



Kreislauffähige Textil- und Bekleidungsunternehmen – Entwicklung und Pilotierung eines Services zur Qualifikation von Unternehmen der Textilwirtschaft für die Kreislaufproduktion von Textilien und Bekleidung

Akronym: TCReady4CE

gefördert mit Mitteln der Deutsche Bundesstiftung Umwelt (DBU)

Aktenzeichen: 37821/01

Final Report

01.12.2021 – 31.05.2023

Authors: Guido Grau, Dieter Stellmach, Marcus Winkler (all DITF)
Marte Hentschel, Nataliia Kirillova (all Sourcebook)

Date: 21/07/2023

Table of Contents

Table of Contents.....	2
List of Figures	3
Executive Summary	4
Executive Summary (German)	5
1. Scope of the Service	6
2. Results.....	7
2.1 Developed Detailed Concept of the Service.....	7
2.2 Self-Assessment-Tool for Circular Economy.....	8
2.3 Training for Circular Economy	13
2.4 Integration	22
2.5 Piloting and Testing	23
3. Dissemination and Exploitation	24
4. Project Management.....	25
5. Conclusion	26
Annex 1: Working Plan.....	27
Annex 2: List of Questions	28

List of Figures

Figure 1: Screenshot of the MS – EXCELsheet with questions and training modules in a first version	9
Figure 2: Screenshot of the frontend of the Self Assessment Tool implemented on hosting service typeform.com	10
Figure 3: Screenshot of the example question on the Self Assessment Tool	10
Figure 4: Screenshot showing the contents of ‘resources, products and shipping’	11
Figure 5: Screenshot showing one question of ‘resources, products and shipping’	11
Figure 6: Screenshot showing the contents of ‘waste management’	12
Figure 7: Screenshot showing one question of ‘waste management’	12
Figure 8: Screenshot of the results page of the Self Assessment Tool	13
Figure 9: Starting slide of module 1	15
Figure 10: Slide showing the role of TCI in module 1	16
Figure 11: Starting slide of module 2	16
Figure 12: Slide explaining the Cradle-to cradle methodology in module 2	17
Figure 13: Starting slide of module 3	17
Figure 14: Slide giving hints to ensure quality in module 3	18
Figure 15: Starting slide of module 4	18
Figure 16: Slide giving some examples of packaging options in module 4	19
Figure 17: Starting slide of module 5	19
Figure 18: Slide showing the several recycling variations and options in module 5	20
Figure 19: Starting slide of module 6	20
Figure 20: Slide explaining the EU-Taxonomy in module 6	21
Figure 21: Starting slide of module 7	21
Figure 22: Slide showing German laws in module 7	22
Figure 23: Example of a social media post visual	25

Executive Summary

This document serves as a final report and describes the results and the work done within the project from 1st of December 2021 (project start) to 31st of May 2023 (project end).

The basic idea in the project is to enable companies in the textile and clothing industry with the help of a digital service on a cloud-based cooperation platform to qualify for the circular (textile) economy. Thus, effective and circularly oriented collaborations for circular (repairable, reusable, biodegradable or recyclable) textiles can be easily initialised and streamlined, supporting the supply chain stakeholders with corresponding, intuitively usable digital tools.

As a pilot area, the focus will be on the matching of suitable partners for the production of clothing and for the procurement of textile materials and accessories. This closes a gap in the transformation of companies in the textile and clothing industry into the circular economy.

The first question to be answered is, how good is the positioning of a company towards a circular economy. For this purpose, a digital service for self-diagnosis and for enabling companies for the circular economy is being developed. This service consists of three modules: a self-diagnosis tool (Self-Assessment Tool: SAT), a scoring and benchmarking system and a training module. With the SAT tool, a company can diagnose its capability regarding circularity. After evaluation, a training programme tailored to the result is introduced. Both enable a textile or clothing company to analyse and develop itself individually. The diagnostic tool and the training modules are made available as a service on the cooperation platform "Sqetch.co".

During the project detailed specifications were prepared, as planned, and the self-assessment tool as well as training units were designed, specified, implemented, and validated. The modules were integrated into the cooperation platform. In terms of dissemination, the initiative was presented at several events. Marketing plan has been ideated and set in the schedule.

No deviations from the original planning have occurred. Therefore, the work over the duration of the project was carried out as planned. The service is technically available at the cooperation platform, and the market launch is prepared. Thus, the service developed within TCready4CE provides an important contribution for the ongoing transformation of the textile and clothing industry into a circular economy.

Executive Summary (German)

Dieses Dokument dient als Abschlussbericht und beschreibt die Ergebnisse und die Arbeit, die im Rahmen des Projekts vom 1. Dezember 2021 (Projektstart) bis zum 31. Mai 2023 (Projektende) geleistet wurde.

Die Grundidee des Projekts ist es, Unternehmen der Textil- und Bekleidungsindustrie mit Hilfe eines digitalen Services auf einer cloudbasierten Kooperationsplattform in die Lage zu versetzen, sich für die Kreislauf(textil)wirtschaft zu qualifizieren. So können effektive und zirkulär orientierte Kooperationen für kreislauforientierte (reparierbare, wiederverwendbare, biologisch abbaubare oder recycelbare) Textilien einfach initiiert und optimiert werden, wobei die Akteure der Lieferkette mit entsprechenden, intuitiv nutzbaren digitalen Werkzeugen unterstützt werden.

Als Pilotbereich liegt der Fokus auf der Auswahl geeigneter Partner für die Produktion von Bekleidung und der Beschaffung von textilen Materialien und Accessoires. Damit wird eine Lücke bei der Transformation von Unternehmen der Textil- und Bekleidungsindustrie in die Kreislaufwirtschaft geschlossen.

Die erste Frage, die es zu beantworten gilt, ist, wie gut die Positionierung eines Unternehmens im Sinne der Kreislaufwirtschaft ist. Zu diesem Zweck wird im Rahmen von TCready4CE ein digitaler Dienst zur Selbstdiagnose und zur Befähigung von Unternehmen für die Kreislaufwirtschaft entwickelt. Dieser Dienst besteht aus drei Modulen: einem Selbstdiagnose-Tool (Self-Assessment Tool: SAT), einem Bewertungs- und Benchmarking-System und einem Schulungsmodul. Mit dem SAT-Tool kann ein Unternehmen seine Fähigkeiten in Bezug auf die Fähigkeit in Kreisläufen zu Wirtschaften diagnostizieren. Nach der Bewertung wird ein auf das Ergebnis zugeschnittenes Schulungsprogramm eingeführt. Beides ermöglicht es einem Textil- oder Bekleidungsunternehmen, sich individuell zu analysieren und weiterzuentwickeln. Das Diagnosetool und die Schulungsmodule werden als Service auf der Kooperationsplattform "Sqetch.co" zur Verfügung gestellt.

Im Rahmen des Projekts wurden wie geplant detaillierte Spezifikationen erstellt und das Selbstbewertungsinstrument sowie die Schulungseinheiten konzipiert, spezifiziert, implementiert und validiert. Die Module wurden in die Kooperationsplattform integriert. Was die Verbreitung angeht, so wurde das Projekt auf mehreren Veranstaltungen vorgestellt. Es wurde ein Marketingplan entworfen und in den Zeitplan aufgenommen.

Es sind keine Abweichungen von der ursprünglichen Planung aufgetreten. Daher wurden die Arbeiten während der Projektlaufzeit wie geplant durchgeführt. Der Dienst ist technisch auf der Kooperationsplattform verfügbar und die Markteinführung ist vorbereitet. Damit leistet der im Rahmen von TCready4CE entwickelte Dienst einen wichtigen Beitrag für die laufende Transformation der Textil- und Bekleidungsindustrie in eine Kreislaufwirtschaft.

...

1. Scope of the Service

This document serves as a final report and describes the results and the work done within the project from 1st of December 2021 (project start) to 31st of May 2023 (project end).

The basic idea in the project is to enable companies in the textile and clothing industry with the help of a digital service on a cloud-based cooperation platform to qualify for the circular (textile) economy. Thus, effective and circularly oriented collaborations for circular (repairable, reuseable, biodegradable or recyclable) textiles can be easily initialised and streamlined, supporting the supply chain stakeholders with corresponding, intuitively usable digital tools.

As a pilot area, the focus will be on suitable partners for the production of clothing and for the procurement of textile materials and accessories. This closes a gap in the transformation of companies in the textile and clothing industry into the circular economy.

The first question to be answered is, how good is the positioning of a company towards a circular economy. For this purpose, a digital service for self-diagnosis and for enabling companies for the circular economy is being developed. This service consists of three modules: a self-diagnosis tool (Self-Assessment Tool: SAT), a scoring and benchmarking system and a training module.

With the SAT tool, a company can diagnose its capability regarding circularity. Areas such as knowledge of circular economy, use of renewable resources, generation of communication of sustainability data and certificates are examined. After evaluation, a training programme tailored to the results is proposed. For this purpose, seven modules such as 'Design for Circularity' or 'Reduce Waste and Waste Management' are set up.

This enables a textile or clothing company to analyse and develop itself individually in relation to their capacity and state of knowledge. The diagnostic tool and the training modules are made available as a service on the cooperation platform "Sqetch.co", and as a result are promoted as best practice on the Sqetch marketplace through prioritised listing and recommendation management. Due to the large number of existing textile companies in the Sqetch network, a large amount of companies can form and thus enable a significant contribution to the transformation to the textile circular economy. The platform itself thus becomes an important actor in the textile circular economy with a broad impact.

In the following chapters, the results are presented according to the work packages (WP) of the project work plan (as shown in Annex 1: Working Plan).

2. Results

2.1 Developed Detailed Concept of the Service

The detailed concept of the service was developed within the WP 1 and covers three sub work packages dealing with:

- development of a detailed concept covering technical specifications
- structure of a questionnaire and scoring method, i.e. a Self-Assessment Tool (SAT)
- identification of take up measures, aligned with the result of the questionnaire and framed in training modules

The technical specifications comprised the integration of the service layer covering the service development (booking and check-out, user dashboard, notification centre and support), integration and functional tests (developing of the interface) and implementation (integration into the platform architecture and data security concept). These specifications have been made and built the bottom line for WP 4 (Service Integration) that was started in Autumn 2022.

Regarding the SAT a set of questions have been derived and put into the following main categories: Information about the company, information about resources, products and shipping as well as information about waste management. Depending on the answers of these questions a scoring and alignment to training contents (including the take up measures) has been made, in order to improve the organisations competence in circularity, covering sourcing, new product development, production and distribution.

The training modules were originally structured in three categories: Basic training (like Circular Economy today and tomorrow, IT for CE, organisational networking ...), core training (like product design, materials, production processes, IT, communication, company culture ...) and specialist training (like recycling, technologies, business models, platforms, certificates and standards ...). However, due to following discussions and insights the original categories were consolidated into 7 modules (see more details in chapter 2.3), in order to reduce complexity and highlight key messages.

Being implemented in the Sqetch platform, the SAT and the training modules have to be integrated into the existing business model, in order to be a marketable service. So far, the Sqetch platform uses a software-as-a-service revenue model, which issues usage rights to the user groups according to their needs and charges licence fees, which are billed via monthly or annual subscriptions. Thus, Sqetch can be expanded towards a circular economy platform and enabling existing and future textile businesses to enter the circular economy.

2.2 Self-Assessment-Tool for Circular Economy

The SAT tool was developed within WP2, and covers five sub work packages dealing with:

- structure and formulation of questions and option to answer, followed by a scoring and alignment of the answers
- implementation and internal test of the UX design
- development and integration of the database structure, functionalities for analyses, filter and export
- import of data sets of partner platforms and qualitative analyses of data quality
- representation of the modules and technical documentation

The questionnaire consists of 71 questions including Information about the company, information about resources, products and shipping and information about waste management. The majority of questions are closed requiring a 'YES' or NO' response, whilst others are guided by range options i.e. 100-80%; 80-50%; 50-10%; < 10%. The questions are structured as following:

- Information about the company
 - Name of the company and person to be interviewed.
 - Information about products and production
 - Information about relevance and motivation regarding CE
 - Information about certifications and standards
 - Information about corporate culture
 - Information about communication CE awareness
- Information about resources, products and shipping
 - Materials and trims
 - Products (order quantities ...)
 - Packaging and shipping
 - Processes
 - Transparency in the supply chain
- Information about waste management
 - Pre-production waste
 - Production waste
 - Post-production waste
 - Reuse of waste
 - Documentation and reporting
 - Energy
 - Water
 - Carbon Emissions

Subject to the participants response, the training modules are then allocated to support the specific improvements required in the field of circularity.

So, the 71 questions have been listed in lines facing the seven training modules as columns in an MS EXCEL-sheet (MS). The project team and other experts outside the team (from DITF) aligned the result or ranking to the training models. All questions are listed in Annex 2: List of Questions.

The full list of questions is provided in the Annex 1.

	A	B	C	D	E	F	G	H	I	J	K	L	M
36	5	Corporate Culture	5.1	Does your company provide training for circularity topics? (y/n)			ooX	Xo	X	oX		oXXoo	oXo
37			5.2	How strong is the awareness concerning CE among your employees? (not at all, weak, high, very high)			ooX	Xo	X	oX		oXXoo	oXo
38			5.3	Are the needed skills and competences available for needed changes? (y, n)			ooX	Xo	X	oX		oXooo	oXo
39	6	CE awareness to extern	6.1	Did you already or do you plan to communicate your willingness to produce CE conform? (y/n)			ooX	Xo				oXoXX	
40	Ressources, Products and Shipping												
41	7	Materials and Trims	7.1	When you source components, are you prioritising products that hold certifications in the frame of CE? (y/n)				oX	X	Xo		oooXX	
42			7.2	Please rate your knowledge of sustainability and circularity regarding materials and trims (1-5)				oX	X	oX	X		
43			7.3	Please rate the average use of circular materials in your company (100-80%, 80-50%, 50-20%, less than 10%)					X	XX			
44			7.4	Please rate the average use of circular trims and components in your company (100-80%, 80-50%, 50-20%, less than 10%)					X	XX			
45			7.5	Do you have the knowledge and tools to manufacture a product by combining different materials and trims that fit into the technical cycle (y/n)			ooX	X			X		
46			7.6	Do you have the knowledge and tools to manufacture a mono-cycle product (y/n)				X		XX		ooooX	
47			7.7	Do you use degradable materials? (y/n)			ooX	X					
48			7.8	Do you use renewable materials? (y/n)			ooX	X					
49	8	Products	8.1	Do you provide flexible Order Quantities to produce on demand? (y/n)						XX		oXXXX	ooX
50			8.2	Do you usually provide your client with information how to optimise the environmental footprint? (y/n)				Xo				oXXoo	ooX

Figure 1: Screenshot of the MS – EXCELsheet with questions and training modules in a first version

Once the questionnaire was completed and scoring and benchmarking assigned to each question, the frontend and backend of the SAT started to be ideated, designed, implemented and tested.

The usability of the SAT follows the rules of easy to use, simple presentation and understanding for the users. The front-end interface is combined with an attractive but not overloaded layout that shows one question (including one or two sub-questions) and illustrates the contents of the questions by one or two pictures. Furthermore, the user interface has responsive design, i.e. adapted for both desktop and mobile viewing, which allows flexibility for end user to complete the SAT in the most convenient manner. As a result of the internal UX design testing, it was decided to develop and host the questionnaire on the questionnaire hosting service typeform.com. This service enables a customized setup of the backend and frontend of the questionnaire, including the questions grouping, assignment of scoring logic, responsive design, and recommendation of training modules at the end of the questionnaire.

This led to an online tool that followed the structure and formulation of the questionnaire, in full alignment to the 7 training modules. The developed SAT accommodates various type of questions to assess the knowledge and recommend a specific training module as a result; the following

question types are used in the SAT: dropdown, multiple choice, free text field, number, opinion scale, etc.

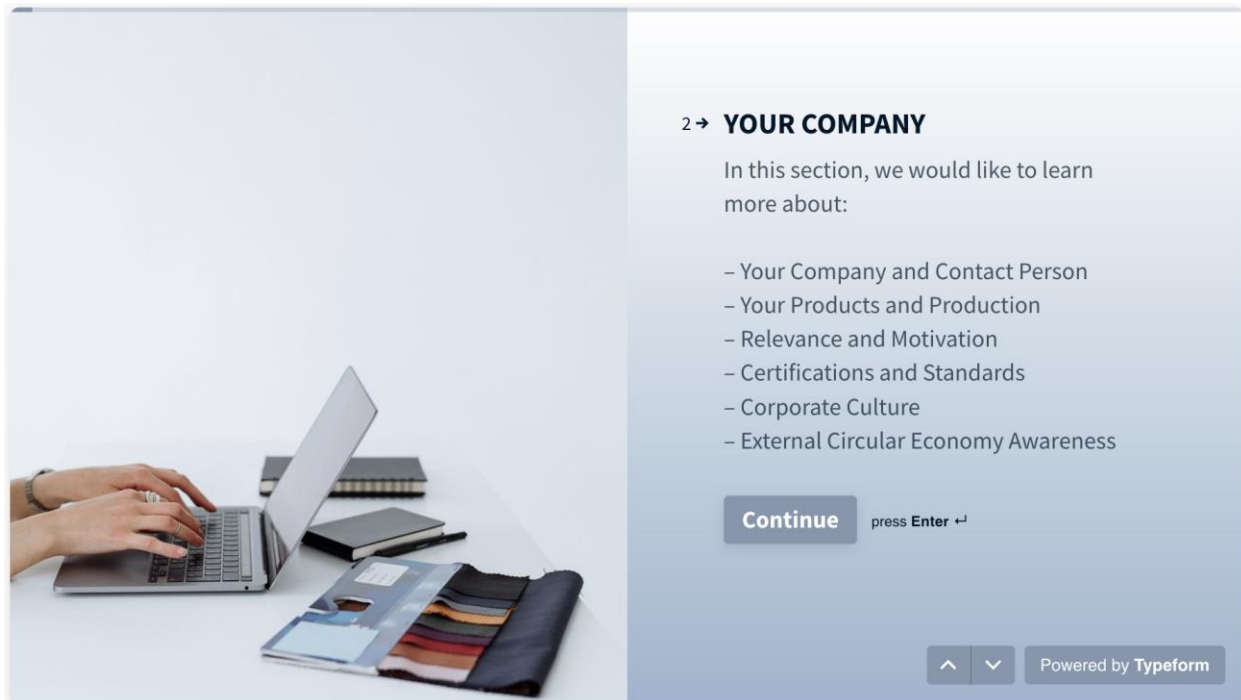


Figure 2: Screenshot of the frontend of the Self Assessment Tool implemented on hosting service typeform.com

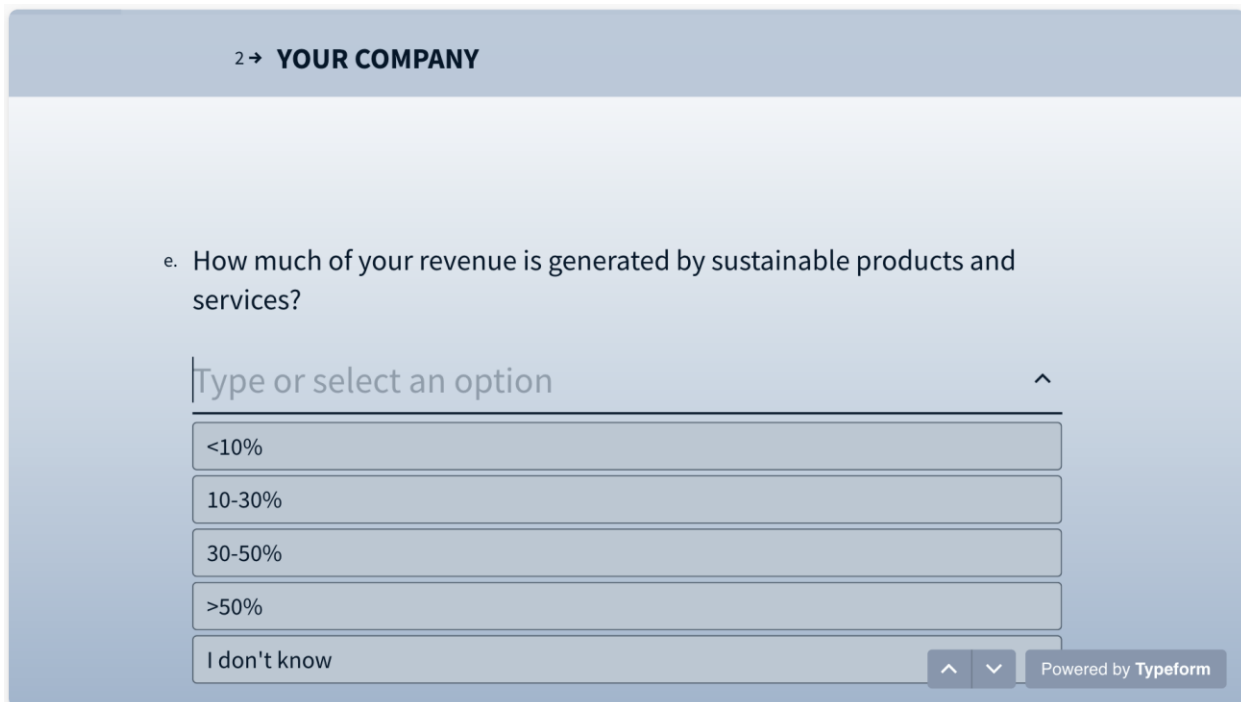


Figure 3: Screenshot of the example question on the Self Assessment Tool

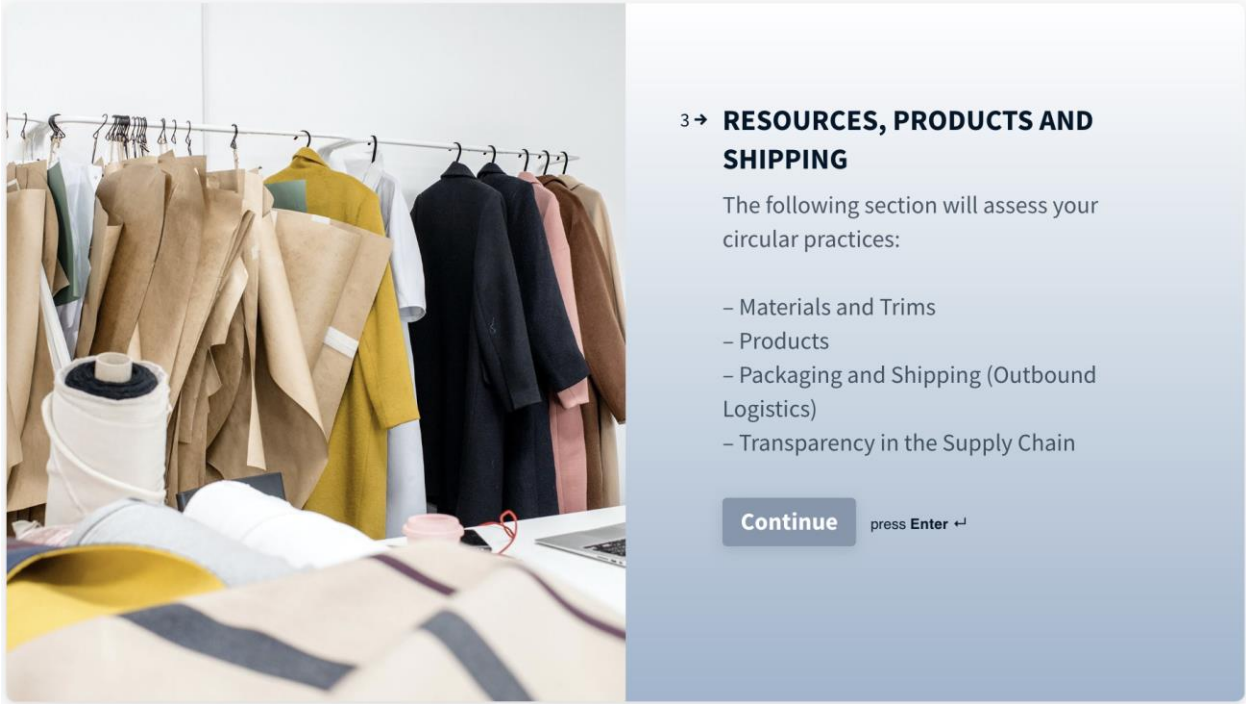


Figure 4: Screenshot showing the contents of 'resources, products and shipping'

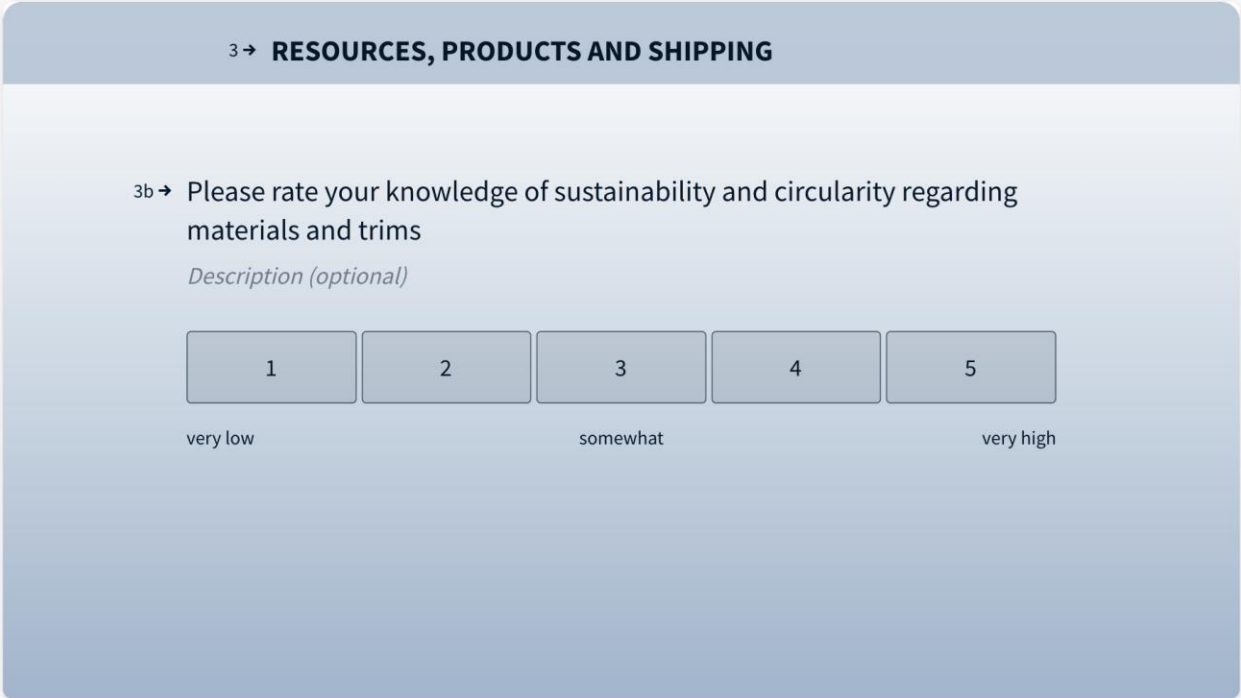


Figure 5: Screenshot showing one question of 'resources, products and shipping'

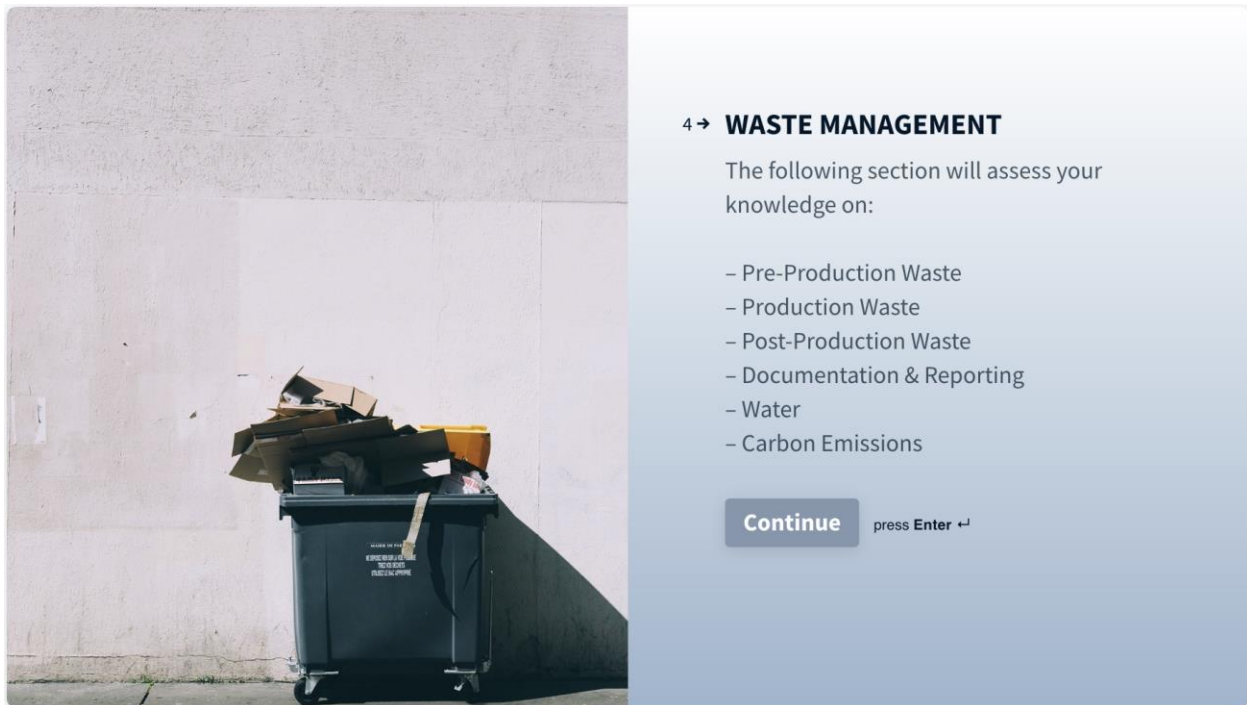


Figure 6: Screenshot showing the contents of 'waste management'

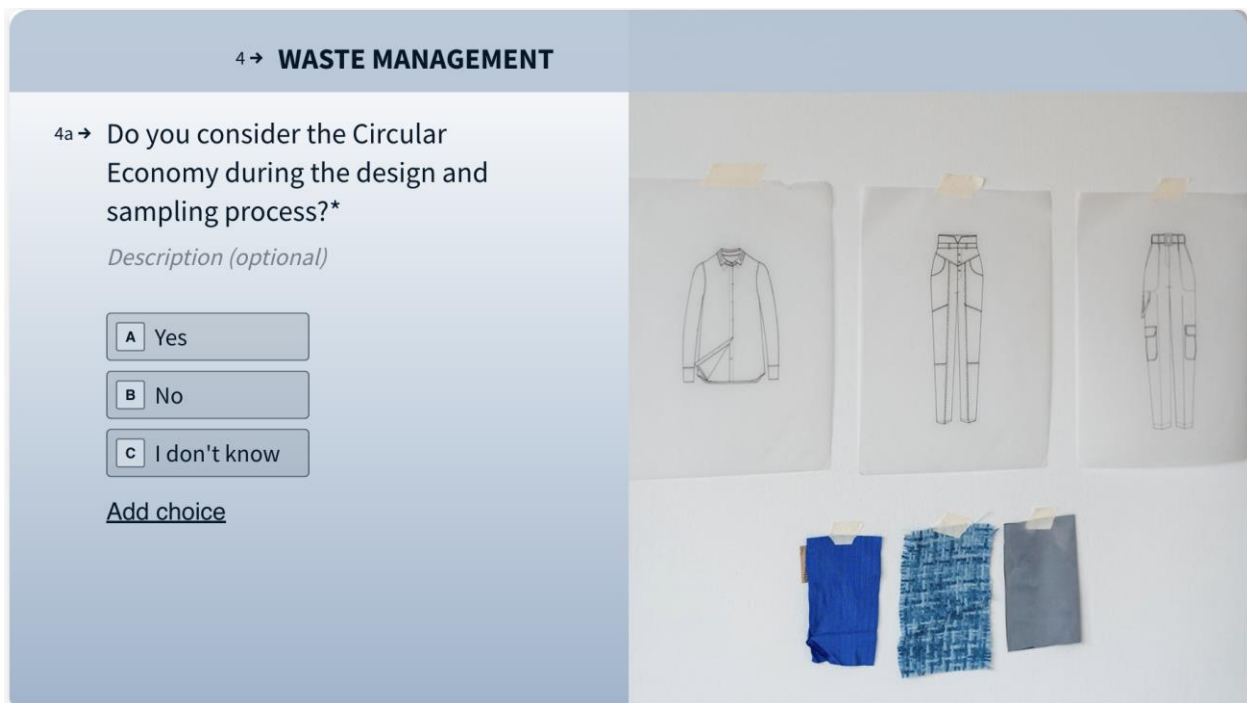


Figure 7: Screenshot showing one question of 'waste management'

Before accessing the results, the user is asked to provide his/her email address in order to be able to download the results export. On the results page, the overview of the scoring in regard to each training module is provided as well as the overall score. Below the scoring, links to

recommended training modules are provided, leading to a dedicated page listing all training modules on www.sqetch.co.

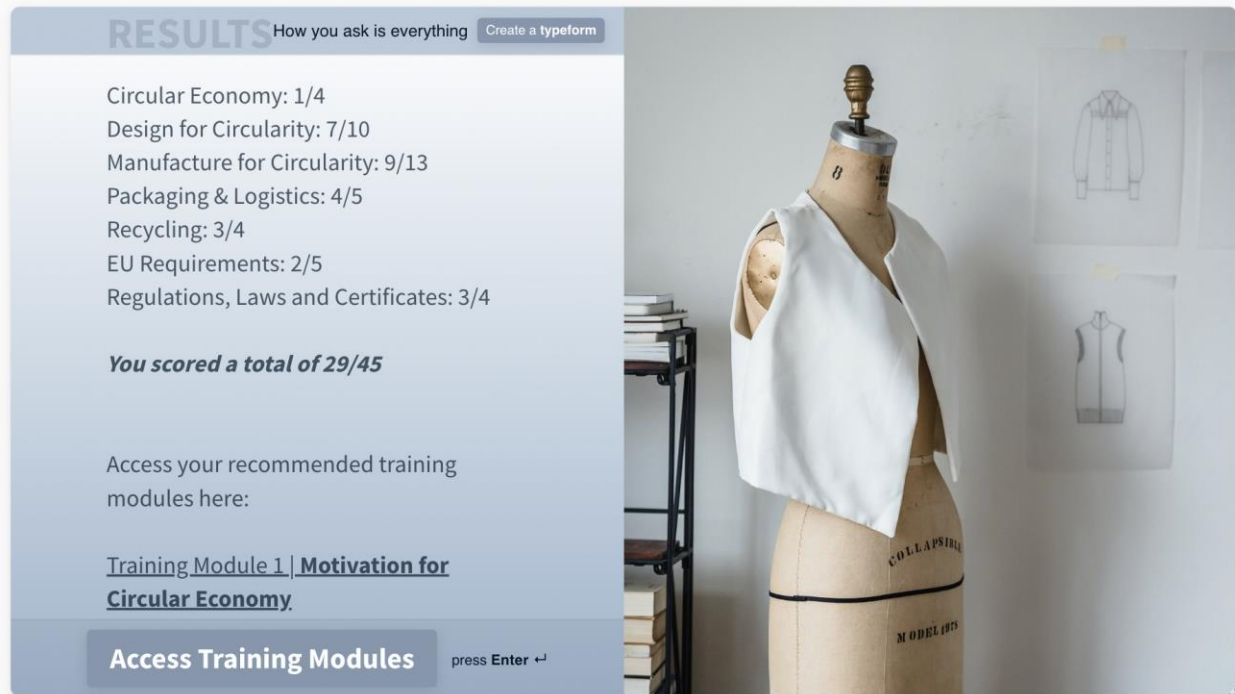


Figure 8: Screenshot of the results page of the Self Assessment Tool

Afterwards, the implementation of the questionnaire has been analysed (data structure, export functions etc.) and the presentation of the functional modules and technical documentation of the functionalities has been completed.

The Self Assessment Tool is available under the following link:

<https://quiz.typeform.com/to/S5Ftf38u>

2.3 Training for Circular Economy

The training modules have been developed in WP3, and covers five sub work packages dealing with:

- structure and formulation of the packages of measures and training units
- preparation and execution of an internal function test
- analyses of the test results, preparation for the iteration and editing of the training contents
- implementation of improvement in UX, platform architecture and database structure
- second internal function test, processing of the results and preparation for finalisation

As already indicated in chapter 2.1 there are seven **Training Modules** designed in order to improve competence in circularity, covering sourcing, new product development, production and distribution stages.

- Module 1 – Introduction
 - This module introduces the goals and objectives of the training, and sets the scene of challenges of the circular economy, textile chain and circular products, giving an overview of the topics of the trainings.
- Module 2 – Design for Circularity
 - This module focuses on the design for circularity, i.e. aspects that have to be considered at the design stage of the product in order to create a circular product.
- Module 3 – Manufacture for Circularity
 - This module outlines ways how waste can be reduced at the manufacturing stage, and proposes effective waste management processes.
- Module 4 – Packaging and Logistics
 - This module is giving an overview of distribution processes (i.e. packaging, transportation and logistics).
- Module 5 – Recycling
 - This module focuses on the product ‘after life’ stage, overviewing ways to increase the longevity of the product through recycling, renewing, upcycling, repairing and rental.
- Module 6 – Internal and External Communication and Data Sharing
 - This module focuses on data management, internal and external communication, and touches upon awareness creation, branding, business model and strategy in this regard.
- Module 7 – Regulations, Laws and Certificates for CE
 - This module overviews existing regulations, laws, and certificates in Germany, Europe and globally.

The structure and layout of the training modules is designed as a continuous learning journey to facilitate the consistent, customisable and logical way to go through the training modules with minimal efforts to get accustomed to the layout.

The overall structure of the training modules has been defined as follows:

- Front page, including training module title and brief description of the content
- Introduction to the training module’s topic
- Overview of the training module contents (table of contents)

- Main body (split in consecutive chapters building upon each other, including theory and best practice examples)
- Knowledge check (questions based on the training module content)
- Conclusion

The layout of the training modules was created in accordance with Sqetch corporate identity (CI), see examples below:



Figure 9: Starting slide of module 1

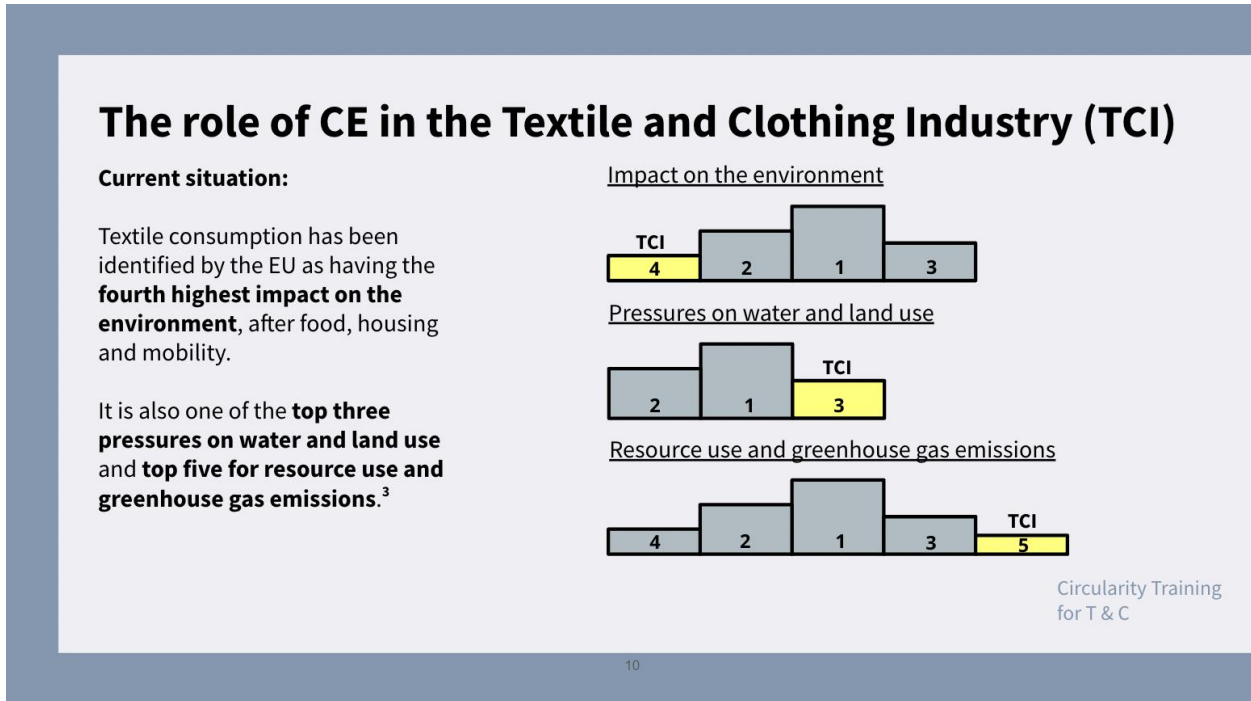


Figure 10: Slide showing the role of TCI in module 1


Circularity Training For T & C

Design for Circularity




Source: Pina Messina on Unsplash

sponsored by



Deutsche
Bundesstiftung Umwelt
www.dbu.de



DEUTSCHE INSTITUTE FÜR
TEXTIL+FASERFORSCHUNG




Figure 11: Starting slide of module 2



Source: Pixabay on Pexels

These questions, and many more, can be asked to your fabric mill or agent prior to making any selection of fabrics for your products. Many mills and agents now have 'Circular' fabric collections and libraries to simplify the process of making the right fabric choice. The farmers and mills may show certification of circular training and execution. See **Module 7** for more information on **Certifications**.

It is important to select materials that will have **endless cycles**, either **biologically** or **technically**. This means that all materials can return to the earth and biodegrade without toxins or damage or be technically recycled to create a new product, thus extending the product's life cycle - this is known as the **cradle-to-cradle methodology**.

Circularity Training
For T & C

Figure 12: Slide explaining the Cradle-to cradle methodology in module 2

Circularity Training For T & C

Manufacture for Circularity



Source: Lidya Nada on Unsplash

sponsored by



Deutsche
Bundesstiftung Umwelt

www.dbu.de

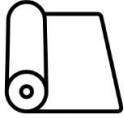


DEUTSCHE INSTITUTE FÜR
TEXTIL+FASERFORSCHUNG



Figure 13: Starting slide of module 3

Key Milestones to Ensure Quality and Reduce Waste....



Source: Creative Studio on Noun

Bulk Fabrics and Components: Ensure that all fabric, trims, components, labels and packaging along with the physical sealer are available before starting the production process. There must be no cause for the production line to stop or to be delayed - wasting time and energy.



Source: Vectors Point on Noun

Inspection and Test Reports for All Materials: Ensure that all inspection reports are received and analyzed and that fabric flaws and faulty trims are marked. In many cases, the fabric is inspected again at the factories to ensure that fabric flaws are not in the final product. Any flaws or errors in fabrics are highlighted and not incorporated into garments resulting in a rejected garment at the end of the manufacturing process. Ensure that all test reports comply with the commercially agreed standards. Any discrepancies must be highlighted before any materials are cut.

21

Figure 14: Slide giving hints to ensure quality in module 3

Circularity Training For T & C

Packaging & Logistics



Source: Chuttersnap on Unsplash

sponsored by



Deutsche
Bundesstiftung Umwelt

www.dbu.de



DEUTSCHE INSTITUTE FÜR
TEXTIL+FASERFORSCHUNG



Figure 15: Starting slide of module 4

Packaging Options For Manufacturers

The Multi-Functional Mushroom⁴: Myco Foam is a versatile substance made from fungal cultures and is cultivated from agricultural waste such as corn leaves. Within a few days, the fungal cultures bind the waste and form a solid mass from it, which is then dried and thus prevented from growing further. While Styrofoam lasts for thousands of years, the fungal foam in the compost decomposes within a few weeks.

Natron Paper⁵ is made of 100% sulfate pulp. It has good tear strength and good printability. It is cost-effective and therefore has many uses for various packaging applications.



Source: <https://www.ecosistant.eu/nachhaltige-verpackungen/> (12.12.2022)

Circularity Training
For T & C

10

Figure 16: Slide giving some examples of packaging options in module 4

Circularity Training for T & C

Recycling



Source: Ready made on Pexels

sponsored by



Deutsche
Bundesstiftung Umwelt

www.dbu.de



DEUTSCHE INSTITUTE FÜR
TEXTIL+FASERFORSCHUNG



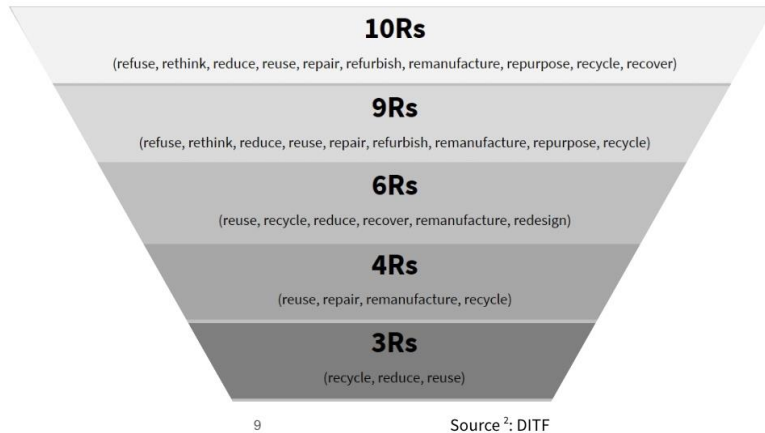
Figure 17: Starting slide of module 5

**Module 5
Recycling**

Circularity Training
For T & C

Recycling Variations and Options

The Circular Economy involves a number of principles, which have been improved over the last few years:



9

Source ²: DITF

Figure 18: Slide showing the several recycling variations and options in module 5

**Circularity Training
For T & C**

Communication Regarding European Requirements



Source: Guillaume Perigois on Unsplash



Figure 19: Starting slide of module 6

Challenges of the EU-Taxonomy

As the application is **just starting**, there are clearly **gaps** between existing company internal requirements and requirements given through the taxonomy. A global mutual understanding of sustainable products and practices **will take time** and an implementation of taxonomy thresholds is a **key requirement**. The current established practices require **less sustainability-related reporting** and thus, a general **lack of carbon emission data** causes difficulties in the assessment of technical screening criteria. Potential issues can occur through differences in the current stage of **investments in renewable energy sources**, **lack of incentives** to information reporting or **lack of pollution** thresholds set by government agencies.

Overall, **increased documentation, monitoring and time** is necessary to complete and monitor the use of proceeds.¹



Source: Alzam from the Noun Project

Circularity Training For T & C

10

Figure 20: Slide explaining the EU-Taxonomy in module 6

Circularity Training For T & C

Regulations, Laws and Certificates for CE



Source: Tingey Injury Law Firmon Unsplash

sponsored by



Deutsche
Bundesstiftung Umwelt

www.dbu.de

DITF

DEUTSCHE INSTITUTE FÜR
TEXTIL+FASERFORSCHUNG



Figure 21: Starting slide of module 7

German Laws

Addressing all companies

The Act on Corporate Due Diligence Obligations in Supply Chains (Lieferkettensorgfaltspflichtengesetz)¹¹

- Controls economic activity of resident companies by imposing **human rights due diligence obligations** on them that they must observe within their supply chains

Waste Regulation (Abfallverzeichnisverordnung)¹²

- Designation** of wastes as well as for **classification** of wastes according to their hazardousness



Source: <https://recheck.io/blog/wp-content/uploads/2021/08/due-diligence-on-supply-chains.png> (17.02.23)

Circularity Training
For T & C

14

Figure 22: Slide showing German laws in module 7

Each training module incorporates incentives (take up measures) to help companies focus their efforts towards the circular economy. Giving practical examples in every module, applicable at all stages of the product life cycle (i.e. design stage, manufacturing stage, distribution and product after life stage), provides a succinct understanding of best practices and steps that can be already or gradually implemented at every stage of the product life cycle, and therefore enable companies to commit to their circular economy goals.

Once the layout of all training modules was completed, the training modules were internally tested and iterated in accordance to feedback to deliver the final version of all trainings to be incorporated to Sqetch platform.

2.4 Integration

Within WP4 the SAT and the Training Modules were technically implemented and linked on the Sqetch platform, enabling users to access it before the registration wall.

The Self Assessment Tool is available under the following link: <https://quiz.typeform.com/to/S5Ftf38u>

The Training Modules are available under the following link: <https://sqetch.co/products/circularity-training-for-textile-clothing>

In order to integrate the SAT and Training Modules to Sqetch business model, and enable both as a marketable service, it was decided to pursue the following pricing strategy based on the current market research:

- Self Assessment Tool - offered free of charge

- Module 1: Motivation for Circular Economy - offered free of charge
- Module 2: Design for Circularity - offered at €89
- Module 3: Manufacture for Circularity - offered at €89
- Module 4: Packaging & Logistics - offered at €89
- Module 5: Recycling - offered at €89
- Module 6: Communication Regarding European Requirements - offered at €89
- Module 7: Regulations, Laws, and Certificates for Circular Economy - offered at €89
- Bundle of 3 modules of choice is offered with 10% discount
- Bundle of 4 modules of choice is offered with 15% discount
- Bundle of all modules is offered with 20% discount

The pricing strategy is subject to ongoing evaluation and performance analysis, which will be regularly followed up in the next month and years after the project end.

2.5 Piloting and Testing

Once implemented to the Sqetch platform, the SAT and the Training Modules were tested with a group of pilot brands and manufacturers (all within WP 5). A group of 5 reference users was selected based on their competency and focus area within the textile and clothing industry, and comprised of the following organisations: Hugo Boss, Vretna, Katty Fashion, Mitwill and IVGT.

The recipients received the links to access both the SAT and the Training Modules and were asked to complete the feedback questionnaire comprising of the following questions:

Self Assessment Tool Feedback Questions:

- Do you like the visual design of the Self Assessment Tool?
- Is this Self Assessment Tool of value for your company?
- Do you find the Self Assessment Tool intuitive?
- Any further feedback, suggestions, or questions?

Training Modules Feedback Questions:

- Do you like the visual design of the Training Modules?
- Are these Training Modules of value for your company?
- Do you find the Training Modules comprehensive?
- Is the range of the Training Modules content too less or too much?
- Do the Training Modules cover the expected range of topics in Circularity for Textile & Clothing?
- Any further feedback, suggestions, or questions?

The overall feedback regarding the Self Assessment Tool was the following:

- 66.7% responses stated “I like it a lot” and 33.3% responses stated “I like it” regarding the visual design of the SAT
- All (100%) respondents stated that the SAT is of value for their company
- 66.7% respondents found the SAT “very intuitive” and 33.3% respondents found the SAT “somewhat intuitive”

- In the free text feedback field, the respondents provided valuable insights to pinpoint aspects to be improved in the SAT, such as including more answer options and adapting the questions.

The overall feedback regarding the Training Modules was the following:

- 66.7% responses stated “I like it a lot” and 33.3% responses stated “Neutral” regarding the visual design of the Training Modules
- All (100%) respondents stated that the Training Modules are of value for their company
- All (100%) respondents found the Training Modules to be “Very comprehensive”
- 66.7% respondents found the range of Training Modules to be “Just right”, and 33.3% respondents found the range of the Training Modules to be “A bit too much”
- All (100%) respondents found the Training Modules to cover the expected range of topics in Circularity for Textile & Clothing
- In the free text feedback field, the respondents provided suggestions on slides improvements and adaptations for easier comprehension of discussed topics.

Based on the results of the test and pilot user’s feedback, the SAT and the training modules were discussed and iterated accordingly before the launch to the wider audience.

3. Dissemination and Exploitation

In order to communicate the service, and to prepare the market launch, WP6 covers two sub work packages dealing with:

- Launch of a communication campaign as well as presentations at different events
- Development of a detailed business model and plan.

The **dissemination** activities comprise of:

- Presentation at Berlin Fashion Week 2022 – 202030 The Berlin Fashion Summit 17/03/2022
- Presentation at TexProcess Fair Frankfurt at DTB TexProcessForum 23/06/2022

The launch of the developed and implemented SAT and Training Modules was accompanied by communication campaign for “Circularity Training for Textile and Clothing”. The communication is to take place through the following channels curated by Sqetch:

- Sqetch website & newsletter (www.sqetch.co) - 25.000+ registered businesses
- Sqetch Instagram (<https://www.instagram.com/sqetchplatform/>) - 1,957 followers
- Sqetch LinkedIn (<https://www.linkedin.com/company/sqetch-fashion-sourcing/>) - 1,795 followers

With the aid of regular postings and calls to action to promote the use of the Self Assessment Tool as well as to create the interest in the topics of the Circularity Training for Textile and

Clothing, the communication strategy will assess the interest in the topic as well as the reach of more than 30.000 users.



Figure 23: Example of a social media post visual

4. Project Management

Due to the smooth and successful cooperation of the two partners and the well-planned schedule no major issues encountered that delayed or even endangered the completion of the project goals. Thus, the following identified risks (as identified in the project proposal) did not influence or even harm the successful implementation of the project:

- Embedding of the solution in an existing cooperation platform, especially from a technical point of view
- Purposeful design of the SAT, especially the wording of the questions, their intelligent but simple-seeming structure, and the consistency, clarity and completeness of the questions
- User interface and guidance
- General acceptance of the target group and consumers by testing and working with reference users
- Incorrect or incomplete data and information by testing and analysis
- Reaching critical mass by awareness creation and dissemination within the communication campaign

The last risk will be tackled within the marketing plan, including an dissemination strategy, integration into the newly launched platform and rational pricing of the training modules.

5. Conclusion

The project progress was in line with the planning and led to a successful end. Numerous complementary activities of the project partners with regard to circular economy confirm the need for such a service: what is circular and what do I, as a company, need to do, in order to improve towards circularity. Also, the ongoing legislative and standardisation initiatives at national, EU and international level detail both the concept of the circular economy, the need for transformation, and the contribution to sustainability, as well as the resulting demands for the economy.

Thus, there is a clear need for the targeted service. The dissemination of information campaign in this regard will be ongoing, including presentations and publications after the project end.

Annex 1: Working Plan

WP-MS-Nr.	Title	Description	Start	End	PM DITF	PM Sourcebook
AP 1	Fine Concept and Structure	WP Leader: DITF	12.2021	02.2022	2	2
WP 1.1	Service fine concept	Service fine concept (with all technical specifications)	12.2021	01.2022	0,5	0,5
WP 1.2	Structuring of the SAT	Structuring of the questionnaire and development of a scoring method	12.2021	01.2022	1	1
WP 1.3	Structuring of the training module	Identification of take up measures, matching with SAT and conception of training modules	01.2022	02.2022	0,5	0,5
MS 1	Fine concept available			02.2022		
WP2	SAT-Modul	WP Leader: Sourcebook	02.2022	07.2022	1,5	4,5
WP 2.1	Detailing of SAT components	Structure and wording of the questions and answer options, weighting of the assessment criteria	02.2022	03.2022	0,5	1
WP 2.2	Scoring: presentation of results	Implementation and internal user test of the UX design	03.2022	04.2022	0,5	1
WP 2.3	Implement questionnaire	Development and integration of database structure, analysis, filter and export functions	04.2022	05.2022		1
WP 2.4	Layout and Usability SAT	Import of the reference data sets of the partner platforms, qualitative analysis of the data quality	05.2022	06.2022	0,5	0,5
WP 2.5	Comprehension and internal function test	Presentation of the functional modules and technical documentation of the functionalities	06.2022	07.2022		1
WP 3	Training Modul	WP Leader: Sourcebook	07.2022	12.2022	1	5,5
WP 3.1	Elaboration of the training content	Editorial structure and formulation of the packages of measures and training units	07.2022	08.2022	0,5	1,5
WP 3.2	Internal comprehension and function test	Preparation and execution of an internal function test	08.2022	09.2022		1
WP 3.3	Iteration of the training units	Analysis of the test results and preparation for the iteration, editing of the training content	09.2022	10.2022		1
WP 3.4	Layout and usability training	Implementation of improvement in UX, platform architecture, database structure	10.2022	11.2022		1
WP 3.5	Finalisation and implementation	Carrying out a second internal function test, processing the test results and preparing for finalisation	11.2022	12.2022	0,5	1
MS 2	Modules available	Database, query and user interface functionalities available; and technically functional)		12.2022		
WP 4	Service Integration	WP Leader: Sourcebook	10.2022	01.2023	0,5	3
WP 4.1	Service Creation	Integration of the service layer with booking and check-out, user dashboard and document cloud, notification centre & help area	10.2022	11.2022		1
WP 4.2	Integration and function test	Programming the interface, integration and function test	11.2022	12.2022		1
WP 4.3	Finalisation	Integration of the extensions into the platform architecture, implementation of the data security concept	12.2022	12.2022	0,5	1
MS 3	Service available	Functional pilot system available		01.2023		
WP 5	Pilot Test	WP Leader: DITF	01.2023	03.2023	2	3
WP 5.1	Pilot test 1	Execution of a pilot test with 5 reference users, documentation of the test results and final iteration of the functionalities	01.2023	02.2023	1	1
WP 5.2	Pilot test 2	Soft launch of the service via AB tests, evaluation and optimisation for performance marketing	02.2023	02.2023	0,5	1
WP 5.3	Consolidation and improvement	Planning and orchestration of the communication campaign, monitoring & marketing planning for 2023 onwards	03.2023	03.2023	0,5	1
WP 6	Dissemination and Exploitation	WP Leader: Sourcebook	03.2022	05.2023	1	2
WP 6.1	Dissemination	Launch and start of communication campaign, presentation at brand events, trade fairs & conferences. Communication via media partnerships	03.2022	05.2023	0,5	1
WP 6.2	Business model & plan	Development of a detailed business plan with investment, revenue and cost planning. Structuring of the revenue model and resource planning from 2023 onwards.	03.2023	05.2023	0,5	1
WP 7	Project Management	WP Leader: DITF	12.2021	05.2023	1,5	2
WP 7.1	Coordination	Project planning, periodic meetings of the project leaders (e.g. via Zoom), coordination of the teams involved in the project	12.2021	05.2023	1	1
WP 7.2	Documentation	Documentation of work progress, monitoring, fin. controlling & quality assurance	12.2021	05.2023	0,5	1
Total			12.2021	05.2023	9,5	22

Annex 2: List of Questions

	#	Question	Answer option
YOUR COMPANY			
Your Company and Contact Person	2a	Your company name	free text field
	2b	Your name (first, last)	free text field
	2c	Job title	free text field
	2d	Your department (Purchasing, Selling, Production, Product Development...)	dropdown
	2e	Field of specialism (Knitting, Weaving, Production...)	free text field
	2f	Number of employees	dropdown: 1-20; 21-50; 51-250; 251-500; >501
	2g	Your region	dropdown: North America South America Central America Europe Africa Southeast Asia Oceania Far East (Central Asia, Eastern Asia) Near East (Western Asia)
	2h	When was your company established?	dropdown: < 5y, 5-20; > 20
Your Products and Productio	2i	Production type (In-house production, Subcontracting, Brand)	dropdown

n			
	2j	How much of your revenue is generated by sustainable products and services?	dropdown: <10% 10-30% 30-50% >50% I don't know
	2k	How many production sites does your company run?	free text field
	2l	Please list the categories of the main products that you manufacture.	dropdown: Women Men Children/Kids and Baby Tops and T-shirts Trousers (Pants) and Shorts Dresses and Jumpsuits Skirts Blouses and Shirts Sweats Knitwear Suits and Tailoring Jeans and Denim Jackets and Coats Sportswear/Activewear Underwear Hoisery Loungewear Beachwear and Swimwear Occasionwear Leather and Suede
Relevance and your motivation	2m	How long have you been aware of Circular Economy?	dropdown: still not, 1-3 years, >3 years
	2n	Does your company include circular economy practices in their strategy or code of conduct documents?	yes / no / I don't know
	2o	Does your company hold a membership in public or not-for-profit sustainability initiatives, Circular Economy or associations?	yes / no / I don't know

	2p	Please specify key topics of your knowledge	dropdown: Module 1 Module 2 Module 3 Module 4 Module 5 Module 6 Module 7
Certifications and Standards	2q	Did your company appoint a dedicated staff member or team for Circular Economy issues?	yes / no / I don't know
	2r	Which certifications related to Circular Economy does your company hold?	dropdown: Cradle to Cradle Initiative Global Organic Textiles Standard (GOTS) Fairtrade MADE IN GREEN by OEKO-TEX OEKO-Tex 100 The Green Button Recycled Claim Standard (RCS) and Global Recycled Standard (GRS) bluesign® SA 8000 by Social Accountability International (SAI) Organic Content Standard Responsible Wool Standard (RWS) Responsible Down Standard (RDS) People for Ethical Treatment of Animals (PETA) Plastic Second life (PSL)
	2s	Can you provide the (data of any) certification upon request at any time?	yes / no / I don't know
	2t	Did you apply for a certification or recently start a certification process?	yes / no / I don't know
	2u	Does your company follows any standards in the frame of Circular Economy?	yes / no / I don't know + free text field

Corporate Culture	2v	How strong is the awareness concerning current Circular Economy amongst your employees?	scale 1 (very low) to 5 (very high) + I don't know
	2w	Does your company provide internal training for current circularity topics?	yes / no / I don't know
	2x	Do you think the skills and competences are available within your company to invest in Circular Economy practices?	yes / no / I don't know
External Circular Economy Awareness	2y	Did you already or do you plan to externally communicate your willingness to participate in Circular Economy practices?	yes / no / I don't know
RESOURCES, PRODUCTS AND SHIPPING			
Materials and Trims	3a	When you source products and materials do you prioritise Circular Economy and the related certifications?	yes / no / I don't know
	3b	Please rate your knowledge of sustainability and circularity regarding materials and trims	scale 1 (very low) to 5 (very high) + I don't know
	3c	Please rate the average use of circular materials in your company	dropdown: 100-80% 80-50% 50-10% less than 10% I don't know
	3d	Please rate the average use of circular trims and components in your company	dropdown: 100-80% 80-50% 50-10% less than 10% I don't know
	3e	Do you have the knowledge and tools to manufacture a product by combining different materials and trims that fit into the recycling process.	yes / no / I don't know
	3f	Do you use degradable materials?	yes / no / I don't know
	3g	Do you use renewable materials?	yes / no / I don't know
Products	3h	Do you usually provide your client with information how to optimise the environmental footprint?	yes / no / I don't know
	3i	Do you have a concept in place to sell, reuse or recycle overproduced items or refused items?	yes / no / I don't know
	3j	Do you consider circularity aspects during the design process?	yes / no / I don't know

9 Packaging and Shipping (Outbound logistics)	3k	When you source packaging components, are you prioritising environmentally-friendly products and products that hold certifications?	yes / no / I don't know
	3l	Please rate your knowledge of sustainable and circular packaging	scale 1 (very low) to 5 (very high) + I don't know
	3m	Please rate the average use of circular packaging components in your company	dropdown: 100-80% 80-50% 50-10% less than 10% I don't know
	3n	How far do you usually ship your products?	dropdown: <500 km 500-2000 km 2000-5000 km >5000 km
	3o	Please rate your knowledge about the environmental and climate impact of shipping methods	scale 1 (very low) to 5 (very high) + I don't know
Transpare ncy in the Supply Chain	3p	Do you trace your supply chain?	yes / no / I don't know
	3q	Do you have a concept in place to optimise your supply chain transparency?	yes / no / I don't know + free text field
	3r	Do you provide necessary data of your products to allow transparency?	yes / no / I don't know

WASTE MANAGEMENT

Pre Productio n Waste	4a	Do you consider the Circular Economy during the design and sampling process?	yes / no / I don't know
	4b	Does your design team use digital tools to reduce physical samples?	yes / no / I don't know
Productio n Waste (Material Waste)	4c	Please rate the amount of offcuts in your company	dropdown: 0-10% 10-20% More than 20% I don't know
	4d	Do you have a system in place to reduce material waste?	yes / no / I don't know

	4e	Do you sort the waste from your production lines at your facility?	yes / no / I don't know
	4f	Do you already have in place at your facility any systems to resell, reuse or recycle material waste?	yes / no / I don't know
Post Production Waste	4g	What is the percentage of your left over products (on first market)	dropdown: 0-10% 10-20% More than 20% I don't know
	4h	Please rate the average returned or rejected items per order (offline)	dropdown: 0-5% 5-10% More than 10% I don't know
	4i	Do you have a concept in place to repair, reuse or recycle returned or rejected items?	yes / no / I don't know
Documentation and Reporting	4j	Do you have a Quality Management System in place?	yes / no / I don't know
Water	4k	Do you use/apply an industrial laundry process?	yes / no / I don't know
	4l	Can you trace your water consumption?	yes / no / I don't know
	4m	Do you have a concept in place to reduce your water consumption?	yes / no / I don't know
Carbon Emissions	4n	Can you trace your CO2 impact?	yes / no / I don't know
	4o	Do you have a concept in place to reduce your CO2 emissions?	yes / no / I don't know