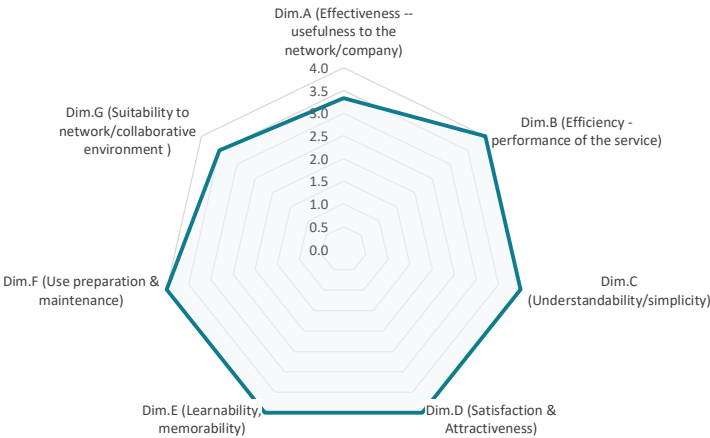
Functional evaluation - Test results





Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

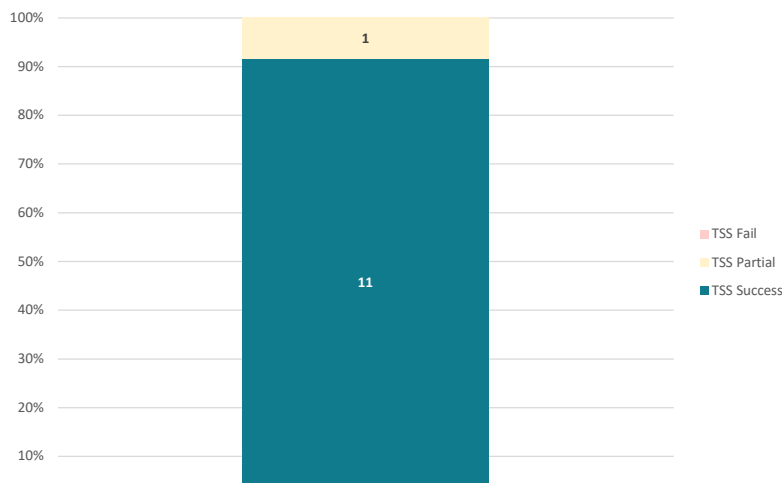
TSS _{success}	11	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES		
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		PARTIAL	Shows that steel is no high quality product	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.6
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3	

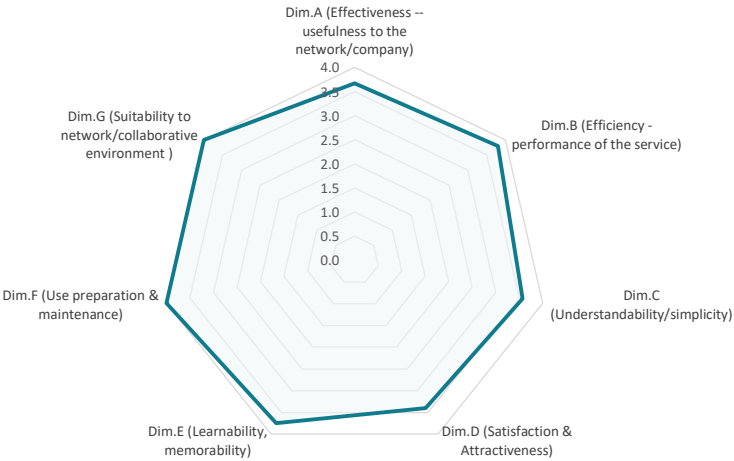
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		1
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.6
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.7

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	EuroLCDs	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

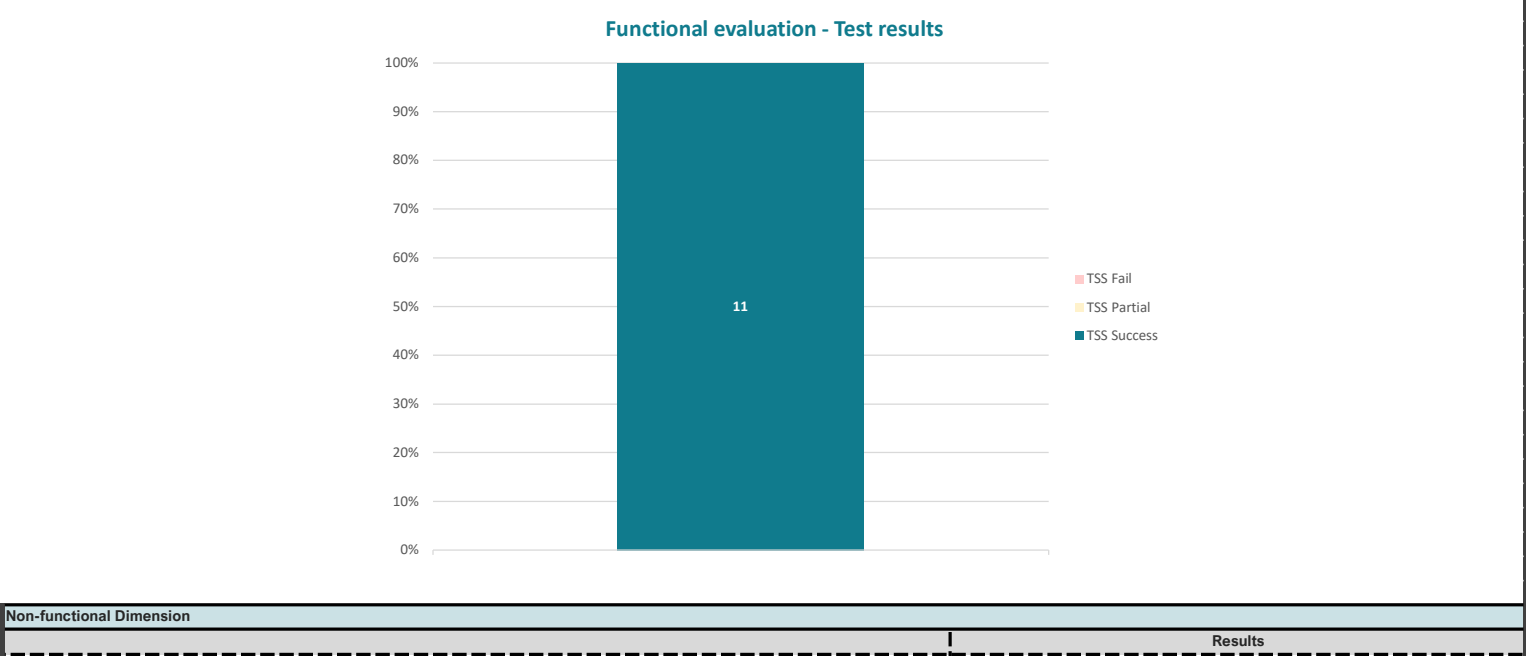
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
6. Click the "Details" button next to the recycling routes dropdown menu.
7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Non-Functional Evaluation

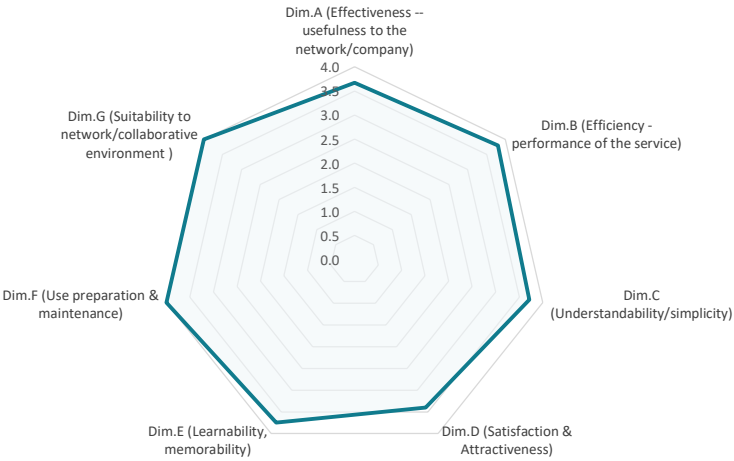
Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.	4	
C8	What could be improved to make more value of the tool/service?		

Dim.D (Satisfaction & Attractiveness)		Total	3.4
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	3	
D5	I could recommend the service for other people/organizations.	3	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	3.8
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	3	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	4.0
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	



Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

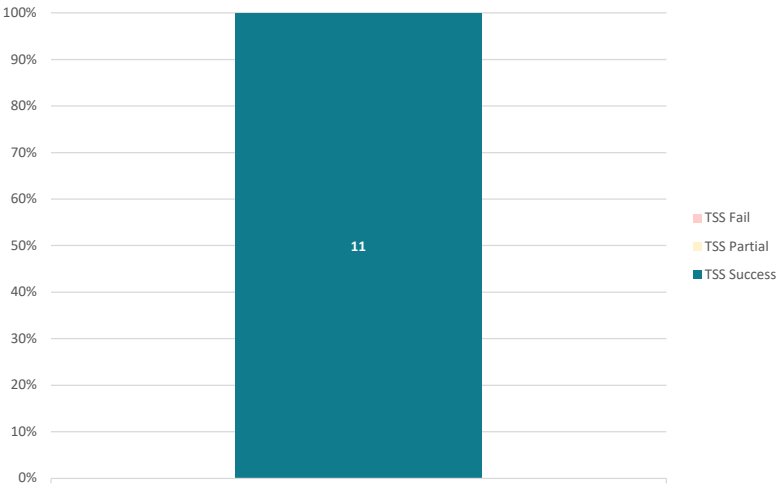
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES	No comment	
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES	No comment	
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES	No comment	
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES	No comment	
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES	No comment	
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES	No comment	
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		YES	No comment	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.5
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.		
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.		
C8	What could be improved to make more value of the tool/service?		

It's right, it doesn't need any other tool		
Dim.D (Satisfaction & Attractiveness)		3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
It's right, it doesn't need any other tool		
Dim.E (Learnability, memorability)		4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
It's right, it doesn't need any other tool		
Dim.F (Use preparation & maintenance)		3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	2
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
It's right, it doesn't need any other tool		
Dim.G (Suitability to network/collaborative environment)		3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	3
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

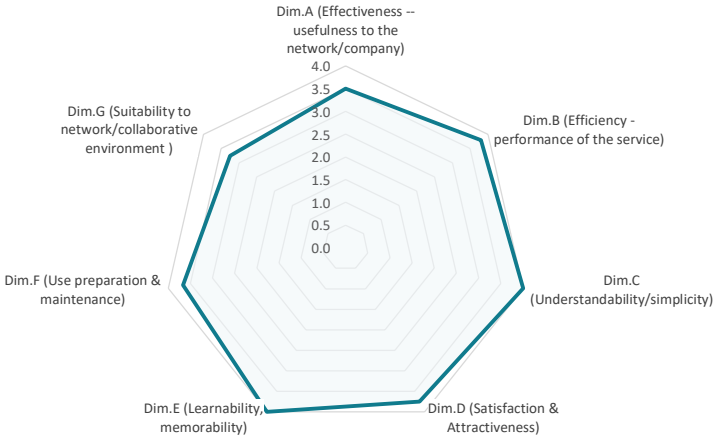
Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.5
Dim.B (Efficiency - performance of the service)	3.8

Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.7

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

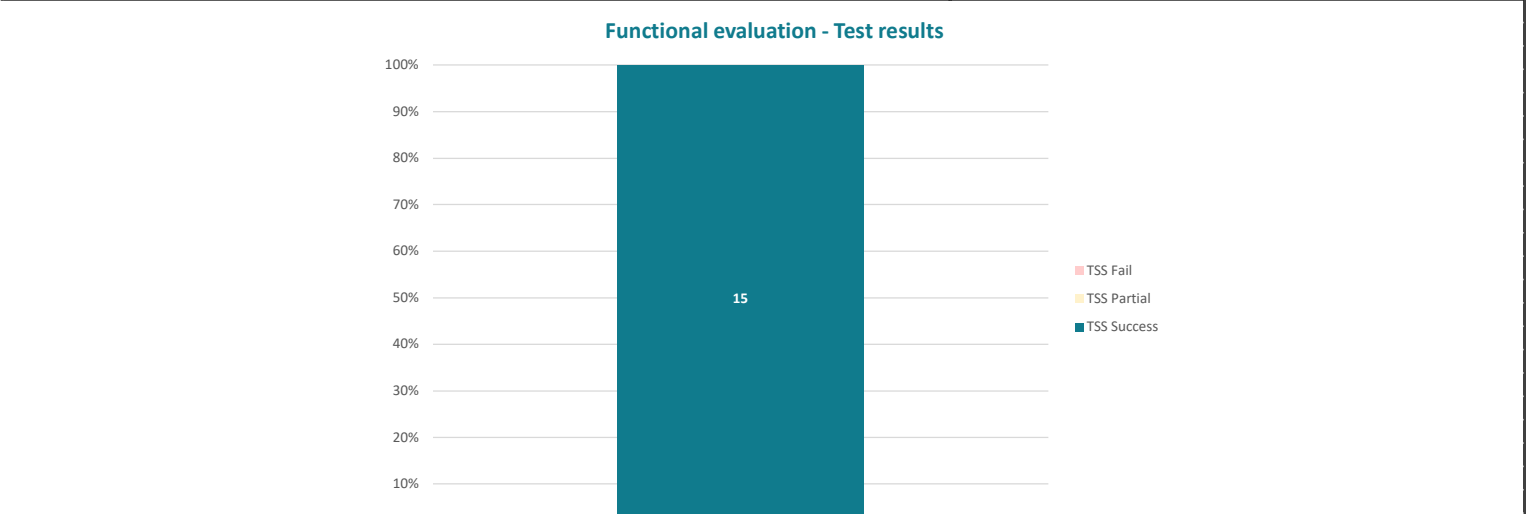
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES	No comment	
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES	No comment	
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES	No comment	
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES	No comment	
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES	No comment	
Assess the revenue indicator	All relevant information for the desired section is displayed		YES	No comment	
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES	No comment	
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES	No comment	
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES	No comment	
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES	No comment	

Non-Functional Evaluation

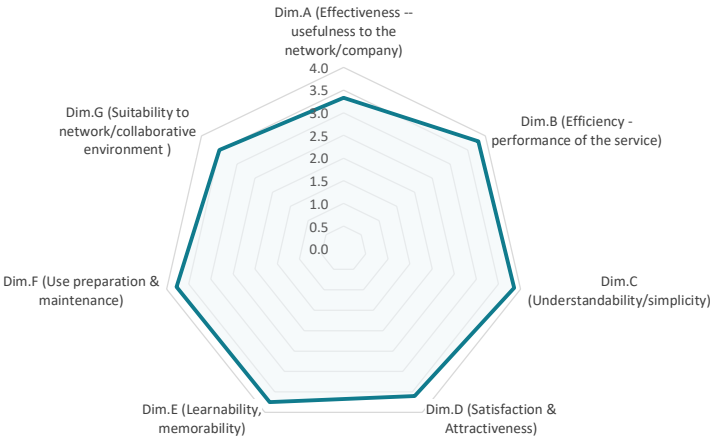
Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.C (Understandability/simplicity)		Total	3.9
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	4	

C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.D (Satisfaction & Attractiveness)		
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.E (Learnability, memorability)		
Total		3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.F (Use preparation & maintenance)		
Total		3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.G (Suitability to network/collaborative environment)		
Total		3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		15
TSS Partial		0
TSS Fail		0



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.7

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

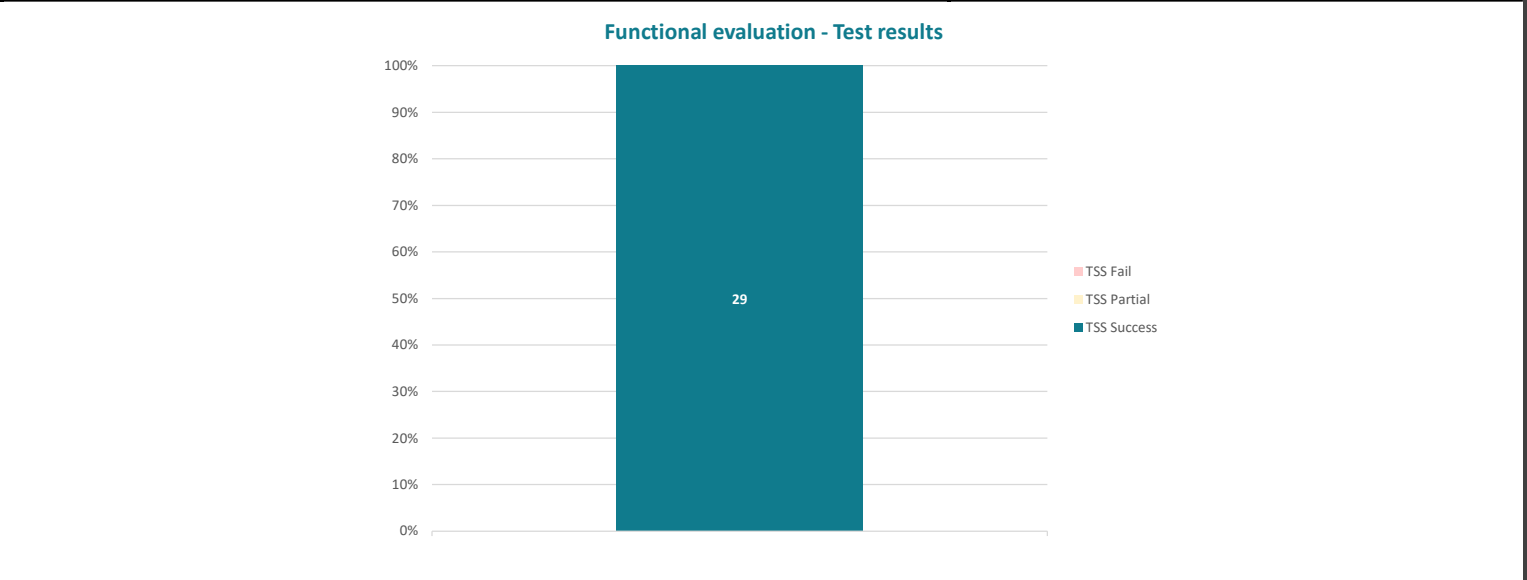
TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES	No comment	
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES	No comment	
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES	No comment	
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES	No comment	
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES	No comment	
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES	No comment	
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES	No comment	
Press the "X" button	The feedbacks popup closes		YES	No comment	
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES	No comment	
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES	No comment	
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES	No comment	
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES	No comment	
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES	No comment	
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES	No comment	
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES	No comment	
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES	No comment	
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES	No comment	
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES	No comment	
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES	No comment	
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES	No comment	
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES	No comment	
Assess the "Comments" section	All relevant information for the desired section is displayed		YES	No comment	
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES	No comment	
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES	No comment	

Non-Functional Evaluation

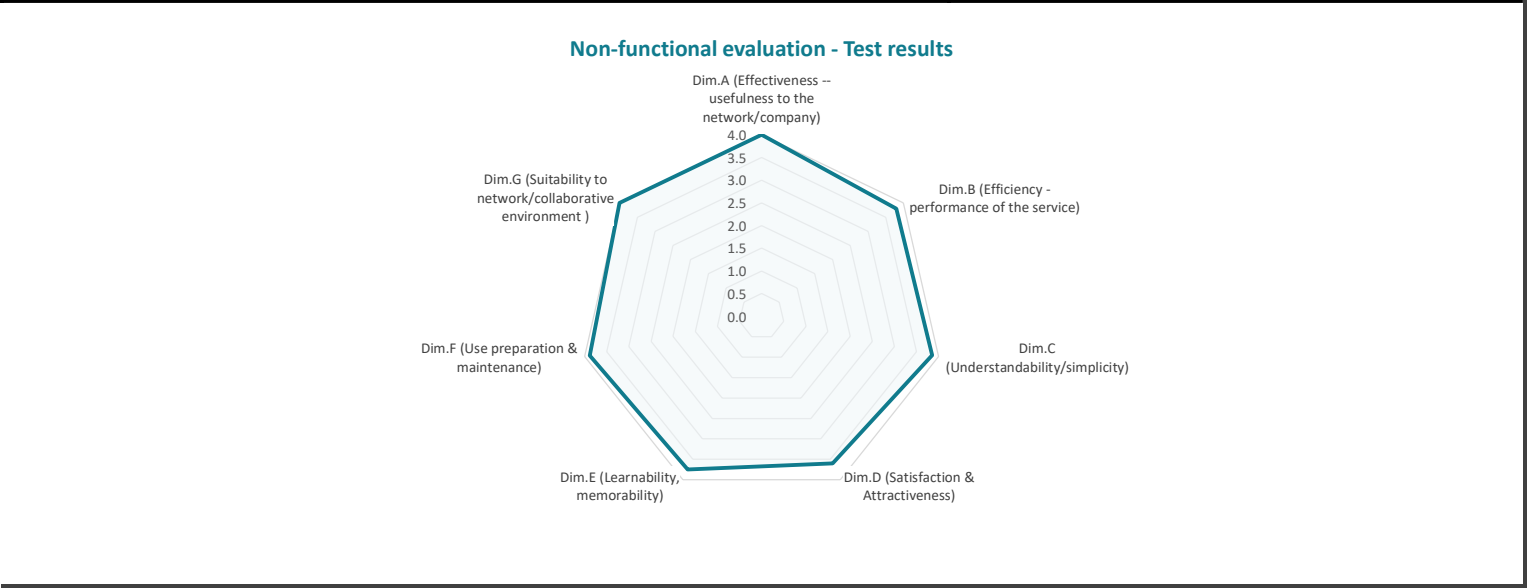
Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4
A4	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.B (Efficiency - performance of the service)		
Total		3.8
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	3
B5	The service structure allows flexible & fast performance of the tasks.	4
B6	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.C (Understandability/simplicity)		
Total		3.9
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3
C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.D (Satisfaction & Attractiveness)		
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.E (Learnability, memorability)		
Total		3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.F (Use preparation & maintenance)		
Total		3.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.G (Suitability to network/collaborative environment)		
Total		4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		

Functional Dimension	
	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES	No comment	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES	No comment	
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES	No comment	
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	No comment	
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES	No comment	
Press the "Add feedback" button	The add feedback popup appears		YES	No comment	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES	No comment	
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.C (Understandability/simplicity)			Total	3.7
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		

C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.D (Satisfaction & Attractiveness)		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.F (Use preparation & maintenance)		Total 3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.G (Suitability to network/collaborative environment)		Total 3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

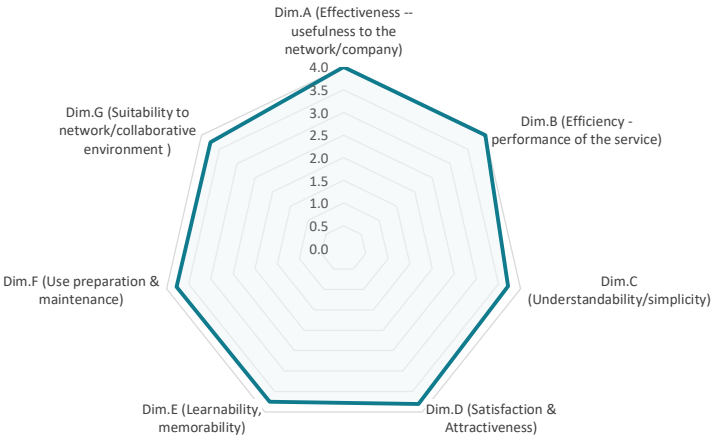
Functional evaluation - Test results



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Name Surname (COMPANY) (technical/business user)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

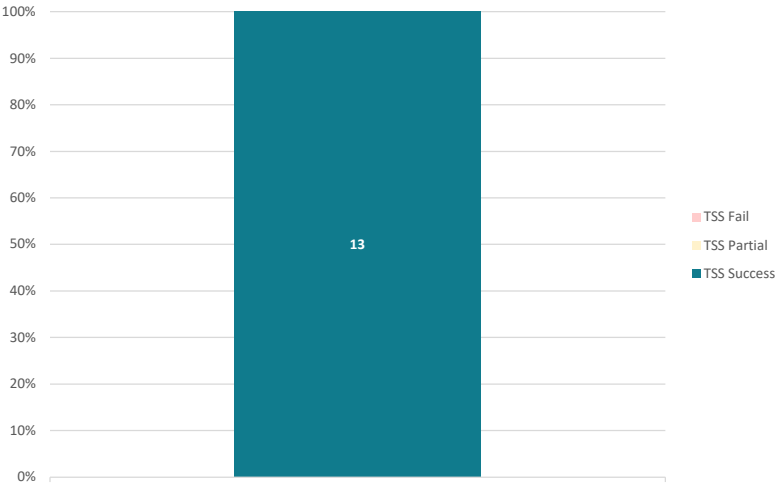
TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES	No comment	
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES	No comment	
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES	No comment	
Assess the parts table	Parts table correctly displays all the relevant information		YES	No comment	
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES	No comment	
Assess the difficulty level table	The difficulty level table contains the proper information		YES	No comment	
Press the "Close" ("X") button	The difficulty level popup closes		YES	No comment	
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - <u>supporting networking with other organizations</u>	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	

C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	
C8	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.D (Satisfaction & Attractiveness)		Total 3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.F (Use preparation & maintenance)		Total 3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool	
Dim.G (Suitability to network/collaborative environment)		Total 3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

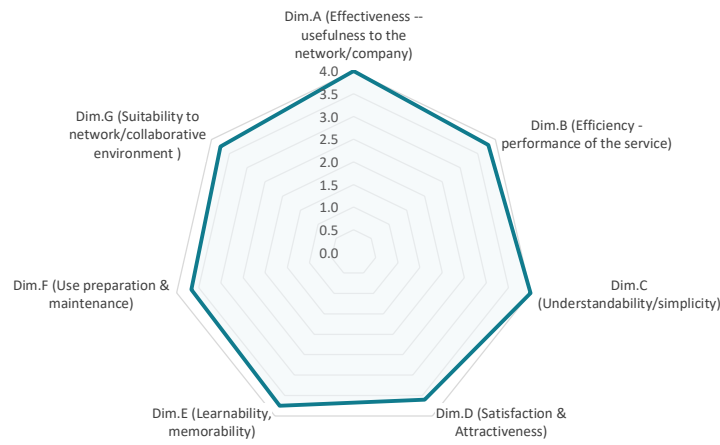
Functional evaluation - Test results



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES	No comment	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES	No comment	
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES	No comment	
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES	No comment	
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES	No comment	
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES	No comment	
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES	No comment	
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES	No comment	
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES	No comment	
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.B (Efficiency - performance of the service)			Total	3.8
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.C (Understandability/simplicity)			Total	3.9
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		

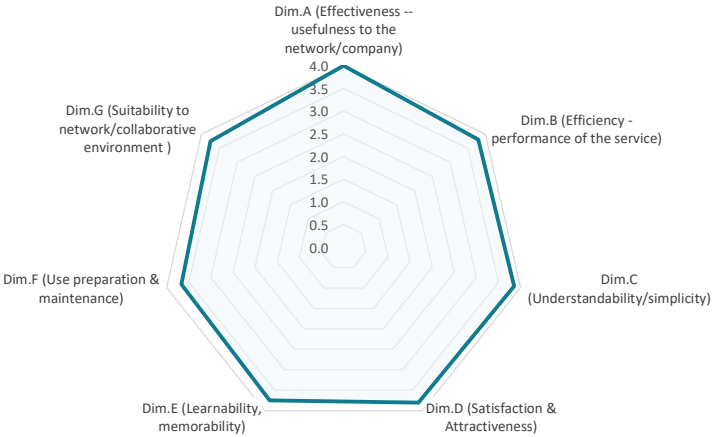
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.D (Satisfaction & Attractiveness)		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.F (Use preparation & maintenance)		Total 3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.G (Suitability to network/collaborative environment)		Total 3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES	No comment	
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES	No comment	
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES	No comment	
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES	No comment	
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES	No comment	
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.C (Understandability/simplicity)			Total	3.9
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		

C3	The service offers sufficient guidance	3
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.D (Satisfaction & Attractiveness)		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.E (Learnability, memorability)		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.F (Use preparation & maintenance)		Total 3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	It's right, it doesn't need any other tool	
Dim.G (Suitability to network/collaborative environment)		Total 3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4

Results Assessment

Functional Dimension

	TSS Results
TSS Success	13
TSS Partial	0
TSS Fail	0

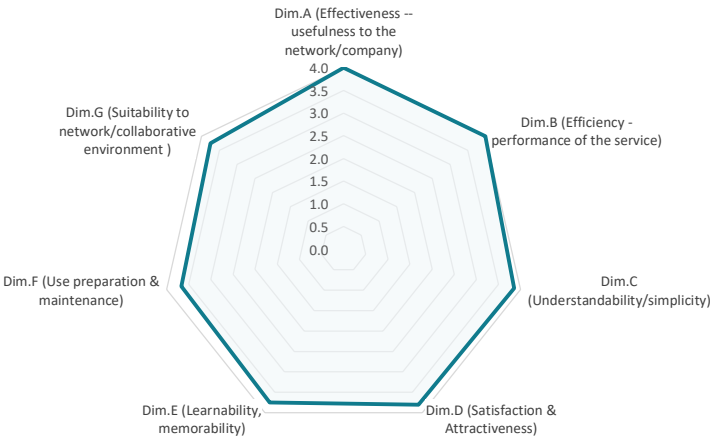
Functional evaluation - Test results





Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

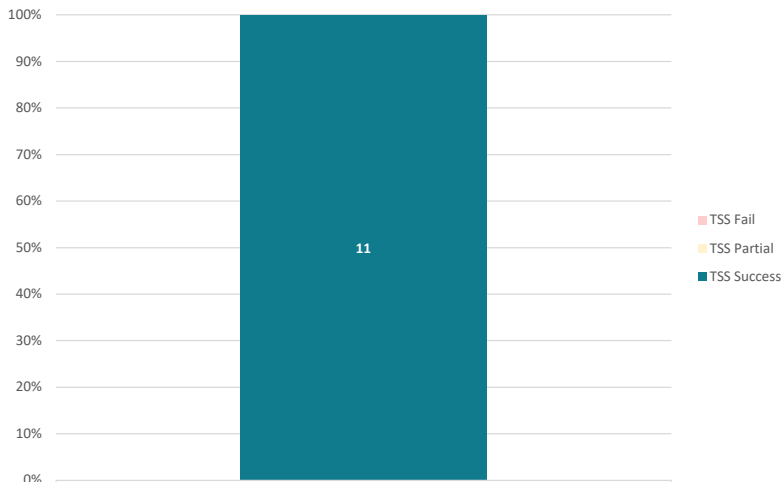
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES	No comment	
Assess component overall stats section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES	No comment	
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES	No comment	
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	No comment	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES	No comment	
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES	No comment	
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES	No comment	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES	No comment	
Press the "Add feedback" button	The add feedback popup appears		YES	No comment	
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	3	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool		
Dim.C (Understandability/simplicity)		Total	3.9
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

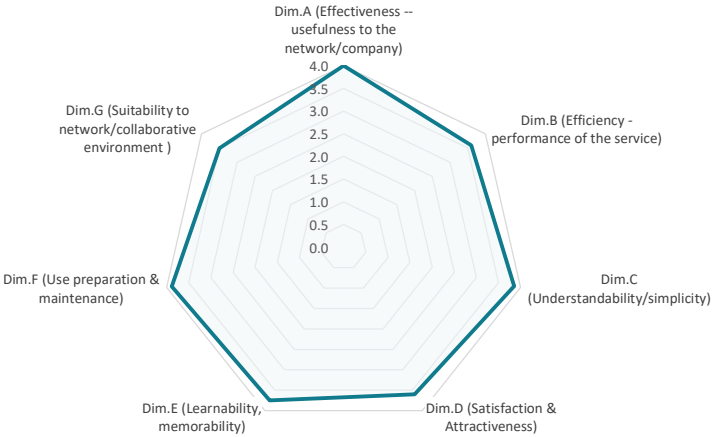
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		It's right, it doesn't need any other tool
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		It's right, it doesn't need any other tool
Total		3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		It's right, it doesn't need any other tool
Total		3.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		It's right, it doesn't need any other tool
Total		3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.7

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Marcelo Liendo Luduena (ILSSA) (Environmental Manager in Grupo Lopez Soriano)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
6. Click the "Details" button next to the recycling routes dropdown menu.
7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

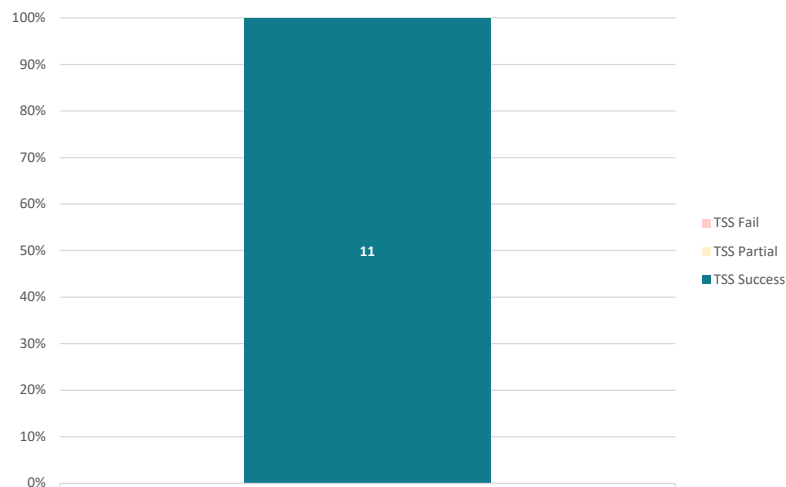
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES	No comment	
Login to the Platform	User successfully logged in		YES	No comment	
User redirected to home page	Home page correctly opened		YES	No comment	
Search for "combimeter" car part	List of relevant car parts shows up		YES	No comment	
Select component to visualize	Modules selection page is shown for the selected component		YES	No comment	
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES	No comment	
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES	No comment	
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES	No comment	
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES	No comment	
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES	No comment	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.B (Efficiency - performance of the service)			Total	3.8
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service? It's right, it doesn't need any other tool			
Dim.C (Understandability/simplicity)			Total	3.9
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3		
C7	The output of the service is clear and understandable.	4		
C8	What could be improved to make more value of the tool/service?			

It's right, it doesn't need any other tool		
Dim.D (Satisfaction & Attractiveness)		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
It's right, it doesn't need any other tool		
Dim.E (Learnability, memorability)		3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
It's right, it doesn't need any other tool		
Dim.F (Use preparation & maintenance)		3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
It's right, it doesn't need any other tool		
Dim.G (Suitability to network/collaborative environment)		3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

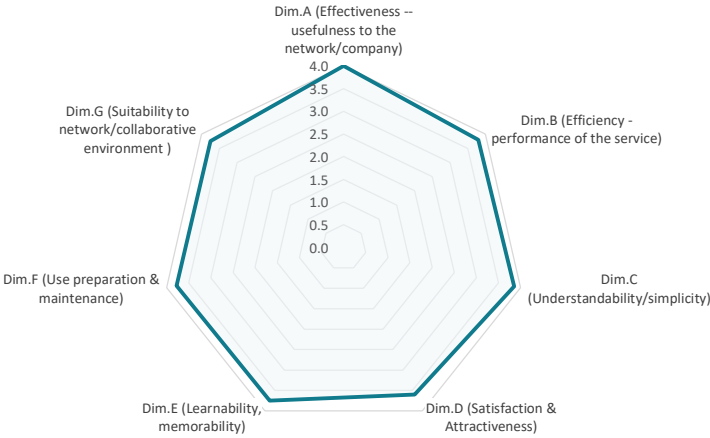
Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8

Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

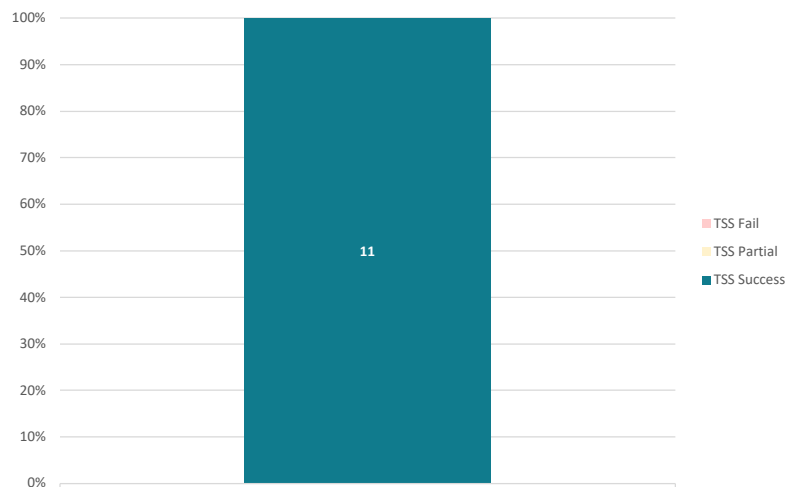
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results			Passed	Remarks
Access to the Circularity Web Platform	Circularity Web Platform shows login page			YES	
Login to the Platform	User successfully logged in			YES	
User redirected to home page	Home page correctly opened			YES	
Search for "combimeter" car part	List of relevant car parts shows up			YES	
Select component to visualize	Modules selection page is shown for the selected component			YES	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component			YES	
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened			YES	
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed			YES	
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed			YES	
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly			YES	
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed			YES	
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart			YES	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown			YES	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.	4	

C8	What could be improved to make more value of the tool/service?		
Dim.D (Satisfaction & Attractiveness)		Total	4.0
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	4.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	4.0
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

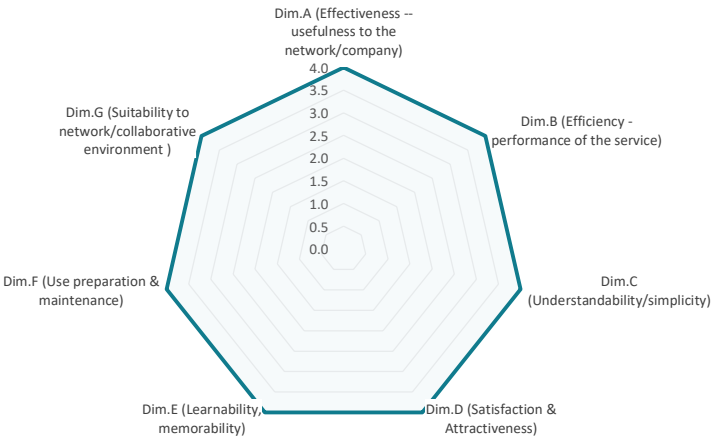
Functional evaluation - Test results



Non-functional Dimension	
Results	
Dim.A (Effectiveness -- usefulness to the network/company)	4.0

Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

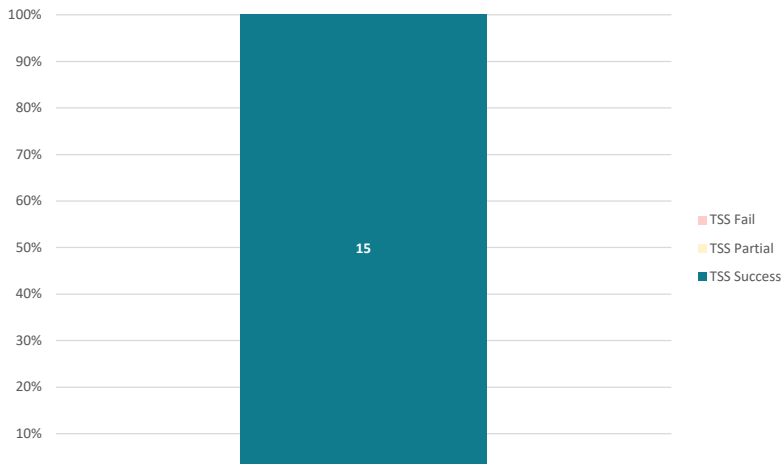
TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	

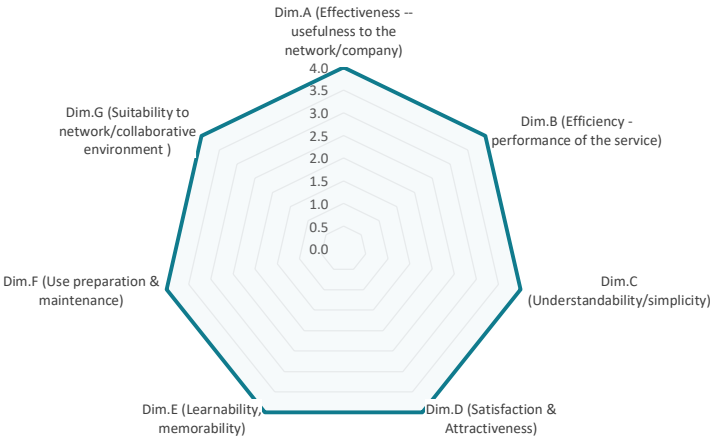
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		15
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

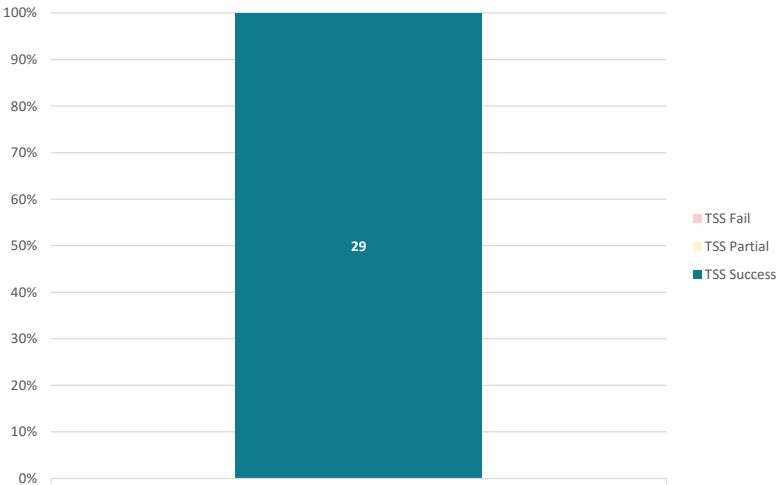
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4
A4	What could be improved to make more value of the tool/service?	
Dim.B (Efficiency - performance of the service)		
Total		4.0
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	4
B5	The service structure allows flexible & fast performance of the tasks.	4
B6	What could be improved to make more value of the tool/service?	
Dim.C (Understandability/simplicity)		
Total		4.0
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4
C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4

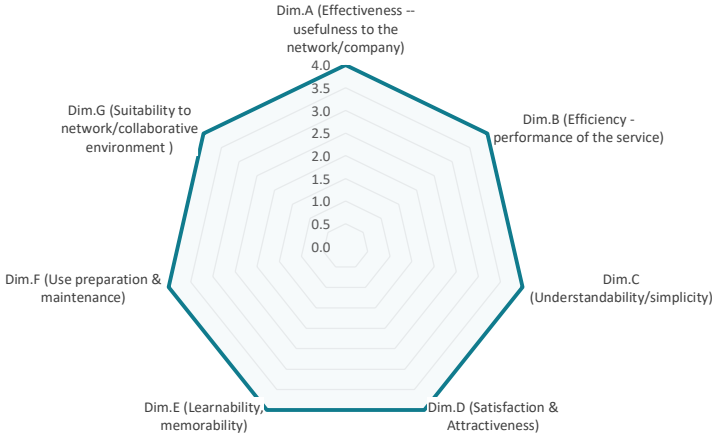
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

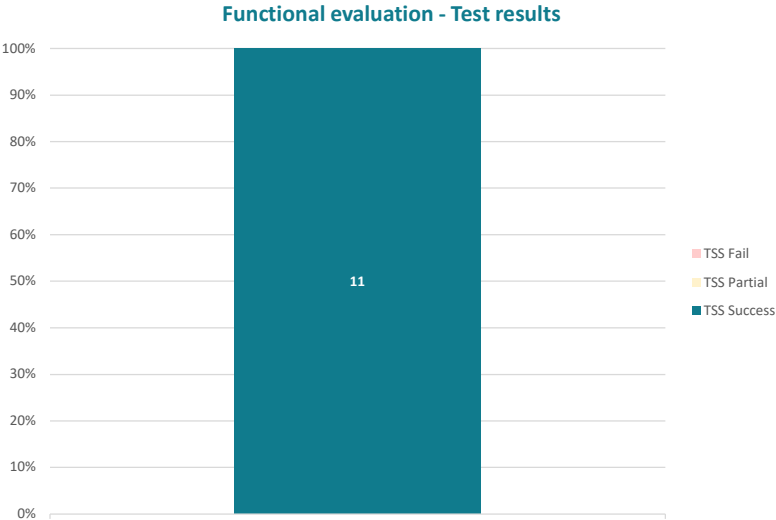
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		

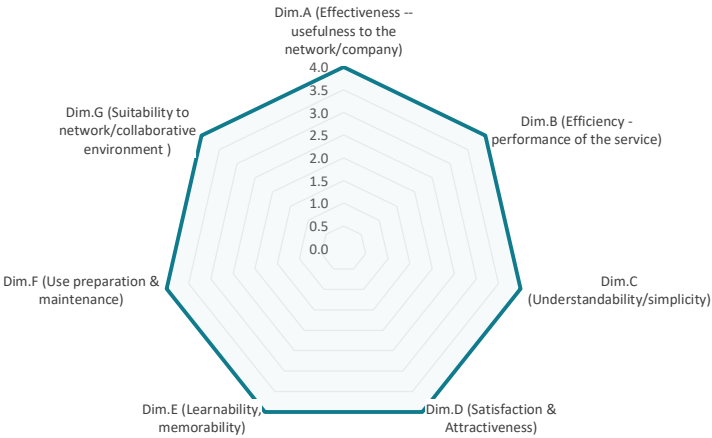
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

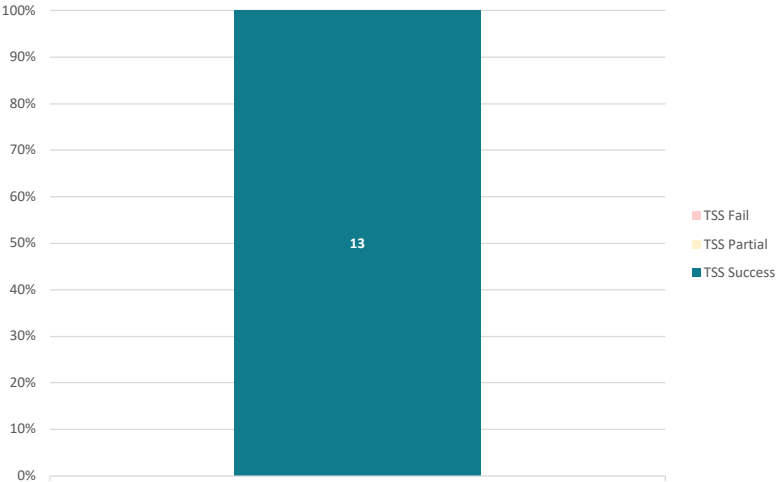
TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	

C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

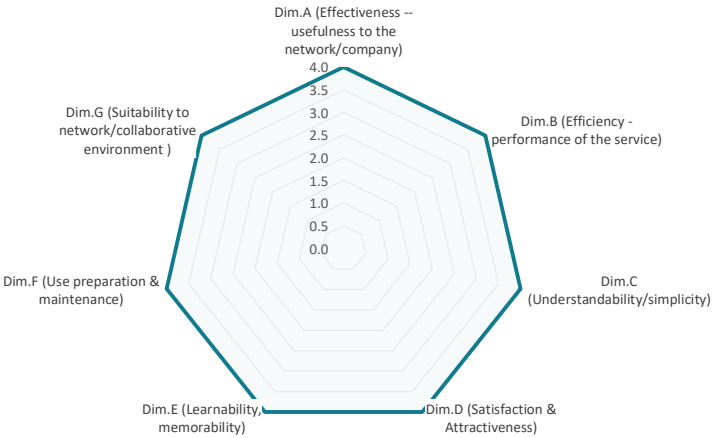
Functional evaluation - Test results



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

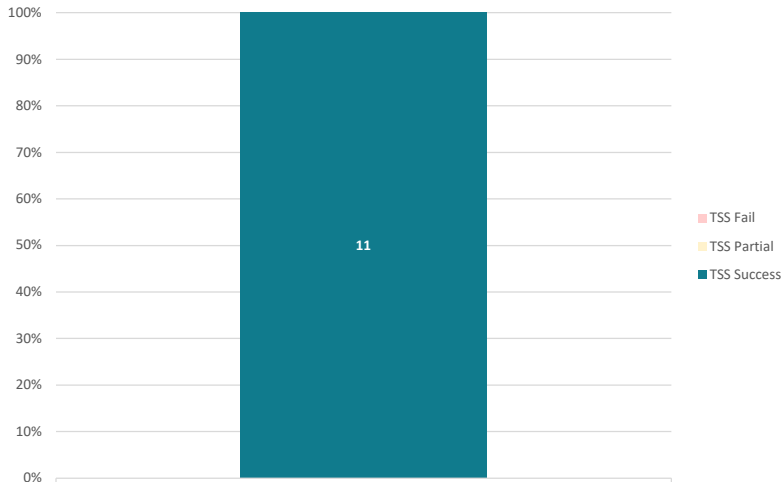
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

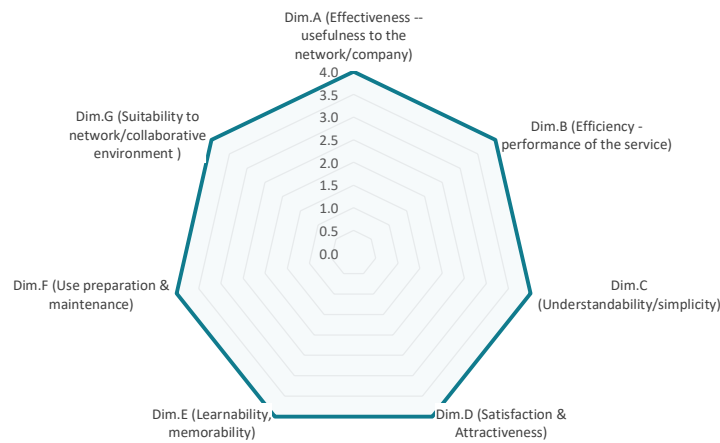
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company &network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - <u>supporting networking with other organizations</u>	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for mv organization and in line with TREASURE terminology	4	

C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results

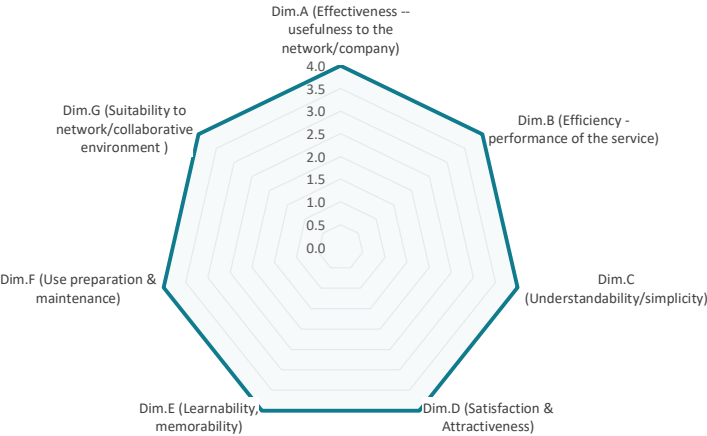


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Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES		
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		

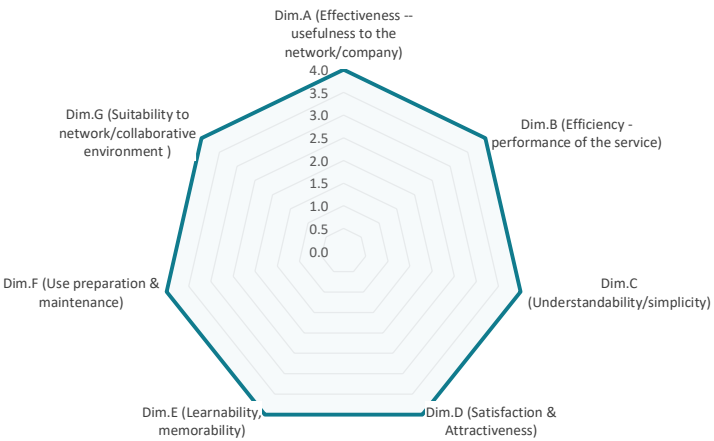
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Matteo Rubes (POLLINI)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

- Access the TREASURE Circularity Web Platform.
- Login with the evaluation credentials provided.
- In the search bar, search for the "combimeter" component and select the first search result.
- Click the "OPEN REC" button in the "Recyclability Module" card.
- Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
- Click the "Details" button next to the recycling routes dropdown menu.
- Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4		
C7	The output of the service is clear and understandable.	4		
C8	What could be improved to make more value of the tool/service?			

Dim.D (Satisfaction & Attractiveness)		Total	4.0
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	4.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	4		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	4.0
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

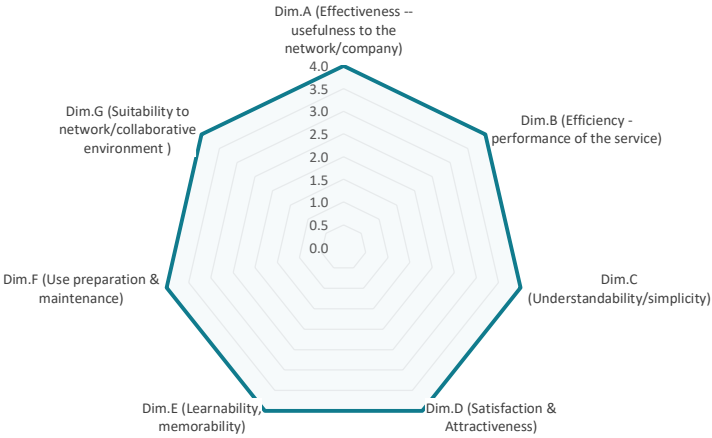
Functional evaluation - Test results



Non-functional Dimension			Results	
Dim.A (Effectiveness -- usefulness to the network/company)				4.0
Dim.B (Efficiency - performance of the service)				4.0

Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nuria Fernandez (SEAT) (Technical Conformity-Product Environmental Affaires)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

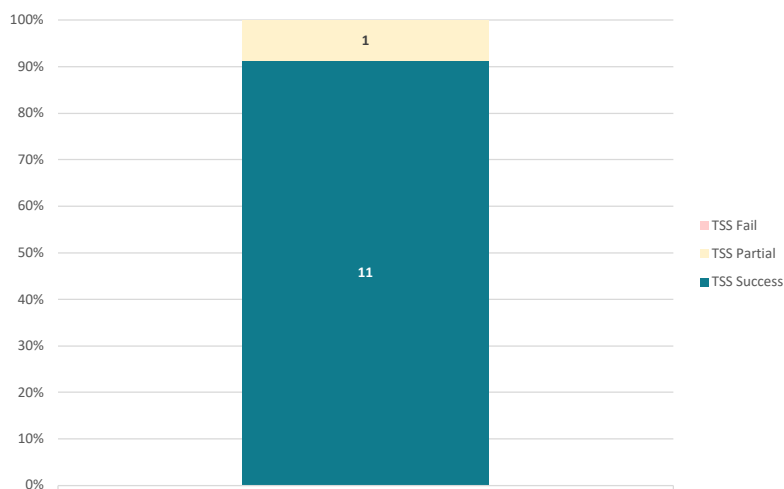
TSS _{success}	11	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results	Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page	YES			
Login to the Platform	User successfully logged in	YES			
User redirected to home page	Home page correctly opened	YES			
Search for "combimeter" car part	List of relevant car parts shows up	YES			
Select component to visualize	Modules selection page is shown for the selected component	YES			
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component	YES			
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened	YES			
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed	YES			
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed	YES			
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly	YES			
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed	YES			
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart	PARTIAL	It is not possible to introduce more than one digit when you want to introduce a value		
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown	YES			

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	2.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	2	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	2	
A4	What could be improved to make more value of the tool/service? Make the platform more intuitive and simple to use		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	3	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	2.3
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2	
C3	The service offers sufficient guidance	2	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	2	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3	
C7	The output of the service is clear and understandable.	3	

C8	What could be improved to make more value of the tool/service?		
I think the terminology used is too academic for the recyclers/dismantlers, even for the developpers of a part.			
Dim.D (Satisfaction & Attractiveness)		Total	2.2
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	2	
D3	The mental workload when using the service is low.	2	
D4	The service rewards the user also personally	2	
D5	I could recommend the service for other people/organizations.	2	
D6	What could be improved to make more value of the tool/service?		
This section is difficult to evaluate with only a part. Also I haven't found how to save information or create personal searches			
Dim.E (Learnability, memorability)		Total	2.5
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	3	
E2	It is easy to learn new features/ functionalities.	3	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	2	
E4	The service offers sufficient training support.	2	
E5	What could be improved to make more value of the tool/service?		
It is esay to start the use of the platform, but I can't find how to work with it, other than visualizing data. There is no contextual help			
Dim.F (Use preparation & maintenance)		Total	2.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	2	
F2	Technical installation does not require specific setups or additional downloads.	2	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3	
F4	The service can be easily customized/ configured to my environment/ network.	2	
F5	The service can be easily shared in the network.	2	
F6	The service does not require specific knowledge from the users.	1	
F7	The service is easy to take up also for SMEs.	2	
F8	The service does not require extensive change of business processes.	2	
F9	The service does not require high maintenance.	2	
F10	What could be improved to make more value of the tool/service?		
I have valorated with 2 most of these questions, because I don't have knowledge enough to valorate them			
Dim.G (Suitability to network/collaborative environment)		Total	2.3
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	3	
G2	The service is suitable for heterogeneous users and different networks.	3	
G3	The service takes into account safety and security.	2	
G4	The service usage does not require high negotiation or complex agreements in the network.	1	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		1	
TSS Fail		0	

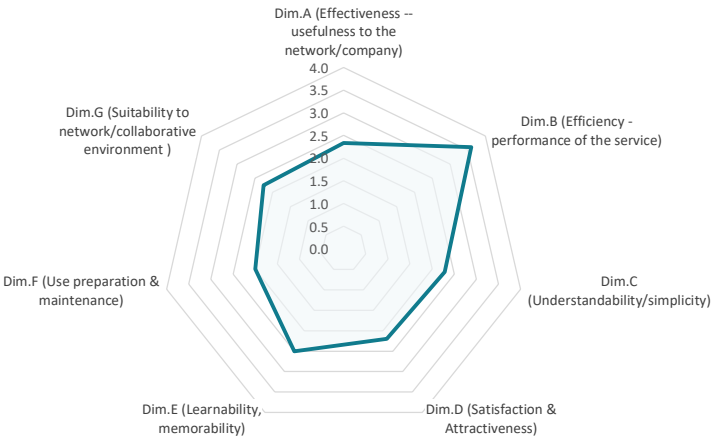
Functional evaluation - Test results



Non-functional Dimension	
Results	
Dim.A (Effectiveness -- usefulness to the network/company)	2.3

Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.2
Dim.E (Learnability, memorability)	2.5
Dim.F (Use preparation & maintenance)	2.0
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.5

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nuria Fernandez (SEAT) (Technical Conformity-Product Environmental Affaires)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service? Some explanatory help would be useful for the fields of the table.		
Dim.B (Efficiency - performance of the service)		Total	3.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	3	
B3	The service does not require too many steps to achieve the result.	3	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	3	
B6	What could be improved to make more value of the tool/service? It's difcilt to evaluate thge performance with only one part		
Dim.C (Understandability/simplicity)		Total	2.3
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2	
C3	The service offers sufficient guidance	1	

C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	2
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	2
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service? The concepts need further explanation (help button on the concepts) The section "optimization objective of recycling" doesn't seem to work. I don't receive any feedback when I choose different options	
Dim.D (Satisfaction & Attractiveness)		Total2.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	2
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	2
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service? The concepts and terminology are not clear enough. I don't find how to save the information or the searches I have done	
Dim.E (Learnability, memorability)		Total2.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	2
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	2
E4	The service offers sufficient training support.	1
E5	What could be improved to make more value of the tool/service? The concepts and terminology are not clear enough. I don't find how to save the information or the searches I have done	
Dim.F (Use preparation & maintenance)		Total2.1
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	2
F2	Technical installation does not require specific setups or additional downloads.	2
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	2
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	2
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	2
F8	The service does not require extensive change of business processes.	2
F9	The service does not require high maintenance.	2
F10	What could be improved to make more value of the tool/service? I have valorated with 2 most of these questions, because I don't have knowledge enough to valorate them	
Dim.G (Suitability to network/collaborative environment)		Total2.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	2
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	2
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		15
TSS Partial		0
TSS Fail		0

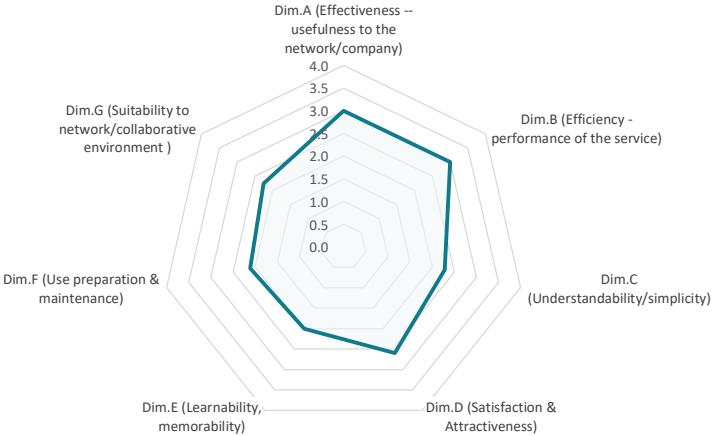
Functional evaluation - Test results





Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.0
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.6
Dim.E (Learnability, memorability)	2.0
Dim.F (Use preparation & maintenance)	2.1
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.5

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nuria Fernandez (SEAT) (Technical Conformity-Product Environmental Affaires)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

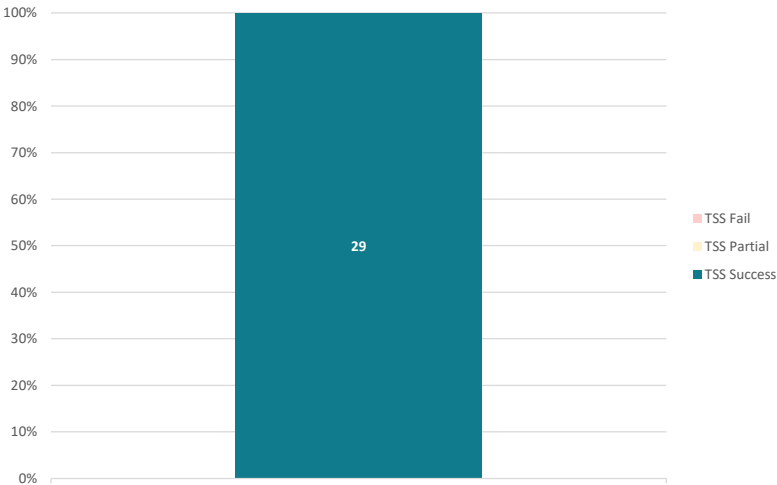
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.3
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3		

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3
A4	What could be improved to make more value of the tool/service? I can't find which are the best-case scenarios and how are they generated. It comes from the validated guidelines?	
Dim.B (Efficiency - performance of the service)		Total 3.0
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3
B2	The service runs fast enough.	3
B3	The service does not require too many steps to achieve the result.	3
B4	All the functions are beneficial for my company/ network.	3
B5	The service structure allows flexible & fast performance of the tasks.	3
B6	What could be improved to make more value of the tool/service? With only one part it's difficult to evaluate the performance	
Dim.C (Understandability/simplicity)		Total 2.3
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3
C3	The service offers sufficient guidance	1
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3
C7	The output of the service is clear and understandable.	2
C8	What could be improved to make more value of the tool/service? The section "scenarios comparison" is not clear enough for me	
Dim.D (Satisfaction & Attractiveness)		Total 2.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	1
D3	The mental workload when using the service is low.	2
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service? I can't find how to save the work done. Where are introduced the design guidelines and who does it? Do they come from the eco-design feedbacks?	
Dim.E (Learnability, memorability)		Total 1.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	2
E2	It is easy to learn new features/ functionalities.	1
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	2
E4	The service offers sufficient training support.	1
E5	What could be improved to make more value of the tool/service? The query is interesting, but it is not clear to me how to use more features	
Dim.F (Use preparation & maintenance)		Total 2.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	2
F2	Technical installation does not require specific setups or additional downloads.	2
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	2
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	2
F6	The service does not require specific knowledge from the users.	2
F7	The service is easy to take up also for SMEs.	2
F8	The service does not require extensive change of business processes.	2
F9	The service does not require high maintenance.	2
F10	What could be improved to make more value of the tool/service? I have valorated with 2 most of these questions, because I don't have knowledge enough to valorate them	
Dim.G (Suitability to network/collaborative environment)		Total 2.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	2
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	2

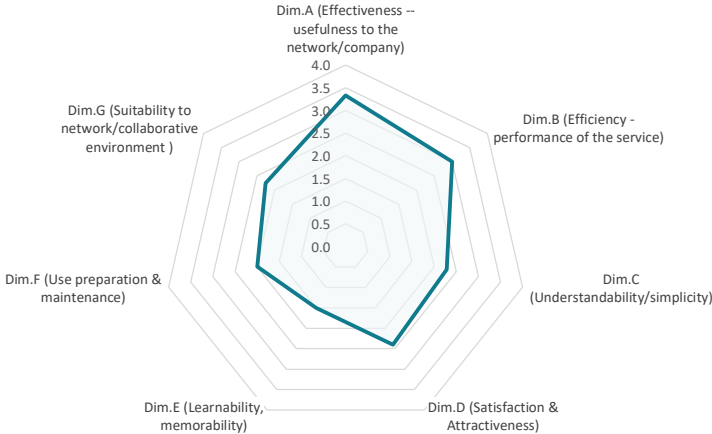
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.0
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.4
Dim.E (Learnability, memorability)	1.5
Dim.F (Use preparation & maintenance)	2.0
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

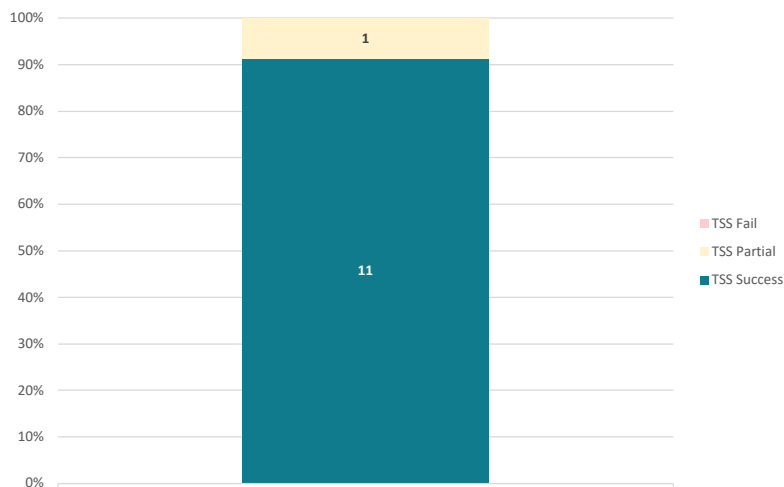
TSS _{success}	11	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results	Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page	YES			
Login to the Platform	User successfully logged in	YES			
User redirected to home page	Home page correctly opened	YES			
Search for "combimeter" car part	List of relevant car parts shows up	YES			
Select component to visualize	Modules selection page is shown for the selected component	YES			
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component	YES			
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened	YES			
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed	YES			
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed	YES			
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly	YES			
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed	YES			
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart	PARTIAL	It's not possible to change the value in the Thermodynamic rarity value limit		
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown	YES			

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	2.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	2	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	2	
A4	What could be improved to make more value of the tool/service? It would be useful to have a little aid to understand the different sections of the tool. For example for the Overall Score: how is evaluated? What are the maximal values?		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	3	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	2.3
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2	
C3	The service offers sufficient guidance	2	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	2	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3	
C7	The output of the service is clear and understandable.	3	

C8	What could be improved to make more value of the tool/service?		
The practicality of the tool in the business sector (yes in the academic sector) does not seem very clear to me.			
Dim.D (Satisfaction & Attractiveness)		Total	2.6
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	2	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	2	
D5	I could recommend the service for other people/organizations.	3	
D6	What could be improved to make more value of the tool/service?		
It is difficult to evaluate this section with only a sample for it.			
Dim.E (Learnability, memorability)		Total	2.3
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	3	
E2	It is easy to learn new features/ functionalities.	2	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	2	
E4	The service offers sufficient training support.	2	
E5	What could be improved to make more value of the tool/service?		
I don't understand what tasks or functionalities can be done additionally to data query			
Dim.F (Use preparation & maintenance)		Total	2.6
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	3	
F2	Technical installation does not require specific setups or additional downloads.	3	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3	
F4	The service can be easily customized/ configured to my environment/ network.	3	
F5	The service can be easily shared in the network.	2	
F6	The service does not require specific knowledge from the users.	2	
F7	The service is easy to take up also for SMEs.	2	
F8	The service does not require extensive change of business processes.	3	
F9	The service does not require high maintenance.	2	
F10	What could be improved to make more value of the tool/service?		
I do not know the tool enough to be able to evaluate all these usage questions			
Dim.G (Suitability to network/collaborative environment)		Total	2.5
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	2	
G2	The service is suitable for heterogeneous users and different networks.	3	
G3	The service takes into account safety and security.	2	
G4	The service usage does not require high negotiation or complex agreements in the network.	3	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		1	
TSS Fail		0	

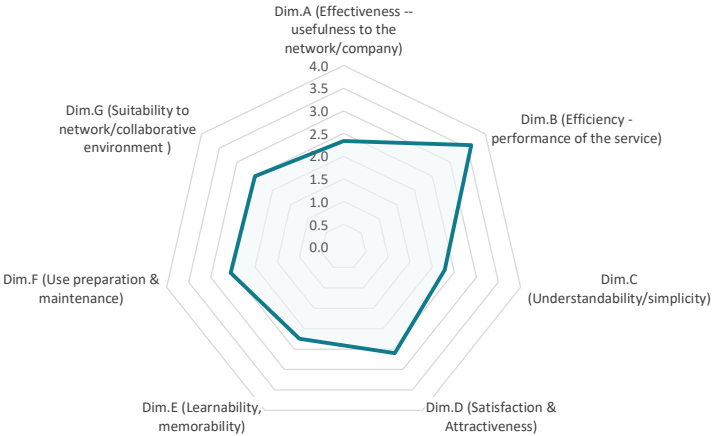
Functional evaluation - Test results



Non-functional Dimension	
Results	
Dim.A (Effectiveness -- usefulness to the network/company)	2.3

Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.3
Dim.D (Satisfaction & Attractiveness)	2.6
Dim.E (Learnability, memorability)	2.3
Dim.F (Use preparation & maintenance)	2.6
Dim.G (Suitability to network/collaborative environment)	2.5
	Total
	2.6

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

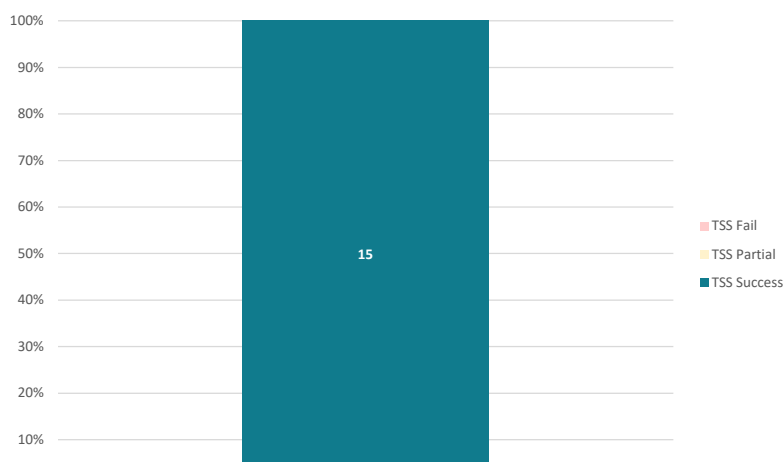
TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	2.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	1		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	2		
A4	What could be improved to make more value of the tool/service? It is not easy to interpret the results without some explanatory help.			
Dim.B (Efficiency - performance of the service)			Total	3.6
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	3		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	2.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2		
C3	The service offers sufficient guidance	2		

C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	2	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	2	
C7	The output of the service is clear and understandable.	2	
C8	What could be improved to make more value of the tool/service?		
		In my opinion it is difficult to understand the results	
Dim.D (Satisfaction & Attractiveness)		Total	2.4
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	2	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	2	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	2	
D5	I could recommend the service for other people/organizations.	3	
D6	What could be improved to make more value of the tool/service?		
		It is difficult to evaluate this section with only a sample for it.	
Dim.E (Learnability, memorability)		Total	2.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	3	
E2	It is easy to learn new features/ functionalities.	1	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	2	
E4	The service offers sufficient training support.	2	
E5	What could be improved to make more value of the tool/service?		
		The use of the application is simple, but would require explanations about its functionalities	
Dim.F (Use preparation & maintenance)		Total	2.4
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	3	
F2	Technical installation does not require specific setups or additional downloads.	3	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3	
F4	The service can be easily customized/ configured to my environment/ network.	3	
F5	The service can be easily shared in the network.	2	
F6	The service does not require specific knowledge from the users.	1	
F7	The service is easy to take up also for SMEs.	2	
F8	The service does not require extensive change of business processes.	3	
F9	The service does not require high maintenance.	2	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	2.3
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	2	
G2	The service is suitable for heterogeneous users and different networks.	2	
G3	The service takes into account safety and security.	2	
G4	The service usage does not require high negotiation or complex agreements in the network.	3	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		15	
TSS Partial		0	
TSS Fail			

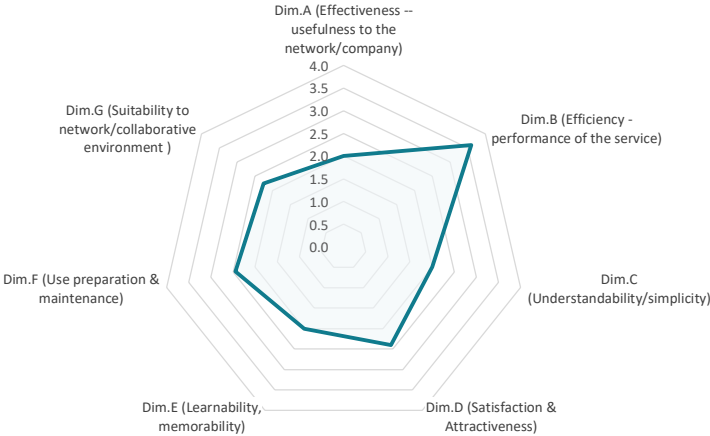
Functional evaluation - Test results





Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.0
Dim.D (Satisfaction & Attractiveness)	2.4
Dim.E (Learnability, memorability)	2.0
Dim.F (Use preparation & maintenance)	2.4
Dim.G (Suitability to network/collaborative environment)	2.3
	Total
	2.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

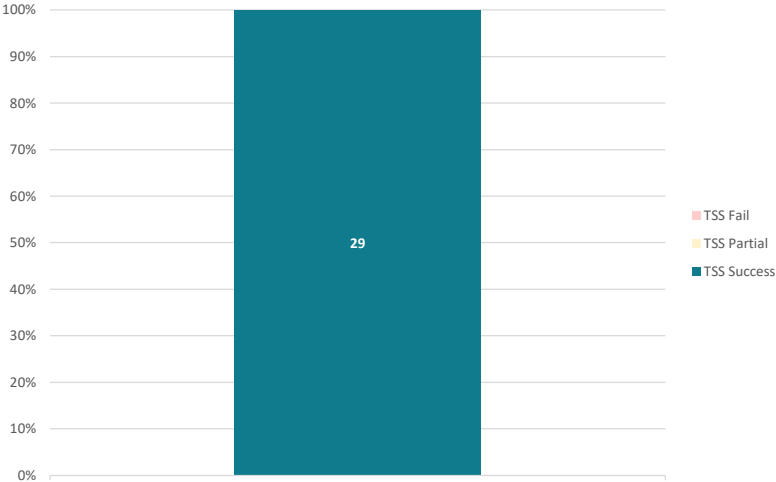
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	2.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3		

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	2
A4	What could be improved to make more value of the tool/service? Additional brief explanations of the concepts used would be helpful.	
Dim.B (Efficiency - performance of the service)		Total 3.6
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	4
B5	The service structure allows flexible & fast performance of the tasks.	3
B6	What could be improved to make more value of the tool/service?	
Dim.C (Understandability/simplicity)		Total 2.1
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	2
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3
C3	The service offers sufficient guidance	2
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	2
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	2
C7	The output of the service is clear and understandable.	2
C8	What could be improved to make more value of the tool/service? There are outputs that do not seem clear to me, such as what do the scenarios shown, best and standard, consist of?	
Dim.D (Satisfaction & Attractiveness)		Total 2.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	2
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	2
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service? It is difficult to evaluate this section with only a sample for it.	
Dim.E (Learnability, memorability)		Total 2.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	1
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	2
E4	The service offers sufficient training support.	2
E5	What could be improved to make more value of the tool/service? As I have indicated in other comments, some clarification on the different sections/functionalities would help	
Dim.F (Use preparation & maintenance)		Total 2.4
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	3
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	2
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	2
F8	The service does not require extensive change of business processes.	2
F9	The service does not require high maintenance.	2
F10	What could be improved to make more value of the tool/service? I do not know the tool enough to be able to evaluate all these usage questions	
Dim.G (Suitability to network/collaborative environment)		Total 2.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	2
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	3

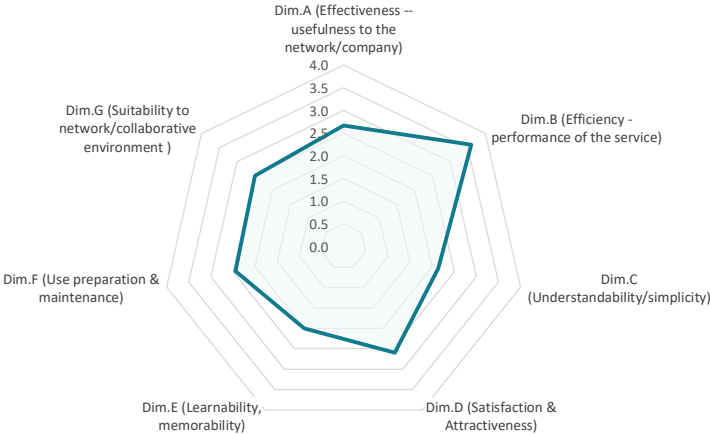
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	2.7
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.1
Dim.D (Satisfaction & Attractiveness)	2.6
Dim.E (Learnability, memorability)	2.0
Dim.F (Use preparation & maintenance)	2.4
Dim.G (Suitability to network/collaborative environment)	2.5
	Total
	2.6

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

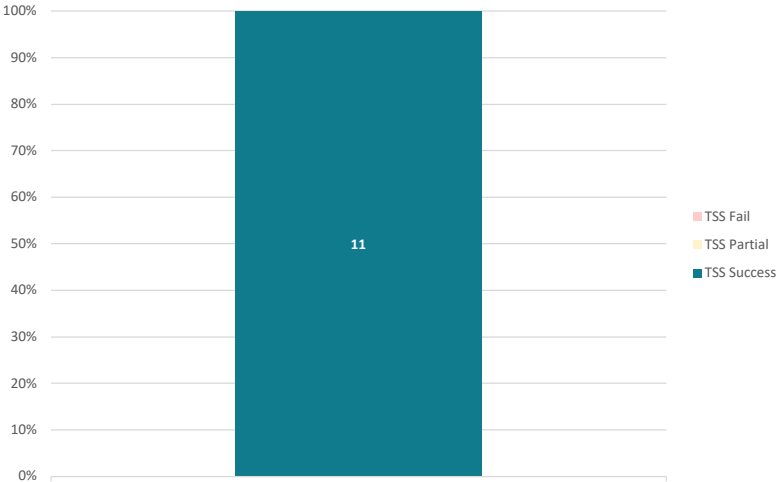
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	2.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2	
C3	The service offers sufficient guidance	2	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3	

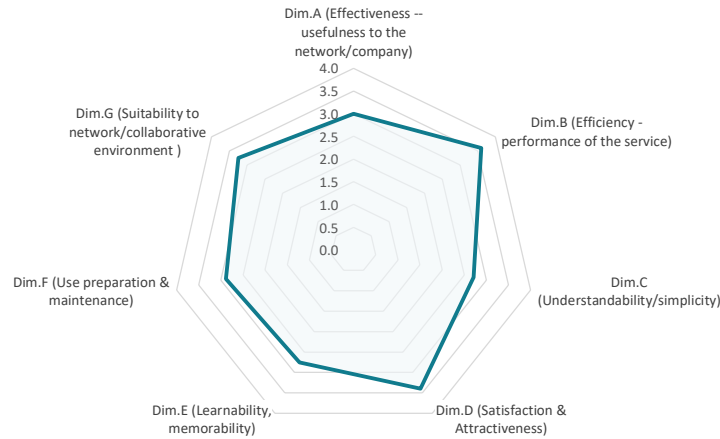
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		2.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	2
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		2.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	3
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	2
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	3
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	3
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.1

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

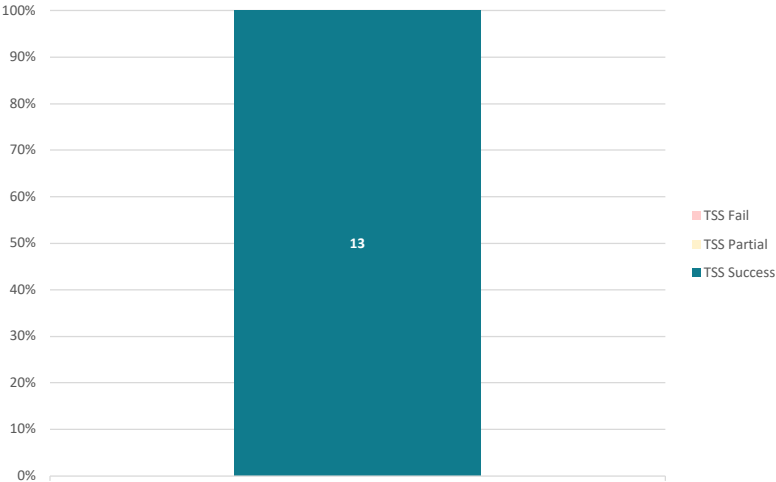
TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3	

C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		3.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		3.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	3
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	3
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	3
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

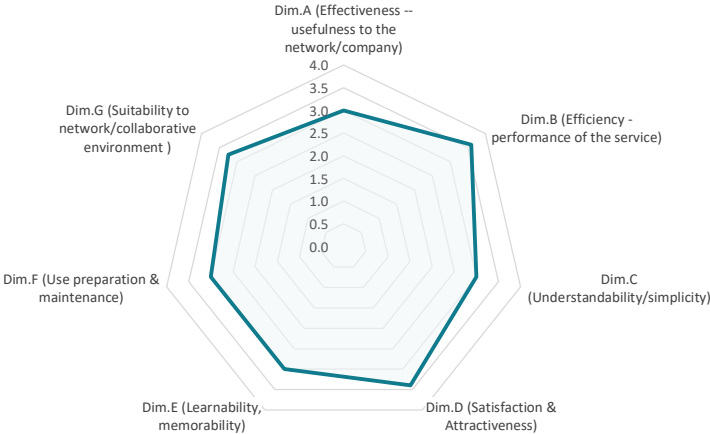
Functional evaluation - Test results



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	3.0
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.0
Dim.F (Use preparation & maintenance)	3.0
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.2

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

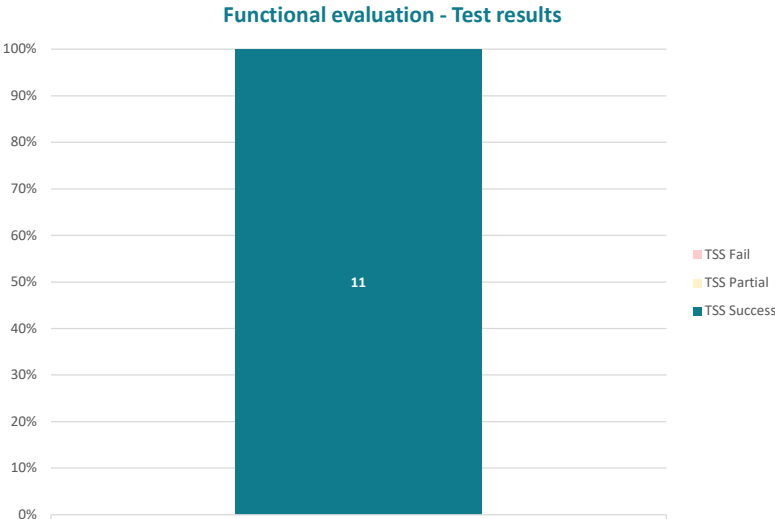
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Non-Functional Evaluation

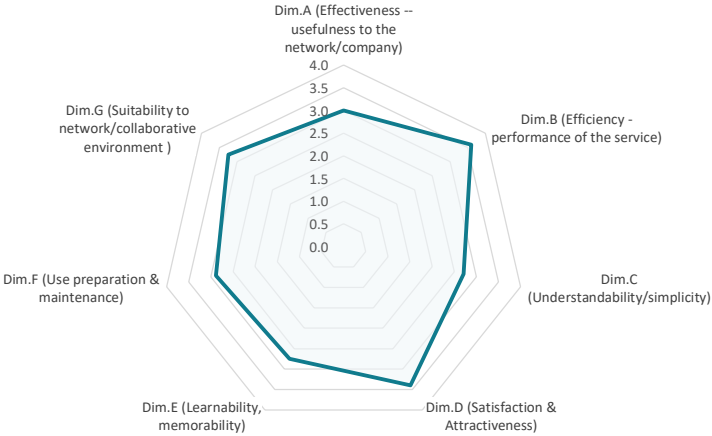
Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	2.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2	
C3	The service offers sufficient guidance	2	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style	3	

C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total
		3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total
		2.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	2
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total
		2.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	3
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	2
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	3
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total
		3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	3
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.1

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)
5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results	Passed	Remarks		
Access to the Circularity Web Platform	Circularity Web Platform shows login page	YES			
Login to the Platform	User successfully logged in	YES			
User redirected to home page	Home page correctly opened	YES			
Search for "combimeter" car part	List of relevant car parts shows up	YES			
Select component to visualize	Modules selection page is shown for the selected component	YES			
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component	YES			
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart	YES			
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown	YES			
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection	YES			
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection	YES			
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods	YES			
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears	YES			
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters	YES			

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	3	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	3	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.3
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3	
C7	The output of the service is clear and understandable.	4	
C8	What could be improved to make more value of the tool/service?		

Dim.D (Satisfaction & Attractiveness)		Total	3.2
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	3	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	3.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	3	
E2	It is easy to learn new features/ functionalities.	3	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3	
E4	The service offers sufficient training support.	3	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	3.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	3	
F2	Technical installation does not require specific setups or additional downloads.	3	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3	
F4	The service can be easily customized/ configured to my environment/ network.	3	
F5	The service can be easily shared in the network.	3	
F6	The service does not require specific knowledge from the users.	3	
F7	The service is easy to take up also for SMEs.	3	
F8	The service does not require extensive change of business processes.	3	
F9	The service does not require high maintenance.	3	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.0
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	3	
G2	The service is suitable for heterogeneous users and different networks.	3	
G3	The service takes into account safety and security.	3	
G4	The service usage does not require high negotiation or complex agreements in the network.	3	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		13	
TSS Partial		0	
TSS Fail		0	

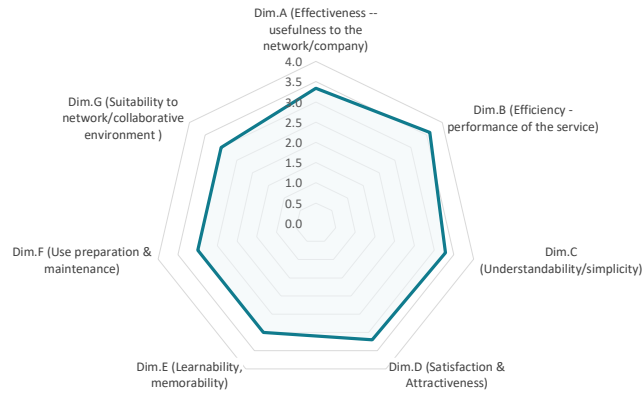
Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.0
Dim.F (Use preparation & maintenance)	3.0
Dim.G (Suitability to network/collaborative environment)	3.0
	Total
	3.2

Non functional evaluation - Test results

Non-functional evaluation - test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

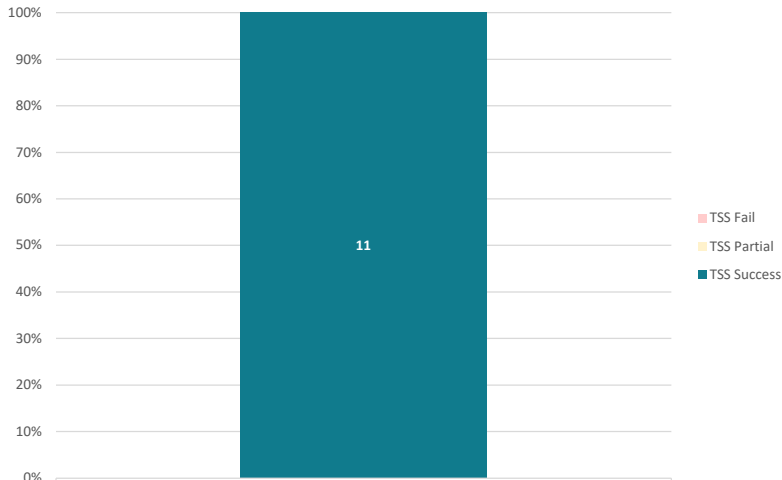
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES		
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.6
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	2.4
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2	
C3	The service offers sufficient guidance	2	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2	

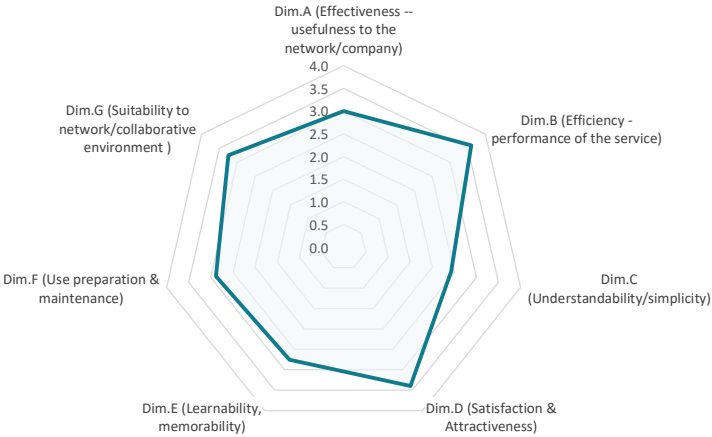
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	2
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 2.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	2
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 2.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	3
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	2
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	3
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	3
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.6
Dim.C (Understandability/simplicity)	2.4
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Mar Villacampa (SEAT, S.A.) (Product Environmental Affairs)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

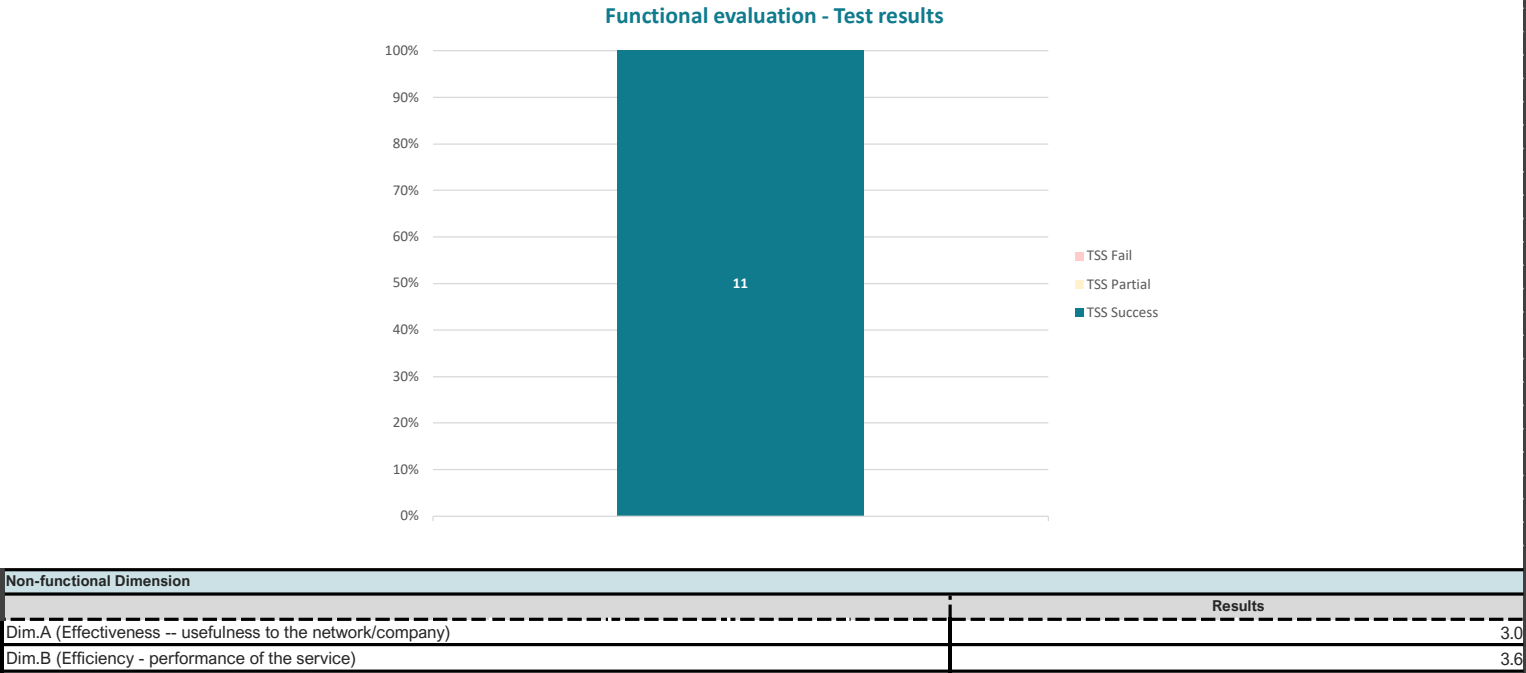
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
6. Click the "Details" button next to the recycling routes dropdown menu.
7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Non-Functional Evaluation

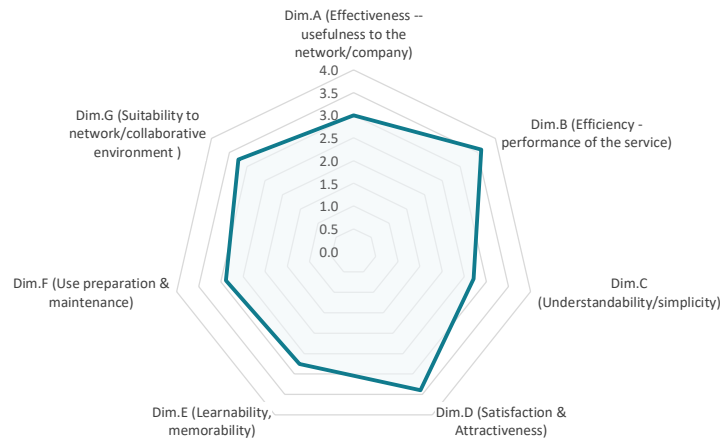
Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	3.6
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	2.7
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	2		
C3	The service offers sufficient guidance	3		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	2		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3		
C7	The output of the service is clear and understandable.	3		
C8	What could be improved to make more value of the tool/service?			

Dim.D (Satisfaction & Attractiveness)		Total	3.4
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	3	
D5	I could recommend the service for other people/organizations.	3	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	2.8
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	3	
E2	It is easy to learn new features/ functionalities.	3	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3	
E4	The service offers sufficient training support.	2	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	2.9
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	3	
F2	Technical installation does not require specific setups or additional downloads.	3	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3	
F4	The service can be easily customized/ configured to my environment/ network.	3	
F5	The service can be easily shared in the network.	3	
F6	The service does not require specific knowledge from the users.	2	
F7	The service is easy to take up also for SMEs.	3	
F8	The service does not require extensive change of business processes.	3	
F9	The service does not require high maintenance.	3	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.3
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	3	
G3	The service takes into account safety and security.	3	
G4	The service usage does not require high negotiation or complex agreements in the network.	3	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	



Dim.C (Understandability/simplicity)	2.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	2.8
Dim.F (Use preparation & maintenance)	2.9
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.1

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

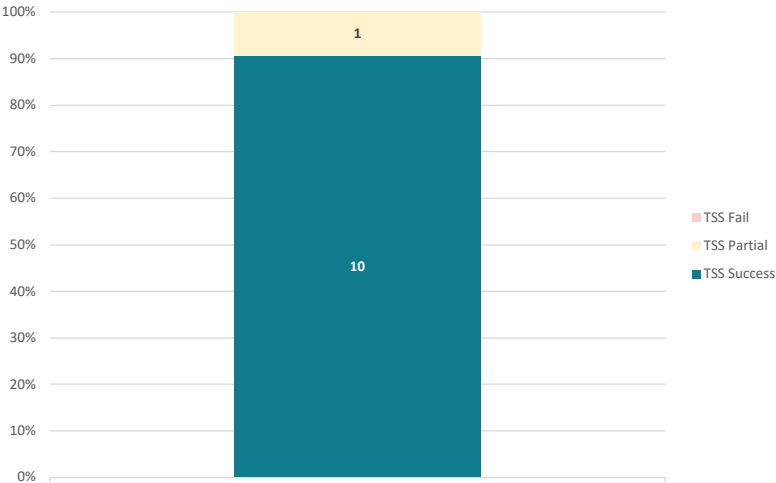
TSS _{success}	10	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results			Passed	Remarks
Access to the Circularity Web Platform	Circularity Web Platform shows login page			YES	
Login to the Platform	User successfully logged in			YES	
User redirected to home page	Home page correctly opened			YES	
Search for "combimeter" car part	List of relevant car parts shows up			YES	
Select component to visualize	Modules selection page is shown for the selected component			YES	
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component			YES	
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened			YES	
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed			YES	
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed			YES	
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly			PARTIAL	any number is immediately finalized. I cannot enter anything above 9. which automatically becomes 9.0.
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed			YES	
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart			PARTIAL	any number is immediately finalized. I cannot enter anything above 9. which automatically becomes 9.0.
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown			YES	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.		
A4	What could be improved to make more value of the tool/service? bit of explanation of thermodynamic rarity (or source for definition) and source of values. Also: revenue via what process?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service? Limit value for revenue is fixed, a useful range (with source) might be useful. Same with other fields: I cannot enter anything longer than a single digit.		
Dim.C (Understandability/simplicity)		Total	3.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.	3	

C8	What could be improved to make more value of the tool/service? or revenu is fixed, a useful range (with source) might be useful. Same with other fields: I cannot enter anything longer than a single digit.Thermodynamic rarity value limit: not clear to user why to		
Dim.D (Satisfaction & Attractiveness)		Total	3.2
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	2	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	2	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service? Changes were not stored. Intentional? 2nd point: How is the reward personal?		
Dim.E (Learnability, memorability)		Total	3.8
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	3	
E5	What could be improved to make more value of the tool/service? Thermodynamic rarity value limit: not clear to user why to modify this. Some refs or sources could be provided.		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	4.0
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		10	
TSS Partial		1	
TSS Fail		0	

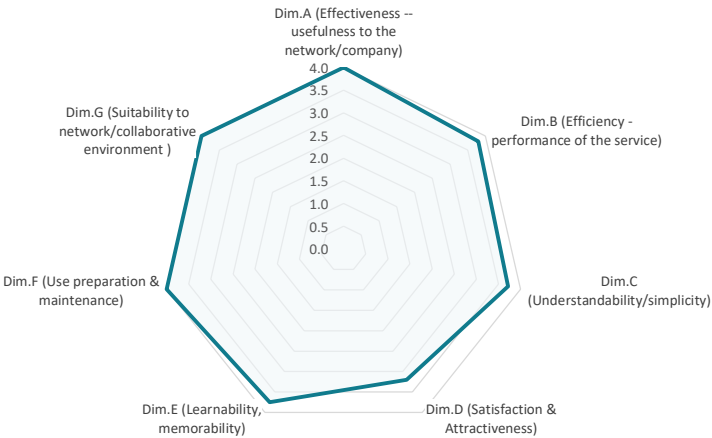
Functional evaluation - Test results



Non-functional Dimension		Results	
Dim.A (Effectiveness -- usefulness to the network/company)		4.0	

Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

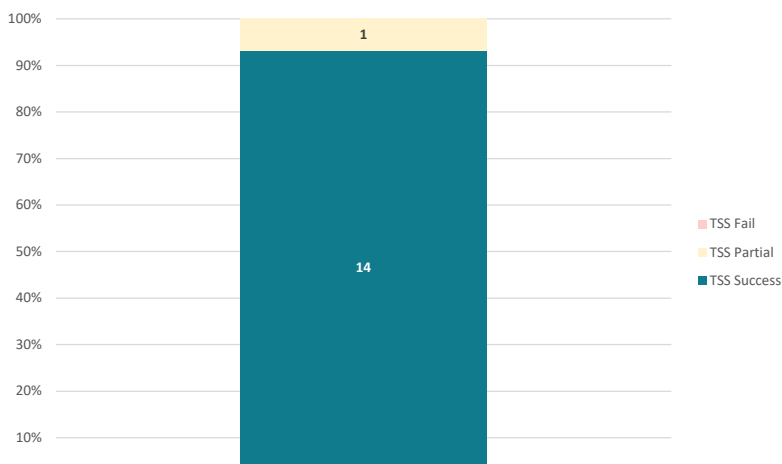
TSS _{success}	14	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES	no value at profit	
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		PARTIAL	Graphic is cut off when zooming in. Increase window size?	
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES	Medium risk: (-1)? Why the (-1)?	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.			
A4	What could be improved to make more value of the tool/service? Info on what the routes mean: reference to source? Or will that be captured in a manual?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	3.9
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		

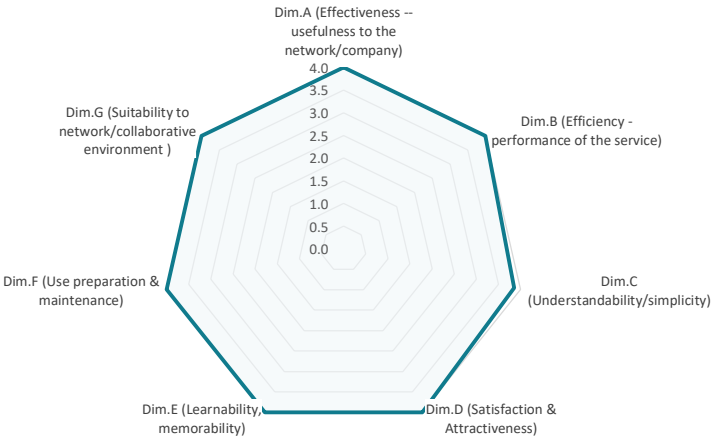
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.	3	
C8	What could be improved to make more value of the tool/service?		
Would be useful to understand the recycling routes.			
Dim.D (Satisfaction & Attractiveness)		Total	4.0
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	4.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	4.0
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		14	
TSS Partial		1	
TSS Fail		0	

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	29	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES	better resolution is necessary though	

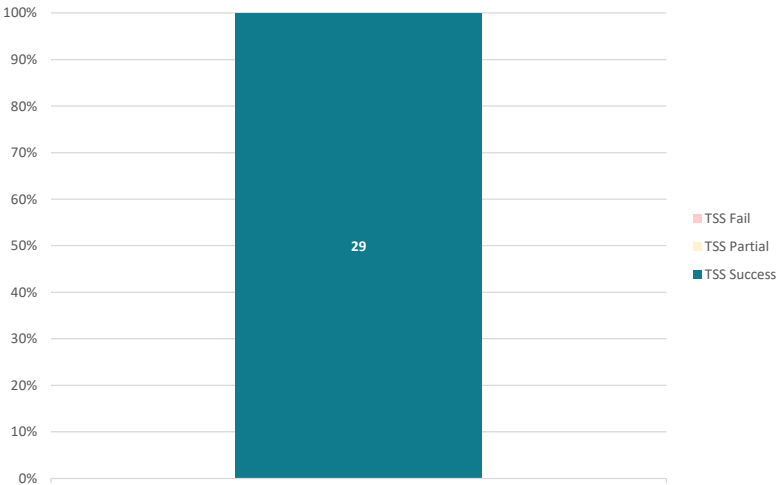
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	
A4	What could be improved to make more value of the tool/service? bit more info will help, but that is to be expected at this stage.	
Dim.B (Efficiency - performance of the service)		Total 3.8
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	3
B5	The service structure allows flexible & fast performance of the tasks.	4
B6	What could be improved to make more value of the tool/service?	
Dim.C (Understandability/simplicity)		Total 4.0
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4
C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 4.0
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4

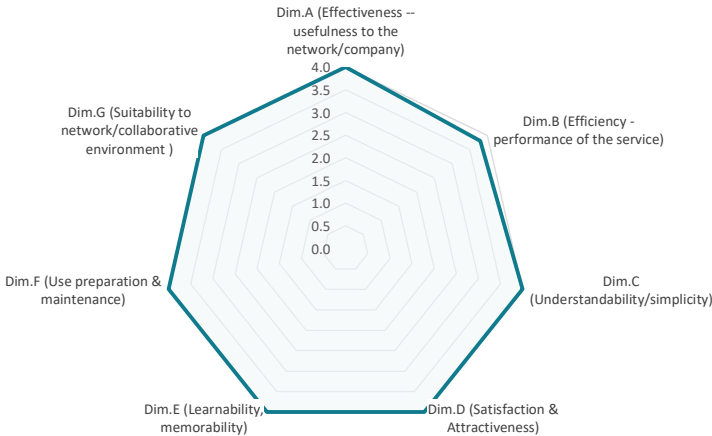
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	29
TSS Partial	0
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	4.0
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	4.0

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

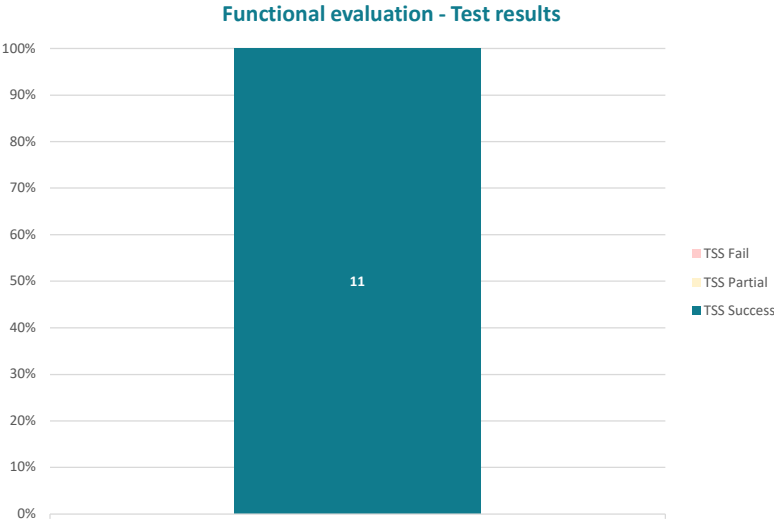
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	3.4
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	3		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	3		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	3.3
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	3		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3		

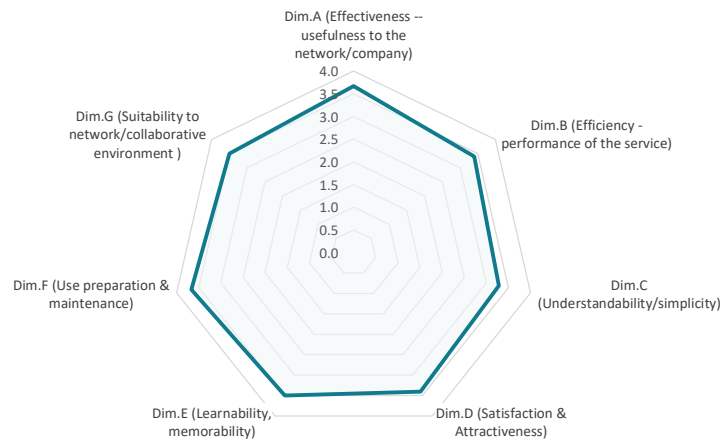
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.3
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.5

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

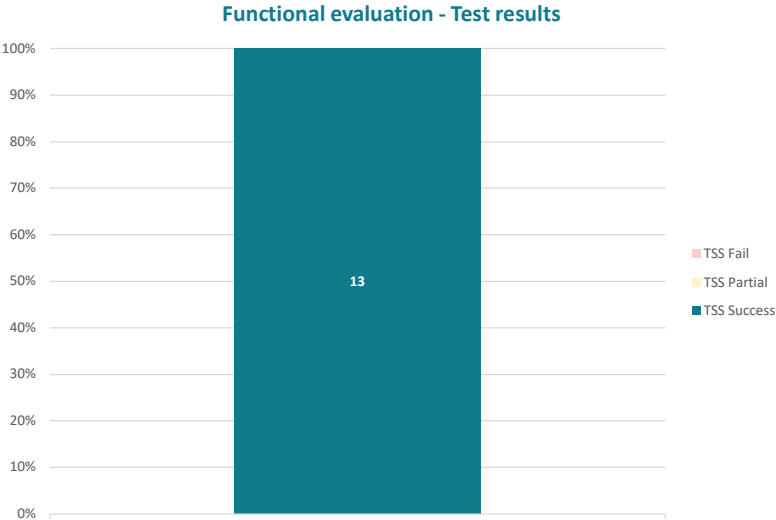
6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.2
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	3	
B3	The service does not require too many steps to achieve the result.	3	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	

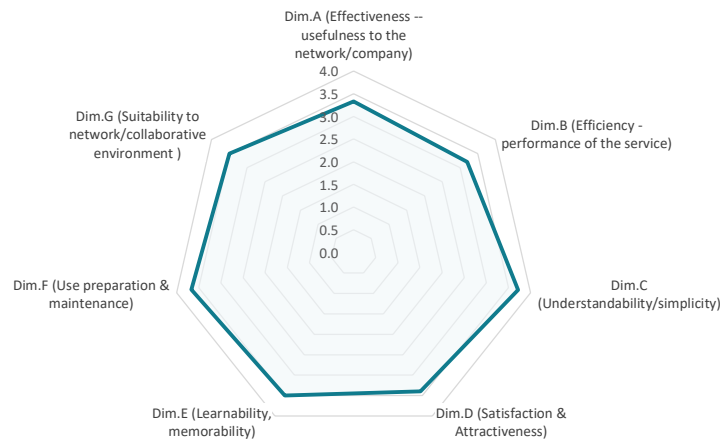
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.2
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.5

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES		
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.4
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	3	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.4
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

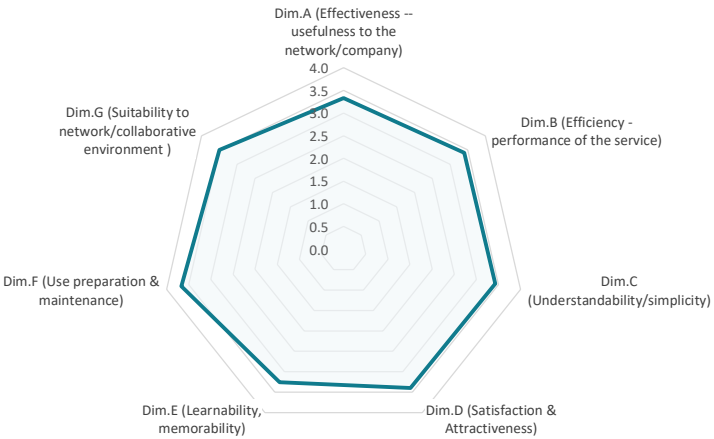
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.3
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.7
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	3
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	3.4
Dim.C (Understandability/simplicity)	3.4
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.7
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	3.2
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	3		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	3		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	3.7
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3		

C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.4
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		3.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		3.3
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	3
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	3
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	3
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

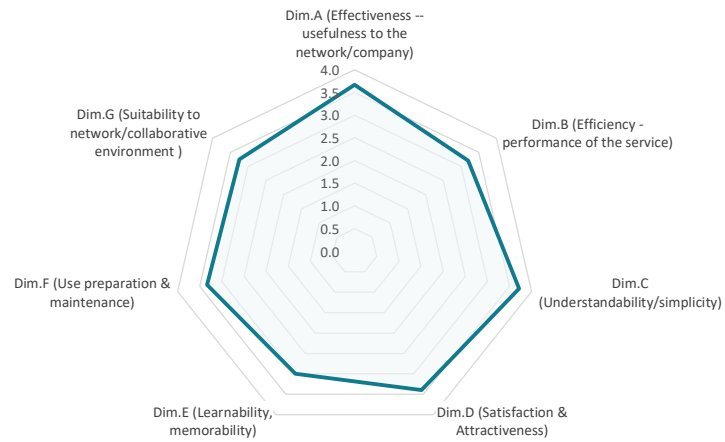
Functional evaluation - Test results



0%

Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.2
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.0
Dim.F (Use preparation & maintenance)	3.3
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES		
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.2
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3	
B2	The service runs fast enough.	3	
B3	The service does not require too many steps to achieve the result.	3	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	3	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.4
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

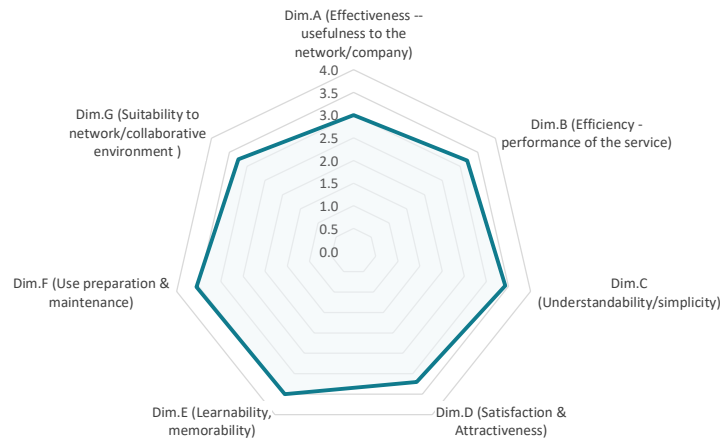
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.2
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	3
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.6
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.3
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.0
Dim.B (Efficiency - performance of the service)	3.2
Dim.C (Understandability/simplicity)	3.4
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.6
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.3

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Stephan Harkema (TNO)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
6. Click the "Details" button next to the recycling routes dropdown menu.
7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	3.4
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	3		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	3		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	3.6
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4		
C7	The output of the service is clear and understandable.	3		
C8	What could be improved to make more value of the tool/service?			

Dim.D (Satisfaction & Attractiveness)		Total	3.4
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	3	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	3.8
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	3	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	3.4
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	3	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	3	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	3	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	3	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.3
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	3	
G2	The service is suitable for heterogeneous users and different networks.	3	
G3	The service takes into account safety and security.	3	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

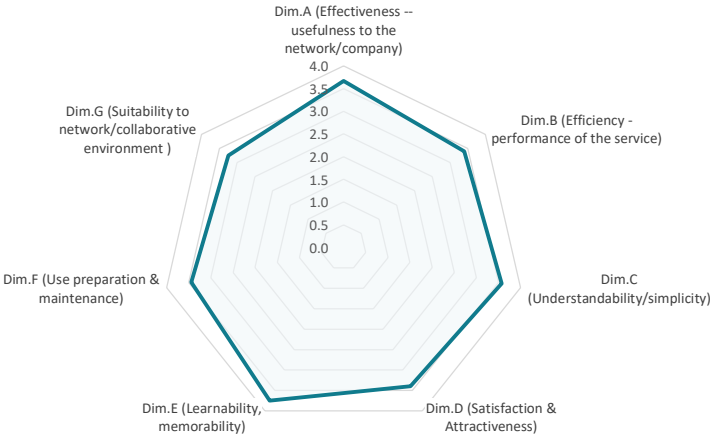
Functional evaluation - Test results



Non-functional Dimension			Results	
Dim.A (Effectiveness -- usefulness to the network/company)				3.7
Dim.B (Efficiency - performance of the service)				3.4

Dim.C (Understandability/simplicity)	3.6
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.3
	Total
	3.5

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	I was not able to understand how to adjust them	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.7
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	3	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3	
C7	The output of the service is clear and understandable.	4	

C8	What could be improved to make more value of the tool/service?		
More explanations			
Dim.D (Satisfaction & Attractiveness)		Total	3.4
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	3	
D4	The service rewards the user also personally	2	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	3.5
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3	
E4	The service offers sufficient training support.	3	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	3.6
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	2	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	3	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	3	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.5
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	3	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	3	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

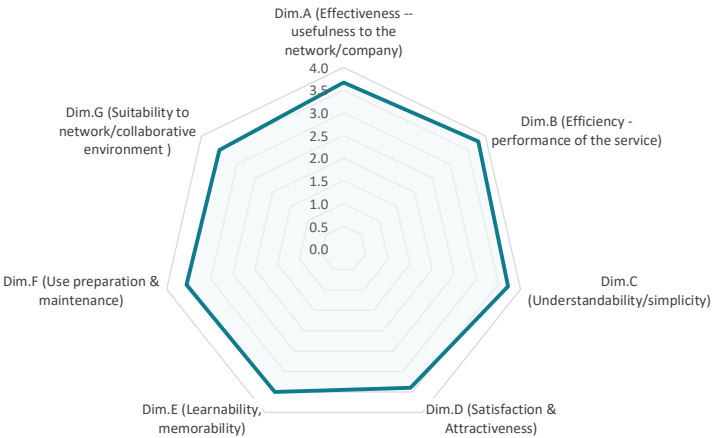
Functional evaluation - Test results



Non-functional Dimension	
Results	
Dim.A (Effectiveness -- usefulness to the network/company)	3.7

Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.7
Dim.D (Satisfaction & Attractiveness)	3.4
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.6
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.6

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

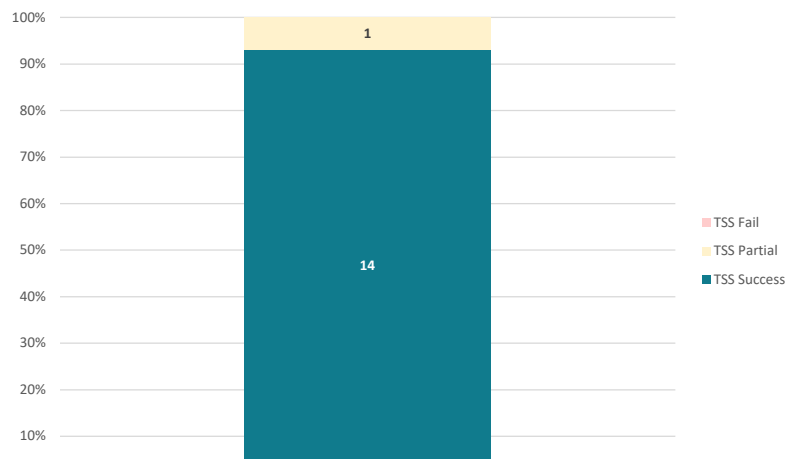
TSS _{success}	14	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		PARTIAL	The method for metals extraction is not mentioned, end-user should be interested on it	
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	3	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	2	

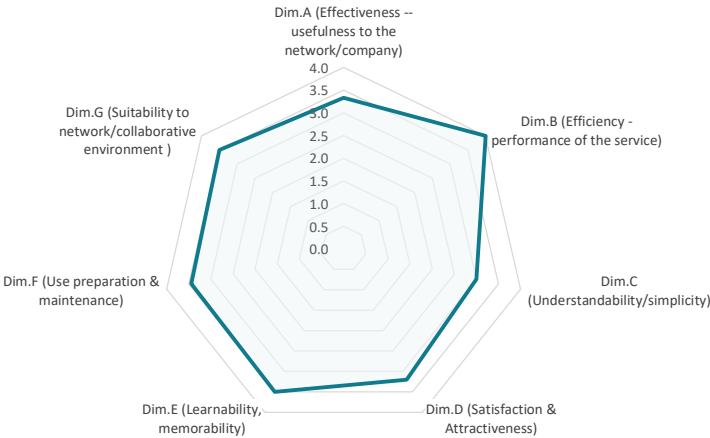
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	3
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	3
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.2
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	2
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 3.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.4
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	1
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	3
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	3
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		14
TSS Partial		1
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.0
Dim.D (Satisfaction & Attractiveness)	3.2
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.4

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	28	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		YES		
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		PARTIAL	Yes, but the quality of the picture is poor	

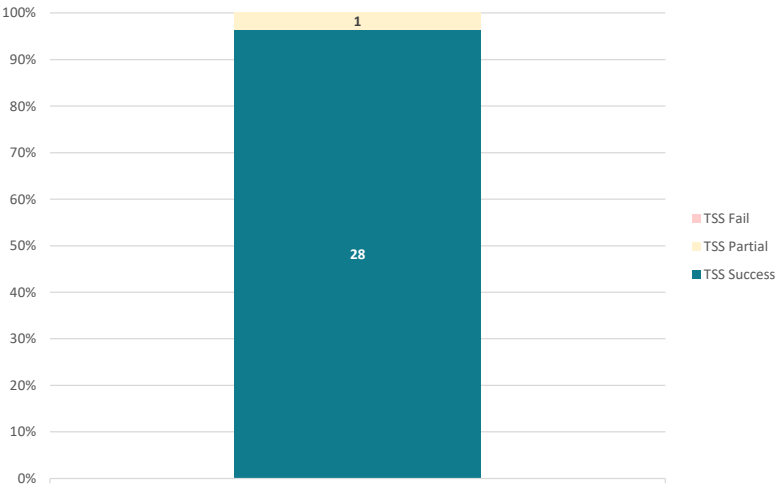
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question		Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.		4	

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4
A4	What could be improved to make more value of the tool/service?	
Dim.B (Efficiency - performance of the service)		
Total		3.8
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	3
B5	The service structure allows flexible & fast performance of the tasks.	4
B6	What could be improved to make more value of the tool/service?	
Dim.C (Understandability/simplicity)		
Total		4.0
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4
C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		3.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		3.6
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	2
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4

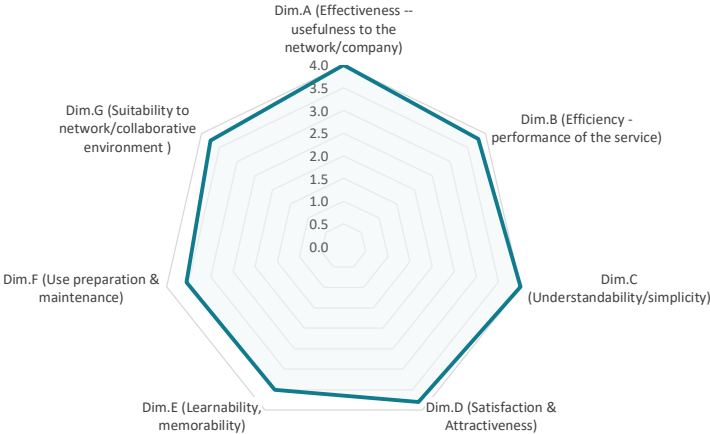
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	28
TSS Partial	1
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	3.6
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academy	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

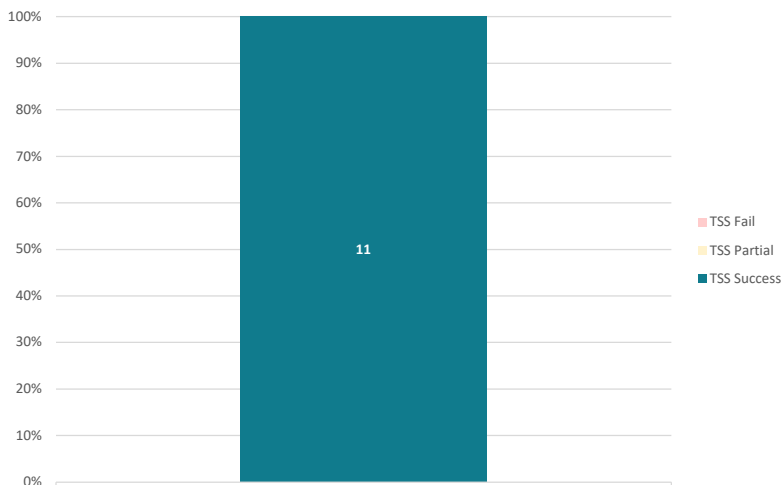
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? Explain the meaning of first, second and third level of disassembly			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service? Nothing			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		

C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
	Nothing	
Dim.D (Satisfaction & Attractiveness)		
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
	Add pictures of the required tool for the disassembly	
Dim.E (Learnability, memorability)		
Total		3.3
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
	More explanations per each task	
Dim.F (Use preparation & maintenance)		
Total		3.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	Thermodynamic rarity vs revenue, it's not clear to me the limit values that you can set	
Dim.G (Suitability to network/collaborative environment)		
Total		4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

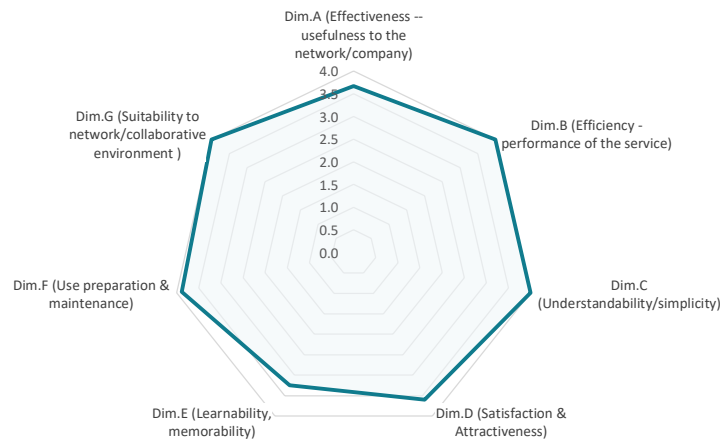
Functional evaluation - Test results



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academy	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

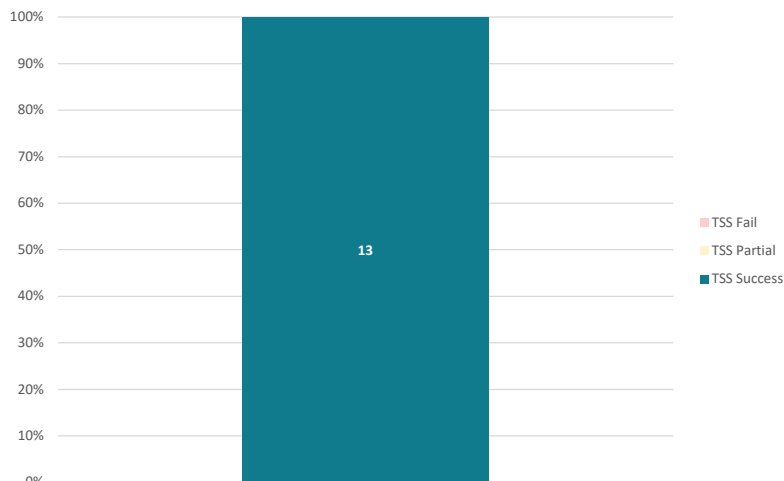
TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? Explain the meaning of first, second and third level of disassembly			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service? nothing			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		

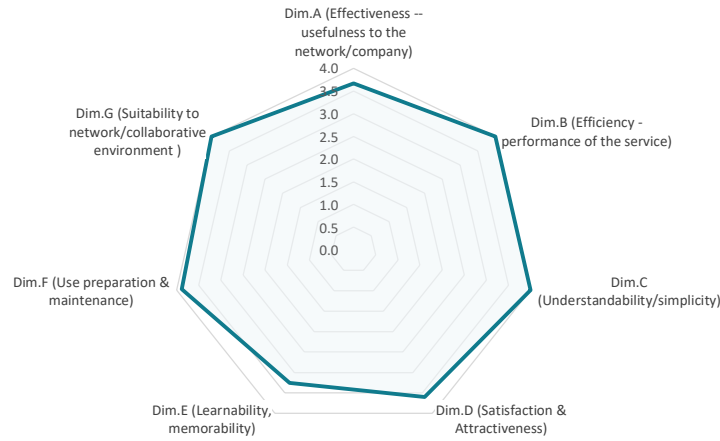
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
	nothing	
Dim.D (Satisfaction & Attractiveness)		
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
	Add pictures of the required tool for the disassembly	
Dim.E (Learnability, memorability)		
Total		3.3
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	3
E2	It is easy to learn new features/ functionalities.	3
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
	More explanations per each task	
Dim.F (Use preparation & maintenance)		
Total		3.9
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	3
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
	Thermodynamic rarity vs revenue, it's not clear to me the limit values that you can set	
Dim.G (Suitability to network/collaborative environment)		
Total		4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	3.3
Dim.F (Use preparation & maintenance)	3.9
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

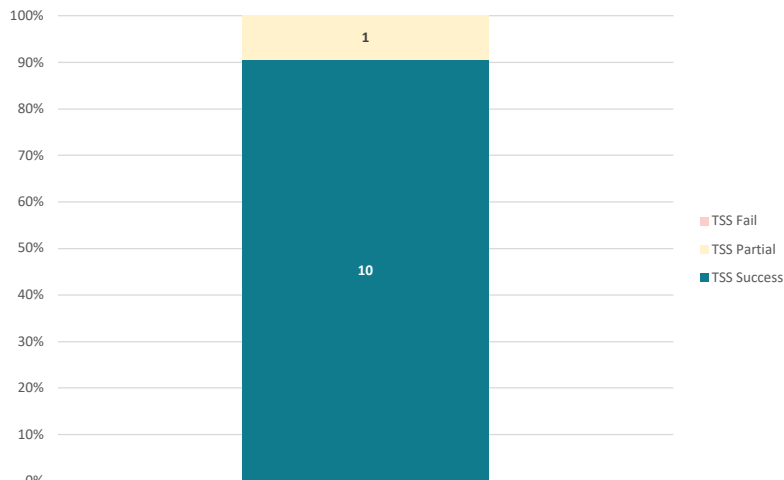
TSS _{success}	10	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		PARTIAL	by thermodynamic rarity Al and Ag are to well displayed	
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.3
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	3	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company &network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	3	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	4.0
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	4	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.9
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

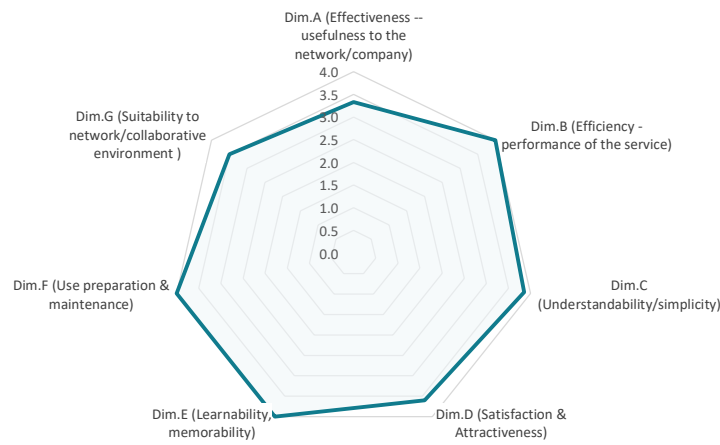
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	3
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	3
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	4	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		10
TSS Partial		1
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.3
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academic	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

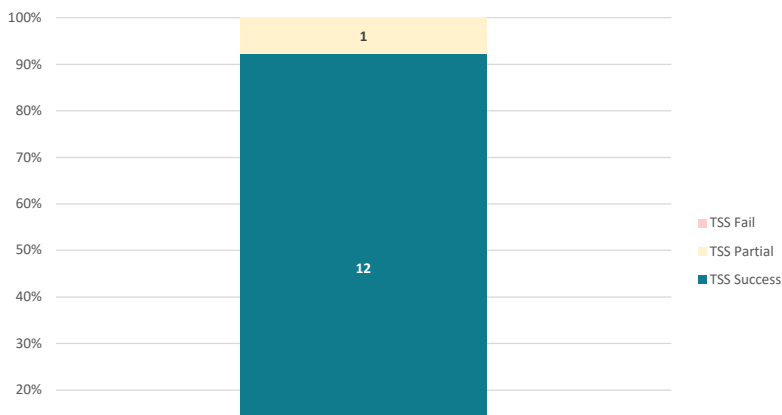
TSS _{success}	12	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		PARTIAL	File name is too long and some unit of measure missing	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	3.8
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	3.9
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		

C3	The service offers sufficient guidance	3
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		3.5
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	3
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		12
TSS Partial		1
TSS Fail		0

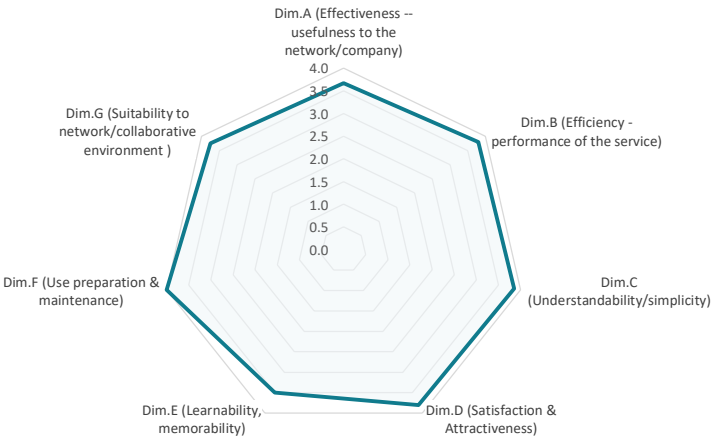
Functional evaluation - Test results





Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.5
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
Total	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academy	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES	Why does 'infotainment unit' at level 2-total?	
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		PARTIAL	For the steel processing route at level 1 no recycling rates are shown	
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES	The comment can't be delete	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service? Connection of the recycling rates with economic value of the materials based on the content to estimate the potential revenues		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

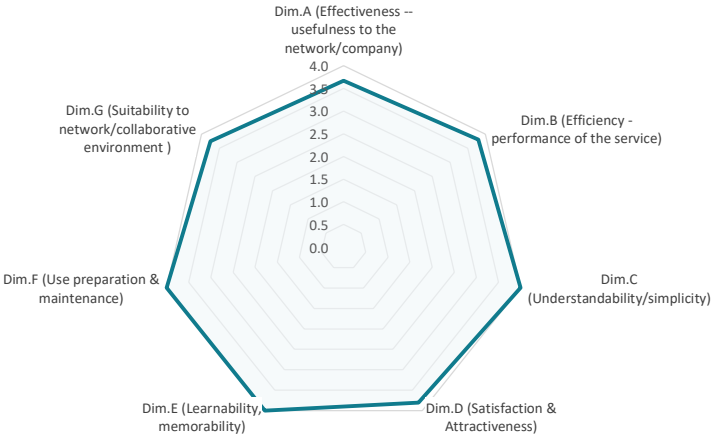
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	3
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	3
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Nicolò Maria Ippolito (UNIVAQ) technical/academy	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
6. Click the "Details" button next to the recycling routes dropdown menu.
7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

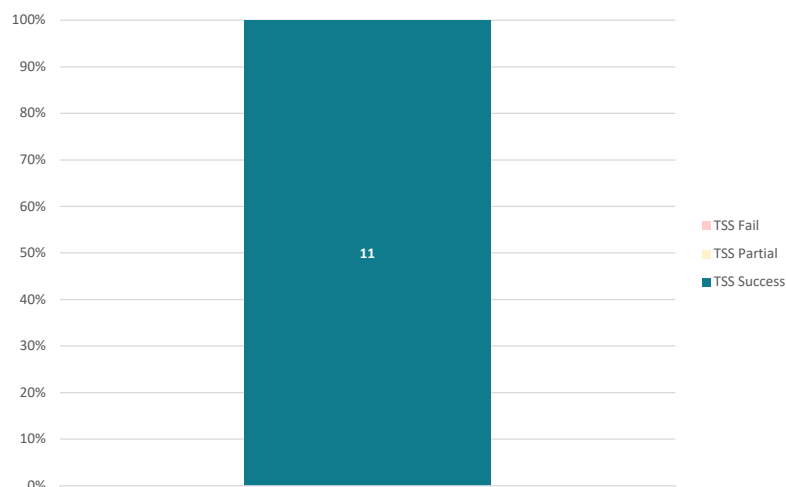
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? Connection of the recycling rates with economic value of the materials based on the content to estimate the potential revenues, explain which kind of treatment can be used			
Dim.B (Efficiency - performance of the service)			Total	3.8
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4		
C7	The output of the service is clear and understandable.	4		
C8	What could be improved to make more value of the tool/service?			

Dim.D (Satisfaction & Attractiveness)		Total	3.8
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	4	
D5	I could recommend the service for other people/organizations.	3	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	4.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.8
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	3	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	4	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

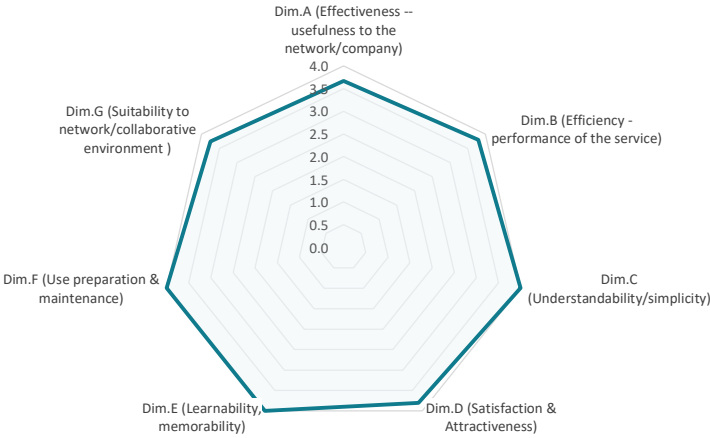
Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8

Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Disassembly Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Disassembly Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassembly Module" card.
5. Click the "Dis advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Click the "Dis advisory" link on the top navbar.	Disassembly advisor dashboard correctly opened		YES		
Assess "Electrical and electronic equipment" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Assess time and cost metrics below the metals table	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Disassembly cost per hour" value	The "Estimated disassembly cost" metric is adjusted accordingly		YES		
Assess "Thermodynamic rarity VS Revenue" sub section of the "Metals to be extracted" section	All relevant information for the desired sub-section is displayed		YES		
Adjust the "Thermodynamic rarity value limit" and "Limit value for revenue" metrics	The lower limits for the "Thermodynamic rarity indicator" and "Revenue" metrics are adjusted accordingly in the chart		PARTIAL	The way the figures change is a bit uncomfortable. They change very rapidly and you	
Hover with the mouse over a metal in the chart	A tooltip with specific metrics about the selected metal is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service? To Walter Pack in particular, there is nothing to improve in this area, as it's more of an informative platform.		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	3.9
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	3	
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4	
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4	
C7	The output of the service is clear and understandable.	4	
C8	What could be improved to make more value of the tool/service?		

Dim.D (Satisfaction & Attractiveness)		Total	2.2
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3	
D3	The mental workload when using the service is low.	0	
D4	The service rewards the user also personally	0	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
	I don't know how could I save or cancel anything in this module.		
Dim.E (Learnability, memorability)		Total	4.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	3.4
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	1	
F4	The service can be easily customized/ configured to my environment/ network.	2	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.5
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	2	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

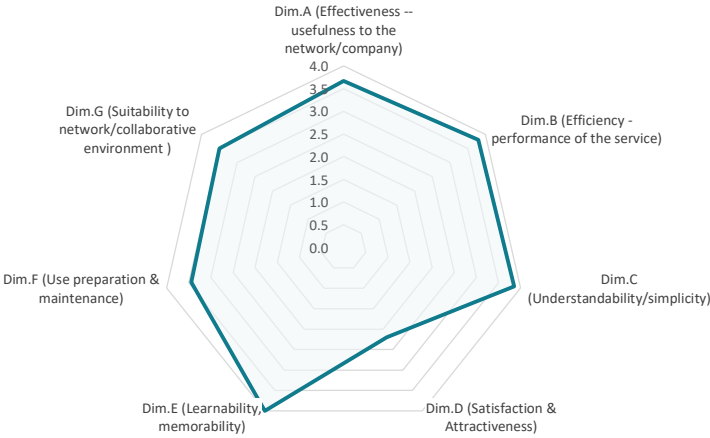
Functional evaluation - Test results



Non-functional Dimension			Results	
Dim.A (Effectiveness -- usefulness to the network/company)				3.7
Dim.B (Efficiency - performance of the service)				3.8

Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	2.2
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.5

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recyclability Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Recyclability Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Click the "Rec advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

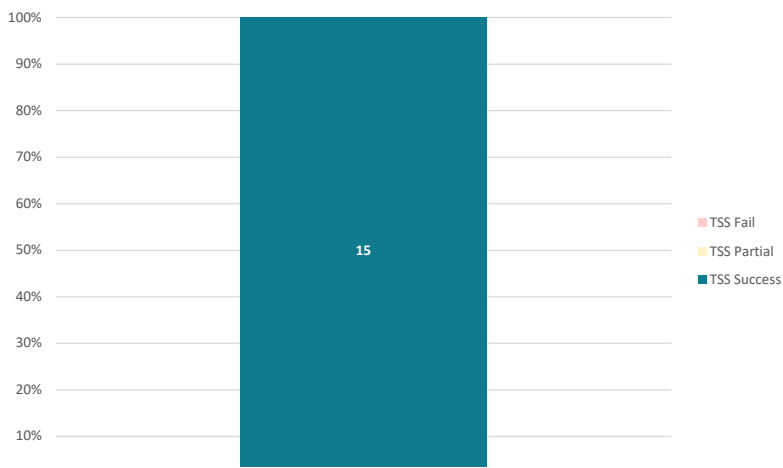
TSS _{success}	15	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Click the "Rec advisory" link on the top navbar.	Recyclability advisor dashboard correctly opened		YES		
Assess the recycling route table in the "Determine which combination of disassembly path and recycling process to implement (from component to material)" section	All relevant information for the desired table is displayed		YES		
Press the info button at the right of one recycling route	The "DIS & REC route X" popup appears		YES		
Assess the materials in the "DIS & REC route X" table	All relevant information for the desired table is displayed		YES		
Assess the revenue indicator	All relevant information for the desired section is displayed		YES		
Adjust the "Total cost" value	The "Profit" indicator updates accordingly		YES		
Press the "Close" ("X") button	The "DIS & REC route X" popup closes		YES		
Assess the "Graphical integration approach" sub-section	All relevant information for the desired section is displayed		YES		
Hover with the mouse over a recycling route in the chart	A tooltip with specific metrics about the selected recycling route is shown		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	

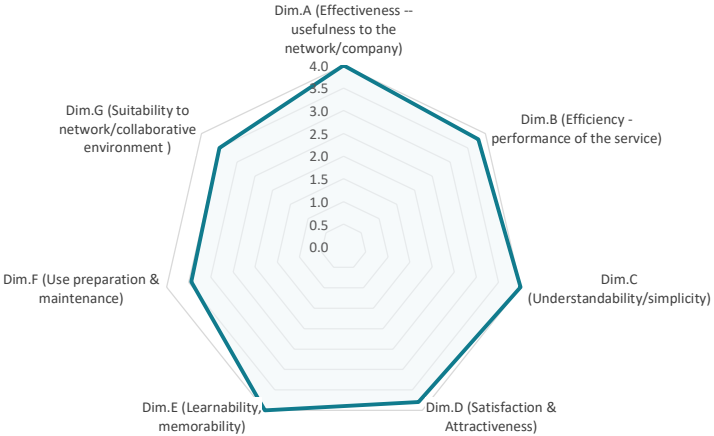
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
		I don't know how could I save or cancel anything in this module.
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.4
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	1
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		15
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Design Advisor #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_ADV_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize advisory information about a car part in the Eco-Design Advisory Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Click the "Eco advisory" link on the top navbar.
6. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	28	TSS _{partial}	1	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Click the "Eco advisory" link on the top navbar.	Eco-design advisor dashboard correctly opened		YES		
Assess the "Feedback to improve design for disassembly and recycling" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Assess the "Eco-design feedback" table in the "Step 1: Preliminary analysis of the reference design" sub-section of the "Reference Design" section	All the relevant feedback is properly displayed for the desired sub-section		YES		
Click the "Generate Guidelines" button in the "Step 2: Generation of specific eco-design guidelines and prioritization" sub-section	"Generate guidelines" popup is shown		YES		
Hover the mouse over the info icon next to the guideline ID	A tooltip with the guideline name appears		YES		
Click the info button next to the number of associated feedbacks for "Guideline 10"	A popup with the list of feedbacks associated to "Guideline 10" appears		YES		
Press the "X" button	The feedbacks popup closes		YES		
Select a "Margin of improvement (MI)" and a "Relevance (R)" for each guideline	The "Level of circularity improvement" indicator corresponding to each guideline is computed		YES		
Click the "Generate" button	The "Generate guidelines" popup closes, the "Step 3: Generation of the new design supported by the advisory" sub-section appears, showing the guidelines radar-chart		YES		
Assess the guidelines radar chart in the "Step 3: Generation of the new design supported by the advisory" sub-section	All relevant information for the desired section is displayed		YES		
Hover the mouse over a point in the guidelines radar chart	A popup showing the "Level of circularity improvement" indicator appears		PARTIAL	The popup says "Assesment"	
Select a guideline from the "Assessment for" dropdown, at the bottom of the guidelines radar chart	The "Associated feedback" and "Advisory" content in the table below change accordingly		YES		
Assess the "Scenarios comparison" section	All relevant information for the desired section is displayed		YES		
Click the "OPEN SCENARIOS IN GRETA" button	The GRETA tool opens in a new tab		YES		
Move between the "LCA" and "LCC" tabs below the "OPEN SCENARIOS IN GRETA" button	The scenarios radar chart updates accordingly		YES		
Click the "REFRESH" button on the top right of the "Scenarios comparison" section	The scenarios radar chart and comments section refresh		YES		
Assess the scenarios radar chart	All relevant information for the scenarios is displayed		YES		
Hover the mouse over a point in the scenarios radar chart	A tooltip with the category value for the selected scenario appears		YES		
Click the "DOWNLOAD REFERENCE REPORT" button	The report for the reference scenario is exported in ".pdf" format		YES		
Click the "DOWNLOAD BEST-CASE REPORT" button	The report for the best-case scenario is exported in ".pdf" format		YES		
Assess the "Comments" section	All relevant information for the desired section is displayed		YES		
Assess the "Metal Wheel (MARAS)" section	All relevant information for the desired section is displayed		YES		
Click the "DOWNLOAD" button at the top right of the "Metal Wheel (MARAS)" section	The metal wheel is exported in ".png" format		YES		

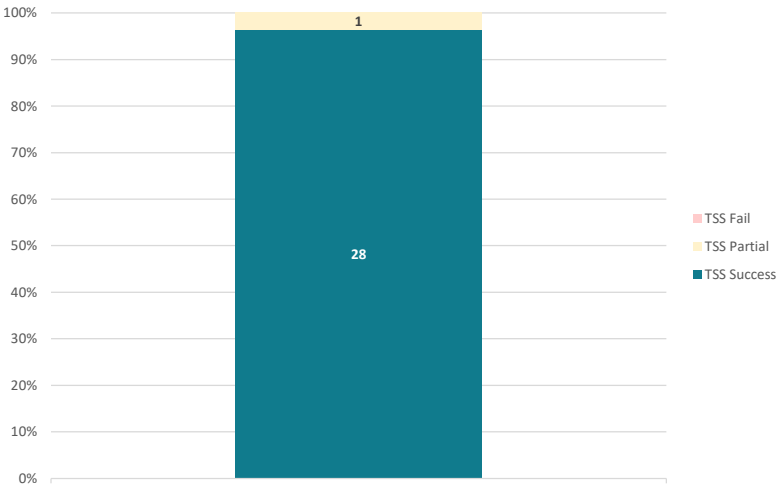
Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question		Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.		4	

A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4
A4	What could be improved to make more value of the tool/service?	
Dim.B (Efficiency - performance of the service)		
Total		3.8
Ref #	Question	Answer (0-4)
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4
B2	The service runs fast enough.	4
B3	The service does not require too many steps to achieve the result.	4
B4	All the functions are beneficial for my company/ network.	3
B5	The service structure allows flexible & fast performance of the tasks.	4
B6	What could be improved to make more value of the tool/service?	
Dim.C (Understandability/simplicity)		
Total		4.0
Ref #	Question	Answer (0-4)
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4
C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	4
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		3.4
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	1
F4	The service can be easily customized/ configured to my environment/ network.	2
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	2
G4	The service usage does not require high negotiation or complex agreements in the network.	4

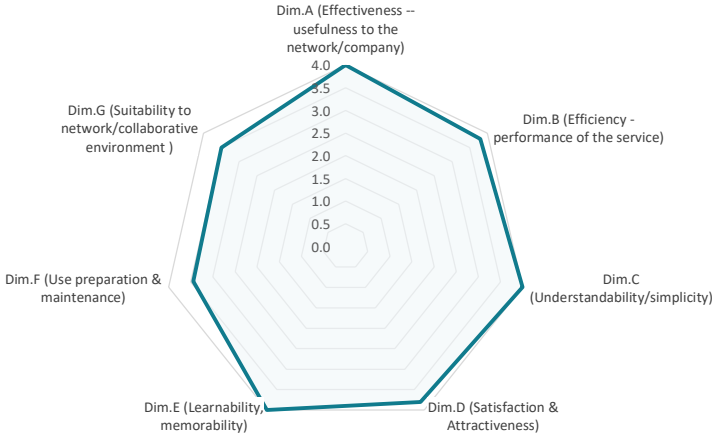
Results Assessment	
Functional Dimension	
	TSS Results
TSS Success	28
TSS Partial	1
TSS Fail	0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.4
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #1 - Test Sheet

Test Case References

Test Case ID	CWP_DIS_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic dismantling information about a car part in the Disassemblability Dashboard		

Test Script

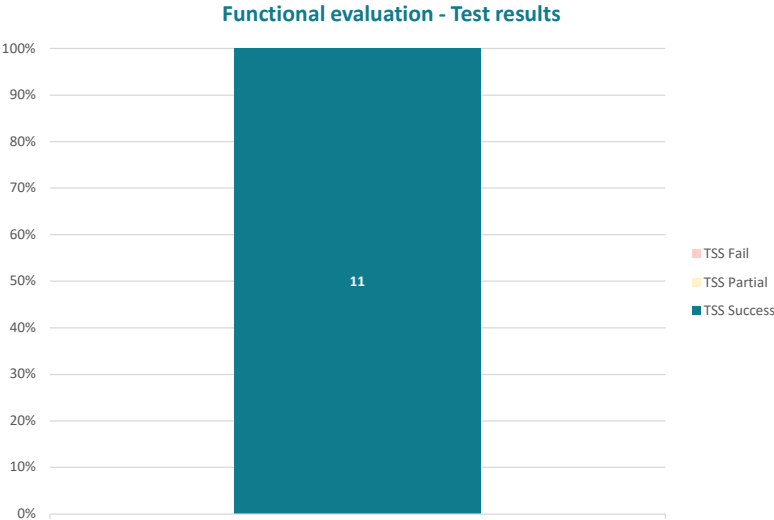
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability Module" card	Disassembly dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Materials composition" & "Material Costs" pie charts section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly times (manual)" section	All relevant information for the desired section is displayed		YES		
Assess "Disassembly metrics" section	All relevant information for the desired section is displayed		YES		
Insert desired value into hourly cost input in "Disassemblability metrics" section	The "Disassembly cost (lowerbound)", "Disassembly cost" and "Disassembly cost (upperbound)" metrics adjust their values accordingly		YES		
Assess "Cobot metrics" section	All relevant information for the desired section is displayed		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Select different recycling routes from the "Disassembly & recycling route" dropdown	The feedback displayed changes depending on the selected route		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted for the currently selected recycling route		YES		
Assess "components extraction priority vs disassembly time" section	All relevant information for the desired section is displayed		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	3.9
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	3		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		

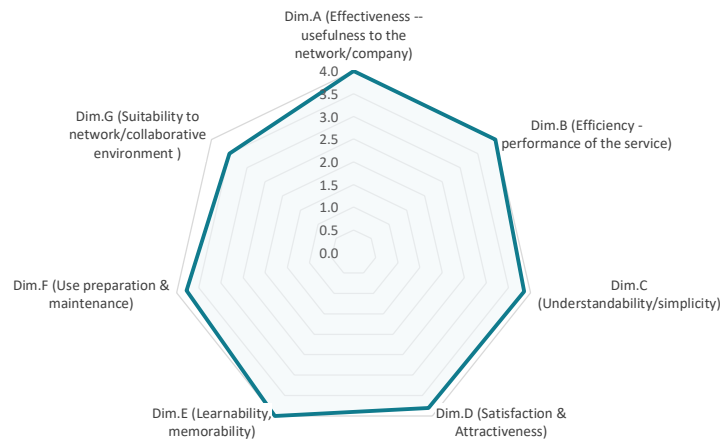
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0



Non-functional Dimension

	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	3.9
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Dismantler #2 - Test Sheet

Test Case References

Test Case ID	(CWP_DIS_UT_02) CWP_DIS_UT_03	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about a car part disassembly time from the Disassemblability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN DIS" button in the "Disassemblability Module" card.
5. Navigate to the "Disassembly times (manual)" section.
6. Click the info button next to the "Level 2" metric.
7. Assess that all the detailed information about the selected car part disassembly time (level 2) are present and correct.
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

6. Click the info button next to the "Level 1" metric (CWP_DIS_UT_02)

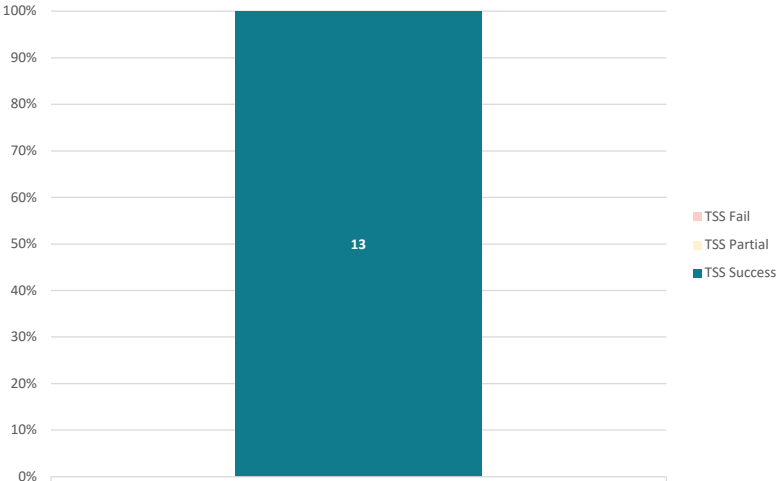
TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN DIS" button in the "Disassemblability	Disassembly dashboard is shown for the selected component		YES		
Navigate to the "Disassembly times (manual)" section.	"Disassembly times (manual)" section is present and has an info button next to "Level 1" and "Level 2" metrics		YES		
Press the info button next to the "Level 2" metric	Disassembly time (level 2) page is correctly shown		YES		
Assess the parts table	Parts table correctly displays all the relevant information		YES		
Press the "Info" button next to the "Difficulty level" table header	"Difficulty level calculation" popup is correctly shown		YES		
Assess the difficulty level table	The difficulty level table contains the proper information		YES		
Press the "Close" ("X") button	The difficulty level popup closes		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		

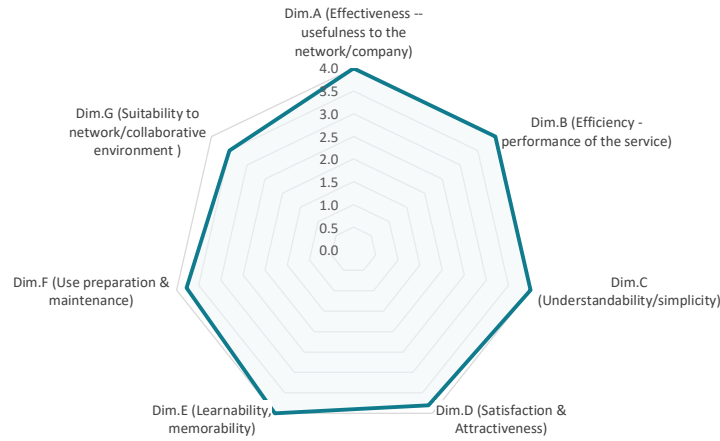
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		3.8
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	3
F4	The service can be easily customized/ configured to my environment/ network.	3
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	3.8
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #1 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic eco-design information about a car part in the Eco-Design Dashboard		

Test Script

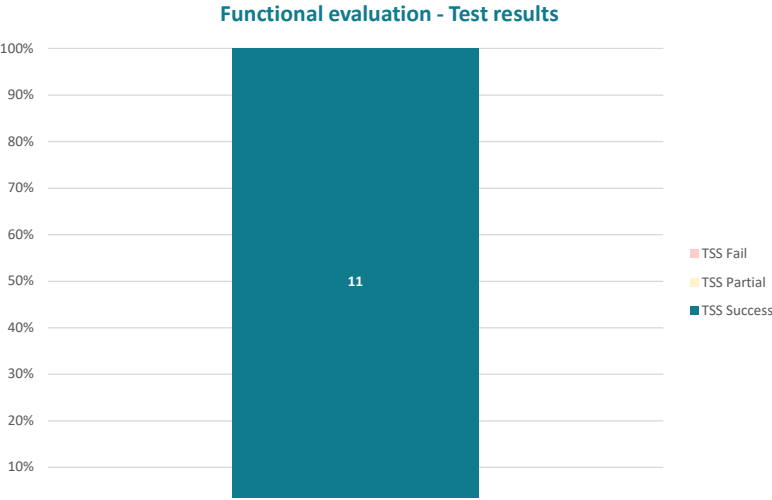
1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design Module" card	Eco-design dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Top 5 metals" section	All relevant information for the desired section is displayed		YES	It's difficult to see clearly the figures of the metals with the lowest weight content	
Select an option from the metals dropdown on the right of the section	All relevant information for the desired section updates accordingly		YES		
Hover the mouse over the info icon next to the "By thermodynamic rarity" sub-section title	A tooltip explaining the sub-title meaning appears		YES		
Assess the "Plastic characterization" section	All relevant information for the plastics characterization pie chart is displayed, the plastic characterization KPIs are displayed correctly		YES		
Assess the "Disassemblability metrics" section	The appropriate disassemblability metrics are shown		YES		
Assess the "Eco-Design recommendations"	The proper eco-design recommendations are displayed coherently with the metrics above		YES		
Assess the "Semantic Social Network Analysis" section	The SSNA tool description is clear and understandable		YES		
Click the "Open documentation" button	The SSNA tool documentation opens in a new tab		YES		
Click the "Open SSNA Tool" button	The SSNA tool opens in a new tab		YES		

Non-Functional Evaluation

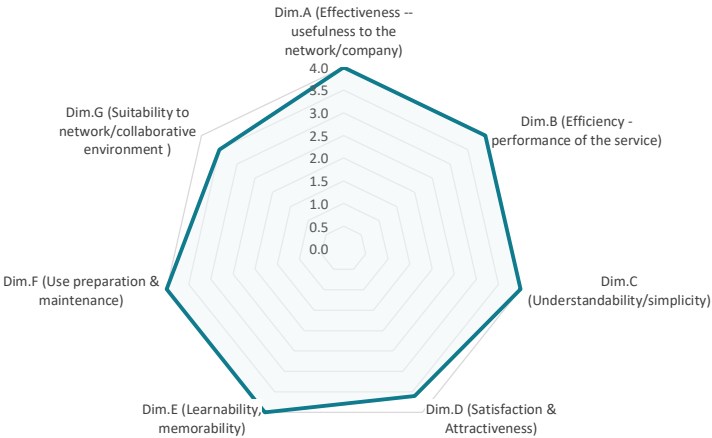
Dim.A (Effectiveness -- usefulness to the network/company)			Total	4.0
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service?			
Dim.B (Efficiency - performance of the service)			Total	4.0
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	4		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		

C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		Total 3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		Total 4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		Total 3.5
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	3
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	4.0
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.5
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Eco-Designer #2 - Test Sheet

Test Case References

Test Case ID	CWP_ECO_UT_02 (CWP_ECO_UT_03) (CWP_ECO_UT_04)	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess and export specific information about material composition for a car part in the Eco-Design Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN ECO" button in the "Eco-Design Module" card.
5. Navigate to the "By weight" sub-section of the "Top 5 metals" section.
6. Click the "Details" button above the corresponding chart.
7. Assess that all the detailed information about the selected aspect for the desired car part are present and correct
8. Export the detailed information in Excel format.

NOTE: The following procedures have a similar interaction model to the current one, and are grouped under the same test case for brevity:

5. Navigate to the "By thermodynamic rarity" sub-section of the "Top 5 metals" section. (CWP_ECO_UT_03)

5. Navigate to the "Plastic characterization" section (CWP_ECO_UT_04)

TSS _{success}	13	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN ECO" button in the "Eco-Design	Eco-design dashboard is shown for the selected component		YES		
Navigate to the "By weight" sub-section of the "Top 5 metals" section	"By weight" sub-section of the "Top 5 metals" section is present and has a "Details" button above the corresponding stacked bar chart		YES		
Press the "Details" button above the corresponding stacked bar chart	"Metals by weight" page is correctly shown		YES		
Select a filtering method from the dropdown menu next to "Show"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Select a filtering method from the dropdown menu next to "Assess"	Metals table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Metals by weight" table	Metals table correctly displays all the relevant information for the selected filtering methods		YES		
Hover the mouse over the info icon next to the "Share over the total weight", "Supply risk" and "SMI" table column titles	A tooltip explaining the table column title meaning appears		YES		
Press the "Export" button	Data are exported successfully in ".xlsx" format, following the applied filters		YES	The cell format of the excel file is not in %	

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	3.7
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	

C3	The service offers sufficient guidance	4
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
		Total 3.8
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
		Total 3.8
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	3
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
		Total 4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
		Total 3.8
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	3
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		13
TSS Partial		0
TSS Fail		0

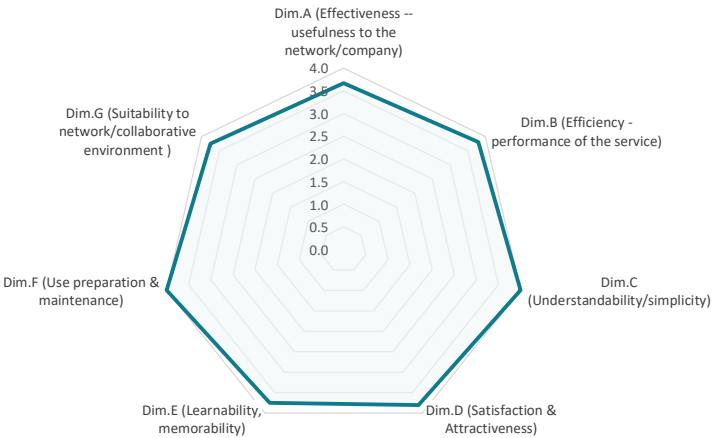
Functional evaluation - Test results





Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	3.8
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.8

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #1 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_01	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Visualize basic recycling information about a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Assess that every information expected is correctly reported in its dedicated card and is displayed in the appropriate format.

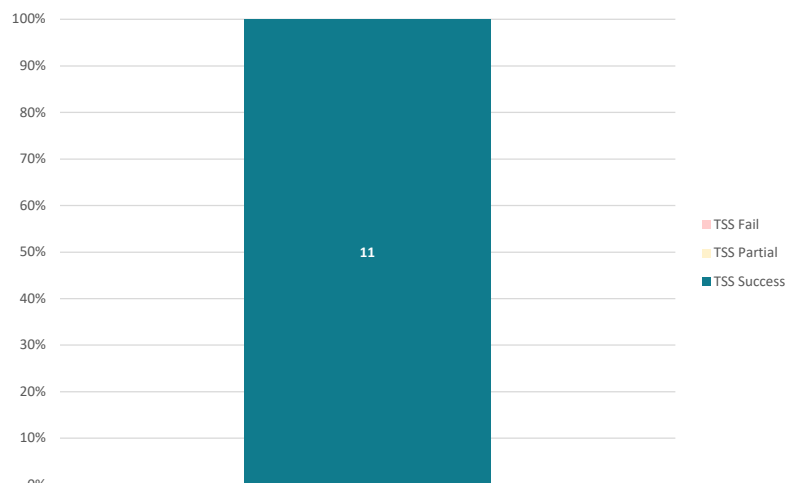
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Disassemblability Module" card	Recyclability dashboard is shown for the selected component		YES		
Assess component overall stats section	All relevant information for the desired section is displayed		YES		
Assess "Optimization objective of recycling" section	All relevant recycling optimization objectives is displayed		YES		
Assess "General composition build-up" pie chart section	All relevant information for the desired section is displayed		YES		
Assess "Recycling rates" section	All relevant information for the desired section is displayed with respect to the current recyclability level		YES		
Select a different recycling level using the dropdown menu at the top of the section	The recycling rates and processing routes change accordingly		YES		
Assess the "Individual recycling rates" sub-section	All relevant information for the desired sub-section is displayed with respect to the current recyclability level and processing route		YES		
Select a different processing route using the dropdown menu next to the "Details" button.	The individual recycling rates flower chart updates accordingly		YES		
Assess "Feedback for recyclers" section	All relevant information for the desired section is displayed		YES		
Press the "Add feedback" button	The add feedback popup appears		YES		
Insert some feedback text, then press the "Add feedback" button	The feedback is correctly inserted into the feedbacks table		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)		Total	4.0
Ref #	Question	Answer (0-4)	
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4	
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	4	
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4	
A4	What could be improved to make more value of the tool/service?		
Dim.B (Efficiency - performance of the service)		Total	3.8
Ref #	Question	Answer (0-4)	
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4	
B2	The service runs fast enough.	4	
B3	The service does not require too many steps to achieve the result.	4	
B4	All the functions are beneficial for my company/ network.	3	
B5	The service structure allows flexible & fast performance of the tasks.	4	
B6	What could be improved to make more value of the tool/service?		
Dim.C (Understandability/simplicity)		Total	4.0
Ref #	Question	Answer (0-4)	
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4	
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4	
C3	The service offers sufficient guidance	4	
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4	

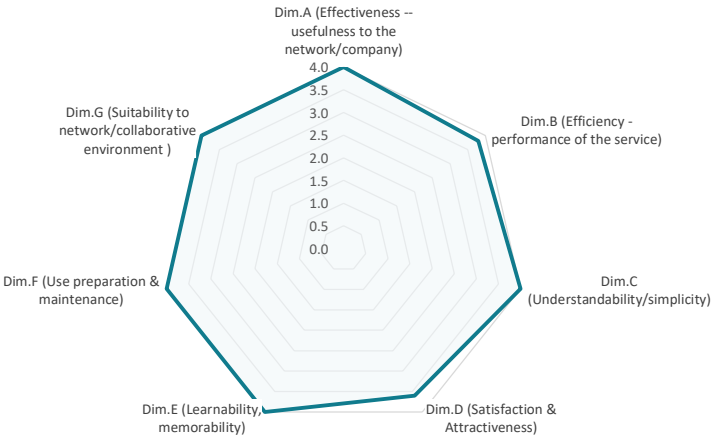
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4
C7	The output of the service is clear and understandable.	4
C8	What could be improved to make more value of the tool/service?	
Dim.D (Satisfaction & Attractiveness)		
Total		3.6
Ref #	Question	Answer (0-4)
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	3
D3	The mental workload when using the service is low.	4
D4	The service rewards the user also personally	3
D5	I could recommend the service for other people/organizations.	4
D6	What could be improved to make more value of the tool/service?	
Dim.E (Learnability, memorability)		
Total		4.0
Ref #	Question	Answer (0-4)
E1	It is easy to start using the service and to perform the main tasks.	4
E2	It is easy to learn new features/ functionalities.	4
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4
E4	The service offers sufficient training support.	4
E5	What could be improved to make more value of the tool/service?	
Dim.F (Use preparation & maintenance)		
Total		4.0
Ref #	Question	Answer (0-4)
F1	The take-up of the service does not require high preparation.	4
F2	Technical installation does not require specific setups or additional downloads.	4
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4
F4	The service can be easily customized/ configured to my environment/ network.	4
F5	The service can be easily shared in the network.	4
F6	The service does not require specific knowledge from the users.	4
F7	The service is easy to take up also for SMEs.	4
F8	The service does not require extensive change of business processes.	4
F9	The service does not require high maintenance.	4
F10	What could be improved to make more value of the tool/service?	
Dim.G (Suitability to network/collaborative environment)		
Total		4.0
Ref #	Question	Answer (0-4)
G1	The service supports collaboration and interoperability for my network.	4
G2	The service is suitable for heterogeneous users and different networks.	4
G3	The service takes into account safety and security.	4
G4	The service usage does not require high negotiation or complex agreements in the network.	4
Results Assessment		
Functional Dimension		
		TSS Results
TSS Success		11
TSS Partial		0
TSS Fail		0

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	4.0
Dim.B (Efficiency - performance of the service)	3.8
Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.6
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	4.0
	Total
	3.9

Non-functional evaluation - Test results





TREASURE Circularity Web Platform - Recycler #2 - Test Sheet

Test Case References

Test Case ID	CWP_REC_UT_02	Components involved	TREASURE Circularity Web Platform
Actors involved	Laura del Hoyo (WALTER PACK)	Contact Point	Business: Veronica Antonello (veronica.antonello@txtgroup.com) Technical: Mattia Calabresi (mattia.calabresi@txtgroup.com)
Short Description	Assess specific information about individual recycling rates for a car part in the Recyclability Dashboard		

Test Script

1. Access the TREASURE Circularity Web Platform.
2. Login with the evaluation credentials provided.
3. In the search bar, search for the "combimeter" component and select the first search result.
4. Click the "OPEN REC" button in the "Recyclability Module" card.
5. Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section.
6. Click the "Details" button next to the recycling routes dropdown menu.
7. Assess that all the recycling rates for the selected recycling level and recycling route are present and correct.

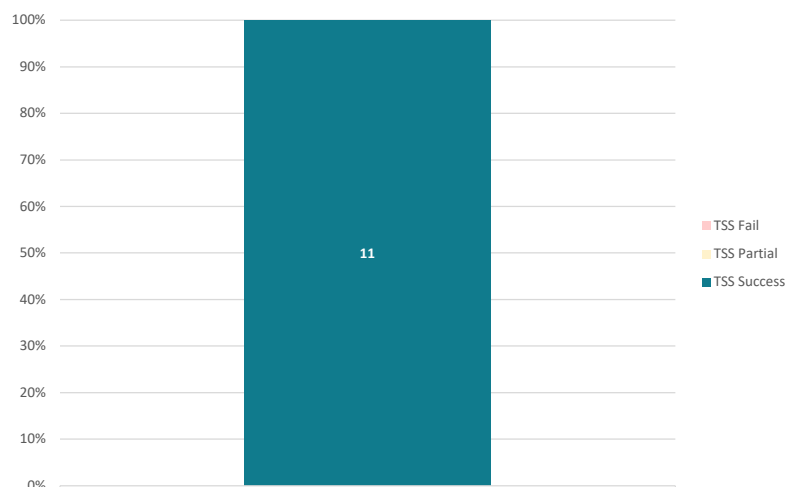
TSS _{success}	11	TSS _{partial}	0	TSS _{fail}	0
Functionalities	Expected Results		Passed	Remarks	
Access to the Circularity Web Platform	Circularity Web Platform shows login page		YES		
Login to the Platform	User successfully logged in		YES		
User redirected to home page	Home page correctly opened		YES		
Search for "combimeter" car part	List of relevant car parts shows up		YES		
Select component to visualize	Modules selection page is shown for the selected component		YES		
Click the "OPEN REC" button in the "Recyclability"	Recyclability dashboard is shown for the selected component		YES		
Navigate to the "Individual recycling rates" sub-section of the "Recycling rates" section	"Individual recycling rates" sub-section of the "Recycling rates" section is present and has a "Details" button next to the recycling routes dropdown menu		YES		
Press the "Details" button next to the recycling routes dropdown menu	"Individual recycling rates" page is correctly shown		YES		
Select a recyclability level from the top-right dropdown menu	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Select a recycling route from the second dropdown menu on the right	Recycling rates table correctly displays all the relevant information accounting for the user selection		YES		
Assess the "Rates by recycling route" table	Recycling rates table correctly displays all the relevant information for the selected recyclability level and recycling route		YES		

Non-Functional Evaluation

Dim.A (Effectiveness -- usefulness to the network/company)			Total	3.7
Ref #	Question	Answer (0-4)		
A1	It is easy to understand the objective and benefit of the service to my organization/network.	4		
A2	The outcome of the service is important / useful for the company/network. The service creates value for my company & network, for example by - saving costs - increasing income - saving time, accelerating processes - decreasing risks - improving quality - sharing information - attracting customers - boosting learning and innovation - supporting networking with other organizations	3		
A3	It is easy to achieve the planned business objectives / perform the tasks with the service.	4		
A4	What could be improved to make more value of the tool/service? I find it useful mainly for attracting customers responsible with the sustainability of their products			
Dim.B (Efficiency - performance of the service)			Total	3.8
Ref #	Question	Answer (0-4)		
B1	The time and resources required to achieve the objectives with the service are reasonable/moderate.	4		
B2	The service runs fast enough.	4		
B3	The service does not require too many steps to achieve the result.	4		
B4	All the functions are beneficial for my company/ network.	3		
B5	The service structure allows flexible & fast performance of the tasks.	4		
B6	What could be improved to make more value of the tool/service?			
Dim.C (Understandability/simplicity)			Total	4.0
Ref #	Question	Answer (0-4)		
C1	The service structure and logic is easy and self-clear to understand and recognizable.	4		
C2	The concepts are understandable for my organization and in line with TREASURE terminology	4		
C3	The service offers sufficient guidance	4		
C4	The responses to user actions are understandable. The look and feel is self explanatory and follows the TREASURE style.	4		
C5	The support to business processes / tasks is clear. The user can understand his/her role and the purpose of the actions required.	4		
C6	The service is simple enough for practical use. The tasks do not look complex to perform. It is clear what is required for input.	4		
C7	The output of the service is clear and understandable.	4		
C8	What could be improved to make more value of the tool/service?			

Dim.D (Satisfaction & Attractiveness)		Total	3.8
Ref #	Question	Answer (0-4)	
D1	The service is attractive to the user. I feel satisfied and comfortable when using the service.	4	
D2	I can keep the control of the service, for example by pausing& continuing, canceling, saving the status and starting again.	4	
D3	The mental workload when using the service is low.	4	
D4	The service rewards the user also personally	3	
D5	I could recommend the service for other people/organizations.	4	
D6	What could be improved to make more value of the tool/service?		
Dim.E (Learnability, memorability)		Total	4.0
Ref #	Question	Answer (0-4)	
E1	It is easy to start using the service and to perform the main tasks.	4	
E2	It is easy to learn new features/ functionalities.	4	
E3	When coming back to an unfinished task, it is easy to remember / identify the actions needed.	4	
E4	The service offers sufficient training support.	4	
E5	What could be improved to make more value of the tool/service?		
Dim.F (Use preparation & maintenance)		Total	4.0
Ref #	Question	Answer (0-4)	
F1	The take-up of the service does not require high preparation.	4	
F2	Technical installation does not require specific setups or additional downloads.	4	
F3	The data needed by the service exist in my company/network in the proper format and can be easily made available for the service.	4	
F4	The service can be easily customized/ configured to my environment/ network.	4	
F5	The service can be easily shared in the network.	4	
F6	The service does not require specific knowledge from the users.	4	
F7	The service is easy to take up also for SMEs.	4	
F8	The service does not require extensive change of business processes.	4	
F9	The service does not require high maintenance.	4	
F10	What could be improved to make more value of the tool/service?		
Dim.G (Suitability to network/collaborative environment)		Total	3.8
Ref #	Question	Answer (0-4)	
G1	The service supports collaboration and interoperability for my network.	4	
G2	The service is suitable for heterogeneous users and different networks.	4	
G3	The service takes into account safety and security.	3	
G4	The service usage does not require high negotiation or complex agreements in the network.	4	
Results Assessment			
Functional Dimension			
		TSS Results	
TSS Success		11	
TSS Partial		0	
TSS Fail		0	

Functional evaluation - Test results



Non-functional Dimension	
	Results
Dim.A (Effectiveness -- usefulness to the network/company)	3.7
Dim.B (Efficiency - performance of the service)	3.8

Dim.C (Understandability/simplicity)	4.0
Dim.D (Satisfaction & Attractiveness)	3.8
Dim.E (Learnability, memorability)	4.0
Dim.F (Use preparation & maintenance)	4.0
Dim.G (Suitability to network/collaborative environment)	3.8
	Total
	3.9

Non-functional evaluation - Test results

