

# Supporting Circular ecOnomy thRough Education (SCORE)



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## TECHNICAL SPECIFICATIONS

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# 1. Context and definition of the project

The concept and implementation of a circular economy (CE) is now widespread across the arenas of business and policymaking in Europe and across the world. It represents one of the most viable solutions to converging environmental, social and economic crises and an alternative to the challenges brought about by 'take, make, waste' production and consumption systems.

Developing CE education and related initiatives can play a major role in achieving sustainable global change (Goncalves et al., 2012; Marouli, 2002) and empowering young people to take action.

The Erasmus+ SCORE project will make the opportunity of education for a circular economy available to schools in Europe and beyond. Envisaged as an open platform that provides tailored pedagogical contents, materials and e-learning tools for teachers and others, SCORE brings together expertise from universities, Fab Labs, schools and NGOs to cultivate the vision of a circular, sharing economy and cooperative society.

In line with the objectives of the EU's New Circular Economy Action Plan (2019) to achieve a more circular society as well as climate neutrality, SCORE aims to adapt and promote circular economy education for a 11-24 age group in order to invite sustainable behaviour changes amongst younger people and their communities.

## 2. Project objective

### 2.1. Learning objectives

6 key learning objectives were defined:

- **Enhancing teachers' skills towards circular economies**

As a generic objective, it specifies the main target and topic of the training, respectively the teachers and circular economy topic.

- **Enabling teachers to design and implement challenge-based projects in their schools**

A challenge-based approach is gaining more space and relevance in current educational practices. The objective for Score is to help teachers to organise transversal activities based on circular challenges that can foster empowerment and interest for students. This means to support them in identifying challenges, engaging their local ecosystem, structuring step-by-step learning paths for students that emphasise circular thinking and the adoption of circular principles on the way.

- **Learning how to reflect with human-centred design approaches**

The Score training aims to overcome the gaps in current high school courses making more accessible more complex and human-centred design practices targeting not only material flow and lifecycle approaches but adding on sustainable behaviours.

- **Fostering interaction and collaboration inside and outside the classroom**

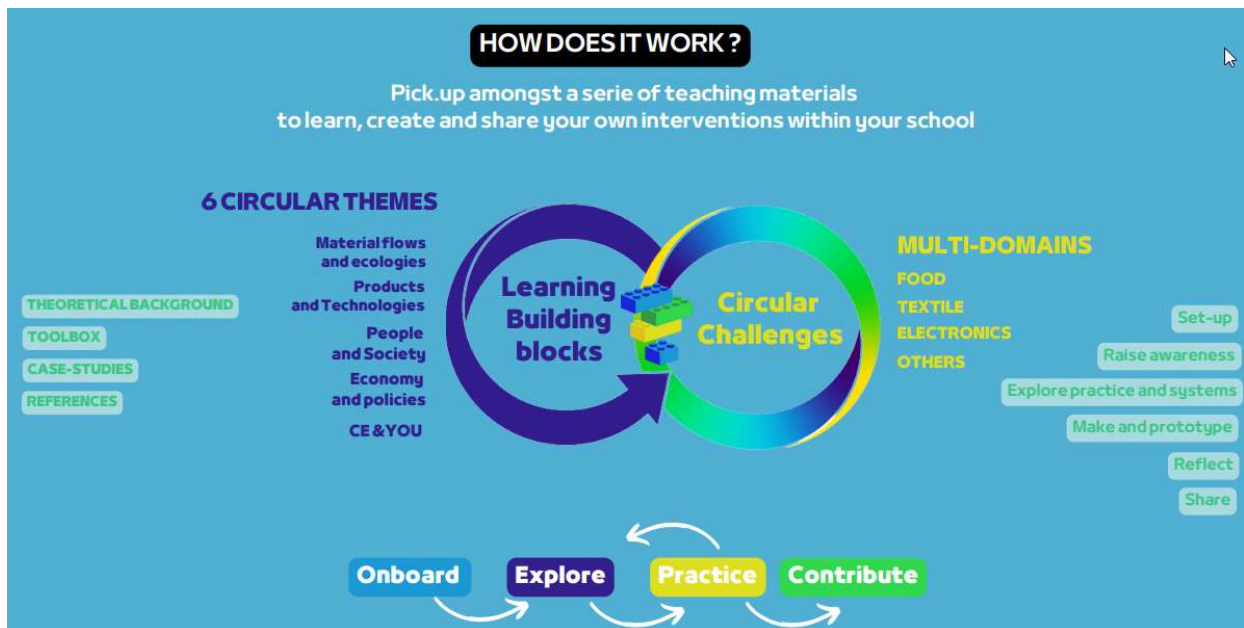
One of the objectives is to provide teachers with tools to engage with the current school policy and practice, the administration team and the high school students. Besides, collaboration with local associations, companies and other stakeholders is making more tangible knowledge about the circular economy, enhancing the immersion and engagement of participants.

- Supporting teachers in understanding and considering student eco-anxiety
- Empowering teachers and students through inspiring circular transitions pathways

## 2.2. Pedagogical approach

- **Circular Schools Challenges as a core pedagogical tool for boosting guided learning**

A Circular School challenge consists of a real circular design challenge presented in a particular context that is being explored within the ecosystem of schools by teachers, students and other relevant stakeholders.



## 3. Perimeter

The Erasmus+ SCORE would allow:

- for all visitors: a free download of the contents available on the site already edited by the consortium
- for users: the uploading by users of their own contributions against the creation of an account

## 4. Functional description of needs

### 4.1. Users Area:

Requirements	N° req	SCREEN
<b>SOCLE</b>		
As a user, when I visit the website "SCORE", the header of the website is composed of: <ul style="list-style-type: none"><li>• Logo</li><li>• About Circular Economy</li><li>• Learning Blocks</li><li>• Circular Challenges</li><li>• Feedback and Contribute</li><li>• Languages</li><li>• Sign in of administrator</li></ul>	001	1
As a user, when I visit the website "SCORE", The website is available in 4 languages: <ul style="list-style-type: none"><li>• FR</li><li>• EN</li><li>• ES</li><li>• LT</li></ul>	002	1
<b>PACKAGE 1: About Circular Economy</b>		
As a user, when I visit the "About Circular Economy" page, I have access to various valuable resources, including: <ul style="list-style-type: none"><li>• The definition of Circular Economy</li><li>• A video explaining the concept of Circular Economy</li><li>• 3 learning blocks related to Circular Economy</li><li>• 3 circular challenges related to Circular Economy</li></ul>	101	2
<b>PACKAGE 2: Learning Blocks</b>		
As a user, when I visit the "Learning Blocks" page, I can view learning blocks published by the administrators. the display order of learning blocks is sorted by the date of publication by administrators.	201	3
As a user, when I visit the "Learning Blocks " page, I have the ability to search for specific Learning Blocks using different criteria: <ul style="list-style-type: none"><li>➤ Themes,</li><li>➤ Format,</li><li>➤ Sectors.</li></ul> The Themes, Formats and Sectors are configured by the administrator	202	3

As a user, when I visit the "Learning Blocks" page, When I change the language,	203	3
<ul style="list-style-type: none"> <li>• The terms related to the themes or formats or domain change.</li> <li>• The learning blocks will be retrieved based on the selected language</li> </ul>		
Every card in the learning Block set is characterized by distinct and specific information:	203	3
<ul style="list-style-type: none"> <li>• Titre</li> <li>• short description</li> <li>• duration</li> <li>• Number of views</li> <li>• Number of likes</li> <li>• View</li> </ul>		
As a user, when I select a learning block, I am presented with the information set by the administrators:	204	4
<ul style="list-style-type: none"> <li>• Title</li> <li>• Picture</li> <li>• Author of Institution</li> <li>• Duration</li> <li>• Number of views</li> <li>• Number of likes</li> <li>• Like button</li> <li>• Facebook Share</li> <li>• LinkedIn Share</li> <li>• Twitter Share</li> <li>• Long description</li> <li>• Student's main objectives</li> <li>• Links</li> <li>• Files</li> <li>• Step by step description</li> </ul>		
As a user, I can like / unlike a learning block	205	4
As a user, I can share a learning block in facebook		
As a user, I can share a learning block in twitter		
As a user, I can share a learning block in linkedIn		
PACKAGE 3: Circular Challenge		
As a user, when I visit the "Circular Challenge" page, I can view practices published by the administrators.	301	5
the display order of learning blocks is sorted by the date of publication and administrators.		
As a user, when I visit the " Circular Challenge " page, I have the ability to search for specific practices using different criteria:	302	5

<ul style="list-style-type: none"> <li>➤ Sectors</li> <li>➤ Circular strategies</li> </ul>		
<p>Every card in the circular challenge set is characterized by distinct and specific information:</p> <ul style="list-style-type: none"> <li>● Titre</li> <li>● short description</li> <li>● duration</li> <li>● Number of views</li> <li>● Number of likes</li> <li>● View</li> </ul>	303	5
<p>As a user, when I select a circular challenge, I am presented with the information set by the administrators:</p> <ul style="list-style-type: none"> <li>● Title</li> <li>● Picture</li> <li>● Duration</li> <li>● Number of views</li> <li>● Number of likes</li> <li>● Like button</li> <li>● Facebook Share</li> <li>● LinkedIn Share</li> <li>● Twitter Share</li> <li>● Long description</li> <li>● The challenge</li> <li>● Circular strategies</li> <li>● The Main Goals</li> <li>● References</li> <li>● Links</li> <li>● Files</li> <li>● Grouping of learning block by category : <ul style="list-style-type: none"> <li>➤ Setup</li> <li>➤ Raise awareness</li> <li>➤ Explore practice and systems</li> <li>➤ Make and prototype</li> <li>➤ Reflect</li> <li>➤ Share</li> </ul> </li> </ul>	304	6
PACKAGE 4: FEEDBACK AND CONTRIBUTE		

As a user, I have the ability to send feedback to the administrator, enabling me to contribute to the ongoing development of the platform.	401	7
As a user, I provide all the necessary information in the feedback form to send to administrators: <ul style="list-style-type: none"> <li>● Share : link to <a href="https://discord.com/invite/XXssXCxk">https://discord.com/invite/XXssXCxk</a></li> <li>● Feedback</li> <li>● Contribute <ul style="list-style-type: none"> <li>➤ Learning blocks</li> <li>➤ Circular challenge</li> </ul> </li> </ul>	402	8 9

## 4.2. Administrator Area:

PACKAGE 5: ADMINISTRATOR		
As an administrator, I connect for administration area with Login et password	501	10
For the first connexion, I complete my profil and initialize my password via a link send by SOCRE	502	10
As an administrator, when my connection is successful, the dashboard is displayed and contains: <ul style="list-style-type: none"> <li>● My profile</li> <li>● Notifications</li> <li>● Messaging</li> <li>● Home</li> <li>● About Circular Economy</li> <li>● Learning blocks</li> <li>● Circular challenge</li> <li>● Institutions</li> <li>● Tasks</li> <li>● Feedback</li> <li>● Team</li> </ul>	503	11
As an administrator, I have the ability to view my profile at the top right corner of the dashboard page: Every profil is characterized by distinct and specific information: <ul style="list-style-type: none"> <li>● Account <ul style="list-style-type: none"> <li>➤ Picture</li> <li>➤ Title</li> <li>➤ Name</li> <li>➤ Last Name</li> <li>➤ Institution</li> <li>➤ Email</li> </ul> </li> </ul>	504	12



<ul style="list-style-type: none"><li>➤ Phone</li><li>➤ Country</li><li>➤ Address</li><li>➤ Language</li><li>➤ About</li><li>● Security</li></ul>				
As an administrator, I have the ability to update my password.		505	12	
Home	As an administrator, I consult: <ul style="list-style-type: none"><li>● Visitors Overview</li><li>● learning blocks<ul style="list-style-type: none"><li>➤ Number by language (saved / published)</li><li>➤ Charts of views</li><li>➤ Charts of likes</li><li>➤ Most Viewed</li><li>➤ Most liked</li></ul></li><li>● circular challenges<ul style="list-style-type: none"><li>➤ Number by language (saved / published)</li><li>➤ Charts of views</li><li>➤ Charts of likes</li><li>➤ Most Viewed</li><li>➤ Most liked</li></ul></li></ul>	506	13	
About Economy	circular	As an administrator, I have the ability to configure the page of About circular Economy for users.	507	14
Learning blocks	Content	As an administrator, when I consult page learning blocks > Content, I consult all learning blocks I have the ability to search for specific Learning Blocks using different criteria: <ul style="list-style-type: none"><li>➤ Language</li><li>➤ Themes,</li><li>➤ Format,</li><li>➤ Keywords</li><li>➤ Sectors,</li><li>➤ Institutions</li></ul>	508	15
		Every card in Learning block set is defined by specific information <ul style="list-style-type: none"><li>● Titre</li><li>● short description</li><li>● duration</li></ul>	509	15

		<ul style="list-style-type: none"> <li>• Number of views</li> <li>• Number of likes</li> <li>• View</li> </ul>		
		As an administrator, I can add a new building block <ul style="list-style-type: none"> <li>• Title</li> <li>• Picture</li> <li>• Author of Institution</li> <li>• Duration</li> <li>• Number of views</li> <li>• Number of likes</li> <li>• Like button</li> <li>• Facebook Share</li> <li>• LinkedIn Share</li> <li>• Twitter Share</li> <li>• Long description</li> <li>• Student's main objectives</li> <li>• Links</li> <li>• Files</li> </ul>	510	16
		As an administrator, I have the ability to <ul style="list-style-type: none"> <li>• update</li> <li>• delete</li> <li>• duplicate</li> </ul> the content of building block	511	17
Setting	Sectors	As an administrator, I have the ability to introduce a new building block sector that encompasses multiple languages	512	18
		As an administrator, I have the ability to update or delete a building block Sectors	513	18
	Relevant For Which Themes	As an administrator, I have the ability to introduce a new building block format that encompasses multiple languages	514	19
		As an administrator, I have the ability to update a building block format	515	19
	Pedagogical Formats	As an administrator, I have the ability to introduce a new building block Pedagogical Formats that encompasses multiple languages	516	20
		As an administrator, I have the ability to update a building block Pedagogical Formats	517	20

		Keywords	As an administrator, I have the ability to introduce a new building block Keywords that encompasses multiple languages	518	21
			As an administrator, I have the ability to update a building block Keywords	519	21
		Content	As an administrator, when I consult page circular challenges > Content, I consult all Circular challenges I have the ability to search for specific Circular challenges using different criteria:	520	22
			<ul style="list-style-type: none"> <li>➤ Language</li> <li>➤ Sectors,</li> <li>➤ Keywords,</li> <li>➤ Circular strategies</li> </ul>		
Circular challenges			Every card in Circular challenge set is defined by specific information Picture	521	22
			<ul style="list-style-type: none"> <li>● Titre</li> <li>● short description</li> <li>● duration</li> <li>● Number of views</li> <li>● Number of likes</li> <li>● View</li> </ul>		
			As an administrator, I can add a new circular challenge:	522	23
			<ul style="list-style-type: none"> <li>● Title</li> <li>● Picture</li> <li>● Duration</li> <li>● Number of views</li> <li>● Number of likes</li> <li>● Like button</li> <li>● Facebook Share</li> <li>● LinkedIn Share</li> <li>● Twitter Share</li> <li>● Long description</li> <li>● The challenge</li> <li>● Circular strategies</li> <li>● The Main Goals</li> <li>● References</li> <li>● Links</li> <li>● Files</li> <li>● Grouping of learning block by category :</li> </ul>		

		<ul style="list-style-type: none"><li>➤ Setup</li><li>➤ Raise awareness</li><li>➤ Explore practice and systems</li><li>➤ Make and prototype</li><li>➤ Reflect</li><li>➤ Share</li></ul>			
		As an administrator, I have the ability to <ul style="list-style-type: none"><li>• update</li><li>• delete</li><li>• duplicate</li></ul> the content of circular challenge		525	24
	Setting	Sectors	As an administrator, I have the ability to introduce a new building block sector that encompasses multiple languages	526	25
			As an administrator, I have the ability to update or delete a circular challenge Sectors	527	25
		Circular strategies	As an administrator, I have the ability to introduce a new circular challenge Circular strategy that encompasses multiple languages	528	26
			As an administrator, I have the ability to update a building block Keywords	529	26
		Keywords	As an administrator, I have the ability to introduce a new circular challenge Circular strategy that encompasses multiple languages	530	27
			As an administrator, I have the ability to update a building block Keywords	531	27
	Institutions	As administrator, I have the ability to add a new institution		532	28
	Tasks	As administrator, I have the ability to view list of task by the team		533	29
Feedbacks	As an administrator, I have the capability to view feedback submitted by users		534	30	
Teams	I have the ability to view list of team of project		535	31	

## 5. Work Plan

The implementation of the project is defined in five (5) phases:

- Project initialization
- Design of the solution
- Development of the solution
- Testing the solution
- Deployment Solution for Users

### 5.2. Project initialization

This phase allows the project to be launched:

#### 5.2.1. Communication Plan

- Define the URLs Target and logo of the solution, As our solution will be Web accessible via Internet or Intranet, it is necessary to validate the availability of URLs.
- Define the training plan: At the end of the work, it is necessary to arrange a training plan for all users.

#### 5.2.2. Requests and Requirements

- Present the list of Functionalities requests in the specifications in section **4. Functional description of needs**.
- Define wording translation between different language in section **Annexe 1 ( wording )**

#### 5.2.3. Macro Planning

Macro planning makes it possible to define the phases and tasks to be carried out with their scheduling, their approximate duration, their allocation of resources and the necessary technical means, the different milestones (Gantt chart).

Project Phase	N°	Phase	From	To
<b>Project initialization</b>	1	Project initialization	01/06/2023	01/09/2023
<b>Design of the solution</b>	2.1	Technical architecture	01/06/2023	10/06/2023
	2.2	Portal Design	01/06/2023	30/06/2023
<b>Development of the solution</b>	3.1	Package A	01/06/2023	30/06/2023
	3.2	Package B	01/07/2023	30/07/2023
	3.3	Package C	01/08/2023	30/08/2023
	3.4	Package D	01/09/2023	30/10/2023
<b>Testing of the solution</b>	4	Testing	15/10/2023	30/10/2023
<b>Deployment Solution for Users + formations of users</b>	5	Validation of Solution	01/11/2023	31/10/2024

### 5.3. Design of the solution

#### 5.3.1. Portal Design

- Define the interface zoning:
  - Define zones for the different types of pages: They are simply blocks that are prioritized according to their importance (information that the user wants to give first, the elements that allow him to continue browsing once at the bottom of the page, etc.).
  - It is also important to highlight the call-to-action of the page, according to the objectives of the page and the links allowing navigation. It is also at this moment that we lay the foundations of the responsive. Indeed, the contents must be adapted to all screen sizes
- Propose a prototype:

- This method consists of developing prototypes of the final portal interface either by a virtual prototype or by a prototype elaborated by our development team (Proof Of Concept).
- Define a Design for the implementation of the solution: example of a design project implemented by our team.

Our proposal allows to define a Design for the implementation of the solution detailed in [Annex 2](#). This design is an example of a design project implemented by our team.

### 5.3.2. Technical architecture

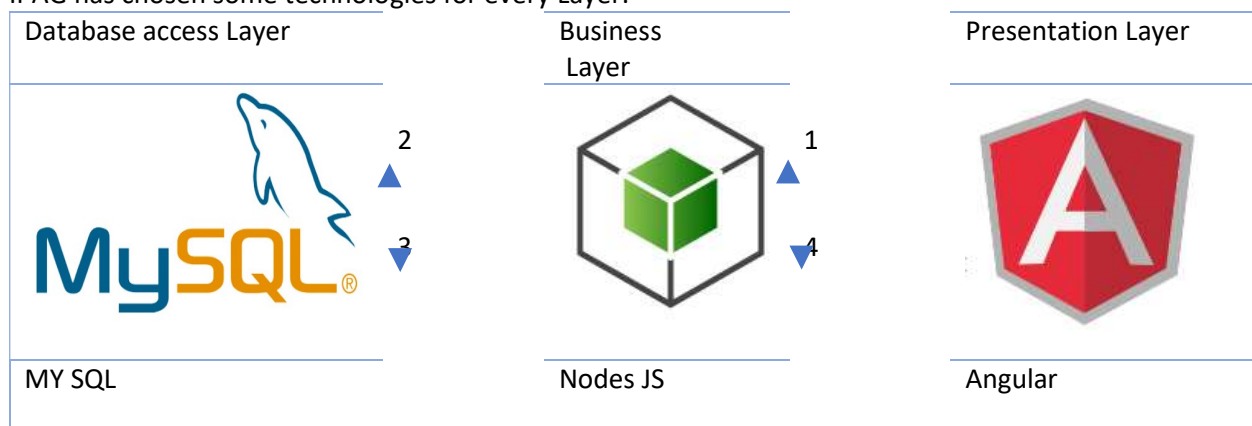
- The 3-level architecture, also known as the three-layer architecture, is a client-server architecture in which are coexisting and maintained independent modules following the rendering of a user interface, logical, functional and business processes and access to data.
- The 3-level architecture presents quality criteria:
  - The flexibility to work on a project likely to evolve,
  - The portability to consider a dynamic change in the evolution needs within a company.
  - In addition, it is much more structured, it allows to have a clean and good code



Our proposal allows to suggest to the 3 layers of this architecture:

- Presentation Layer: The solution must be compatible with the technical bases (Responsive application):
  - Web browser: Internet Explorer, Google Chrome, Firefox...
  - Smartphone and tablet mobility: hardware and OS versions Android, Apple...
- Business layer: The implementation of secure REST services accessible through the Presentation layer
- Database access layer:
  - The data storage layer in a database management system
  - Define the design of databases
  - The layers communicate with each other.

IPAG has chosen some technologies for every Layer:



The actions between layers:

1. AJAX Calls Node-API: the demand by action for solution

2. CRUD: repositories of solution
3. SERVICES: the result in repository injected to services
4. Json Objects: the result of demand of Action 1

The advantages of each technology:

- ❖ Presentation Layer:
  - Angular JS:
    - Smoother navigation for the visitor
    - Better dynamic content management
    - Extensible and modular platform
    - Benefits of languages: Robustness, ease of use and maintenance
    - Our team is expert in angular JS
- ❖ Business Layer:
  - Node JS
    - Single-page JavaScript App
    - Event-Driven, single-threaded
    - ORM-centered API development
    - Self-documenting API
    - Wrap external services
    - Exposed wrapped services in REST
  - JUNIT
    - Open-source framework for the development and execution of automated unit tests.
    - The test unit is a dedicated Java class that groups test cases that perform the following tasks:
      - create an instance of the class and any other object needed for testing.
      - call of the method to be tested with the parameters of the test case.
      - comparison of the expected result with the result obtained: in case of failure, an exception is thrown.
    - Our tester and team are experts in JUNIT
- ❖ Business Layer:
  - MySQL
    - Popular SQL Database
    - Wrapped with loopback ORM

## 5.4. Development of the solution

### 5.4.1. Methodology of development

Our methodology of development and acceptance will be Scrum. It is the most adopted agile methodology for implementing web-based solutions and offering different benefits such as customer satisfaction in priority, accepting of change requests, and delivering operational versions of the application to the customer as often as possible.

The working process of this methodology is based on the decomposition of the development phase into several sprints. Each sprint takes one month, during which the development team implements and tests the planned features. A test and acceptance phase will be carried out by our team after the end of each sprint.

### 5.4.2. Tools of development

Tools	Version
<b>GITLAB</b>	16
<b>GITLAB RUNNER</b>	2
<b>DOCKER</b>	2
<b>Template Fuze</b>	17
<b>Angular</b>	16
<b>NodesJS</b>	15
<b>MYSQL</b>	2019

### 5.4.3. Tools of deployment

Today, continuous integration is commonplace and its effectiveness is well established. It is a prerequisite for to modernize development practices.

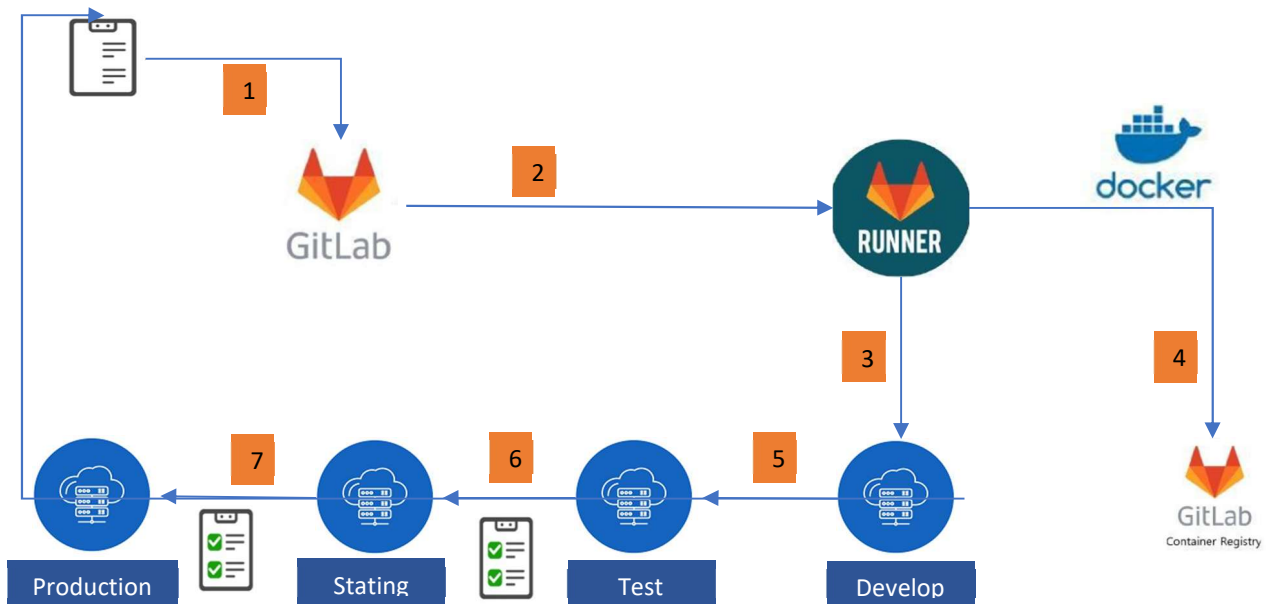
Automation of integration deployments is becoming more prevalent, adding visibility to developers for their achievements.

Once the chain of development up to the qualification mastered, it remains only one step to reach the continuous deployment in production. Only a handful of actors have taken the leap, by the nature of their activity (Google, Twitter, Amazon, etc.).

It is here that change is perceived as the most important, as the human impact is great. Noticeable organizational brakes remain (respect for standards, reluctance, communication during production), and the benefit is not obvious for everyone.

Our deployment model:





#### The tools of Delivery

- Gitlab:
  - GitLab is free software. It's a bug tracking system, continuous integration and continuous delivery.
  - The GitLab application offers features that automate the entire DevOps lifecycle from planning to creation, construction, verification, security testing, deployment and monitoring,
  - It offers high availability and replication, as well as scalability and availability for storage in site or cloud.
- Gitlab Runner
  - GitLab Runner is the open-source project that is used to run the jobs and send the results back to GitLab.
  - It is used in conjunction with GitLab CI, the open-source continuous integration service included with GitLab that coordinates the jobs.
- GitLab Container Registry:
  - GitLab Container Registry is a secure and private registry for Docker images. Built on open-source software, GitLab Container Registry is not just a standalone registry; it's completely integrated with GitLab.
  - It allows the user to create a pipeline in GitLab, by visualizing its conversions, tests, deployments and any other stage of its software life cycle
- Docker
  - Docker is free open-source software that automates application deployment.
  - It is a container virtualization platform that allows to design, test and deploy the applications quickly.
  - With Docker, it is easy to deploy and scale applications in any environment by ensuring automatic code execution.

#### The process of delivery:

1. The developer develops the functionality requested in Backlog.
2. With each push of code from the developer, the Gitlab runner packages the push content into the development server of the development team.
3. After each Run, the functionalities developed by the development team will be deployed on the development server so that they can be used by other developers.
4. A backup of the implemented developments will be stored in the Gitlab register in order to have versions of the solution in the form of a docker.
5. At the end of each sprint completed by our development team, the sprint content will be deployed in the test environment for testing by our test team

6. After validation of our test team of requested developments, the package will be deployed in the staging environment
7. After validation of the SOCRE TEAM of developments deployed on the staging environment, the solution will be deployed in the production environment

## 5.5. Testing of the solution

During this phase, the client engages a test performer to ensure that the solution complies with the specifications. This process typically involves formulating a testing strategy and creating test cases to evaluate the functionality and performance of the solution. The formulation phase focuses on defining the scope of testing, identifying the necessary resources, and establishing the criteria for determining the success of the tests.

The following steps are typically involved in the formulation phase:

- **Test Strategy:** The test performer collaborates with the client to develop a comprehensive test strategy. This includes defining the objectives of testing, determining the testing approach (such as manual testing, automated testing, or a combination), and establishing the test environment.
- **Test Design:** In this step, the test performer creates test cases based on the specifications provided by the client. Test cases are formulated to cover various functional requirements and scenarios, ensuring thorough testing of the solution. The test design phase also includes identifying test data, test environment setup, and any necessary test tools or frameworks.
- **Test Execution:** Once the test cases are formulated, the test performer executes them against the solution. This involves running the tests, recording the outcomes, and reporting any issues or defects found during testing. Test execution may involve manual testing or automated testing, depending on the chosen approach.
- **Test Evaluation:** The test performer analyzes the results of the test execution and compares them with the expected outcomes specified in the requirements. Any discrepancies or issues are documented as defects and reported to the client for further action. The test evaluation phase helps ensure that the solution meets the specified requirements and is functioning as expected.

By engaging a test performer during this formulation phase, the client can ensure that the solution is thoroughly tested and validated before its deployment. This helps identify and address any issues or deviations from the specifications, ultimately improving the overall quality and reliability of the solution.

## 5.6. Deployment Solution for Users

After validation of the recipe phase, the solution was deployed to users.

## 5.7. Hosting of the solution

The solution is hosted on OVH servers

Configuration	Hypervisor : PROXMOX		
	Distribution: UBUNTU		
VM	CPU Intel Core i7-7700K - 4c/8t - 4.2 GHz/4.5 GHz		
	RAM 32 Go ECC 2133 MHz		
	Disks de données 2x450 Go SSD NVMe Soft RAID		
	Platform	IP	URL
	Staging	5.39.17.241:3306	<a href="https://staging-plateform.projectscore.eu/">https://staging-plateform.projectscore.eu/</a>
	Production	178.33.108.29	<a href="https://plateform.projectscore.eu/">https://plateform.projectscore.eu/</a>

## 6. Annexe

### 6.1. Annexe 1: SCREENS

#### ➤ Screen 1:



#### ➤ Screen 2



### Empowering Schools for a Circular Future

SCORE Project is your gateway to fostering circular economy education across schools in Europe and beyond. Our mission is to make quality education for a circular economy accessible to educators, students, and communities worldwide. As an open platform, SCORE offers tailored pedagogical content, materials, and cutting-edge e-learning tools designed to inspire a new generation of circular thinkers.

#### What is the circular economy?

The circular economy is a term which is often used to describe an economic model that moves away from traditional forms of production and consumption (commonly referred to as the linear economy)...

[Learn More](#)

#### Teaching about the circular economy.

The SCORE philosophy regarding teaching about the Circular Economy

[Learn More](#)

#### Read more about the SCORE project

For more information about the SCORE Project...

[Learn More](#)

Video 1

Video 2

A learning platform for supporting teachers who want to help students to engage with circular futures

Get to more about circular economy, be inspired by learning materials from other educators and take part in circular challenges

#### The most viewed learning blocks

##### Building communities of practice

Looking for ways to co-create with local communities. Map your community of practice (educational community, parents, local businesses). Connect them to make a social array of people. Original material from Fab Lab BCN

1 week  
Viewed: 34 times  
Liked Once

[View](#)

##### Understanding the food waste problem

Introduction to food waste problem and the possibility of creating high value products from organic waste. A series of needs to lead a discussion with students on food waste problem and products from organic waste. Original material from Ellen MacArthur Foundation

1 lesson  
Viewed: 13 times  
Never liked

[View](#)

##### An introduction lecture about Design for Sustainable Behaviour

A lecture about the basics of Design for Sustainable Behaviour

1 hour  
Viewed: 9 times  
Never liked

[View](#)

#### Circular Challenges

##### Design for Sustainable Behaviour Challenge

The Design for Sustainable Behaviour Challenge aims to provide students with an insight in how everyday human behaviour may affect sustainability goals, and challenges them to prototype and test a design intervention which may make a certain type of behaviour that they have chosen, more sustainable, or to prevent an unsustainable behaviour from happening.

Spread over 1 week to 1 month  
Viewed: 32 times  
Liked Once

[View](#)

##### Clothing as a service

Students will learn what are the environmental, social and economic values as well as barriers of the service-based business model with a supporting case study in the textile sector

2h  
Viewed: 17 times  
Liked Twice

[View](#)

##### Wool Challenge

Explore the topic of circular textiles by exploring different facets of wool in your surroundings

From 3 workshops to 2 months  
Viewed: 21 times  
Liked Once

[View](#)

#### PROJECT PARTNERS

## ➤ Screen 3

SCORE | About Circular Economy | Learning Blocks | Circular Challenges | Feedback and Contribute

Thomas

Search

**Learning Blocks**

**Building communities of practice**  
Looking for ways to co-create with local communities. Map your community of practice (educational community, parents, local businesses). Contact them to make a local army of people. Original material from Fab Lab BCN

1 week  
Viewed 34 times  
Liked Once

**View →**

**Learning Blocks**

**Understanding the food waste problem**  
Introduction to food waste problem and the possibility of creating high value products from organic waste. A series of reads to lead a discussion with students on food waste problem and products from organic waste. Original material from Ellen McArthur Foundation

1 lesson  
Viewed 12 times  
Never liked

**View →**

**Learning Blocks**

**About Circular Challenges**  
Intro to Circular Challenges

1 lesson  
Viewed 7 times  
Never liked

**View →**

**Learning Blocks**

**Design for Sustainable Behaviour Challenge - Part 1: Introduction and set-up**  
Teacher guidance for preparing for the Design for Sustainable Behaviour Challenge

1 hour  
Viewed 5 times  
Never liked

**View →**

**Learning Blocks**

**An introduction lecture about Design for Sustainable Behaviour**  
A lecture about the basics of Design for Sustainable Behaviour.

1 hour  
Viewed 9 times  
Never liked

**View →**

**Learning Blocks**

**Design for Sustainable Behaviour Challenge: Part 3: Explore**  
Part 3 of the Design for Sustainable Behaviour Challenge where student will identify and choose an unsustainable behaviour that will be the topic of the rest of the challenge.

One day to one week  
Viewed 7 times  
Never liked

**View →**

**Load More**

**Formets**

- Lecture
- Lesson Plan
- Module
- Teacher guidance
- Tool
- Video
- Workbook

**Sectors**

- Electronics
- Energy
- Health
- Multiple
- Textile

## ➤ Screen 4

**Understanding the food waste problem**

**FAB LAB BCN**  
Fab Lab Barcelona  
<https://fablabbcn.org/>

**Views** 13 **Duration** 1 session **Likes** 0

**Description**

**What is food waste?**  
Food waste is the discarding or wasting of edible food, typically at different stages of the food supply chain, including production, processing, distribution and consumption. It includes any food that is thrown away, lost or uneaten. Food waste can occur for a variety of reasons, including spoilage, overproduction, improper storage, cosmetic defects, expiration dates or consumer behaviour. It is a significant global problem with serious economic, environmental and social consequences.

**Why is it relevant in a school context?**  
Introducing the issue of food waste to students is crucial to raise awareness of the problem and to encourage critical thinking about an issue that seems crucial to addressing the sustainability challenges of our food systems.

**What will you learn in this module?**  
You will find several articles and videos to introduce the topic of food waste and the revaluation of organic waste in the classroom, as well as general questions to lead a debate around it.

**Student's main objectives**

- Understand Food Waste problem
- Develop critical thinking by debating a global issue

**Files**

02 Understanding the food waste problem - Teacher Document.pdf

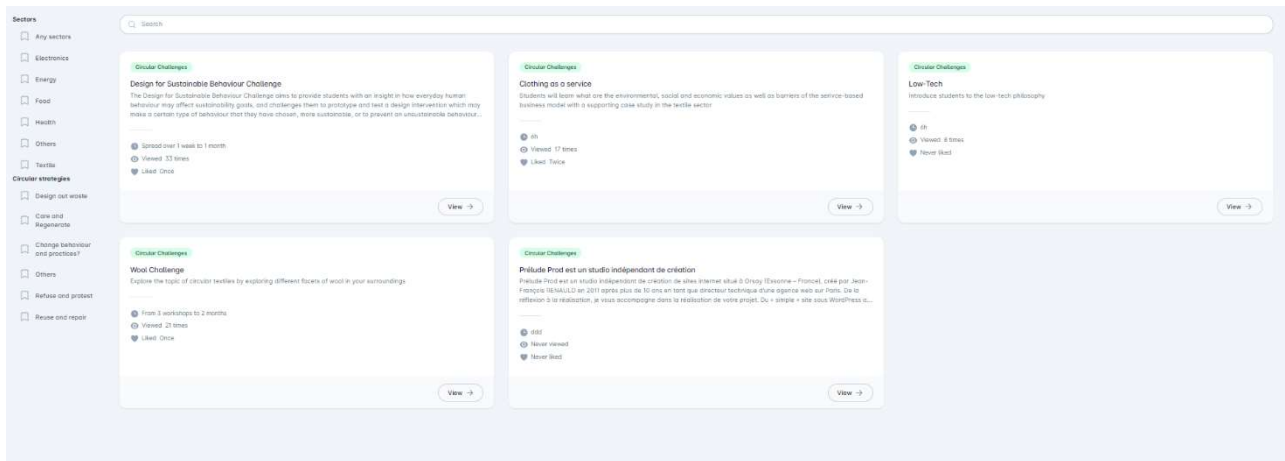
**Links**

- Eliminating Food Waste, Ellen McArthur Foundation See details
- High value products from organic waste See details

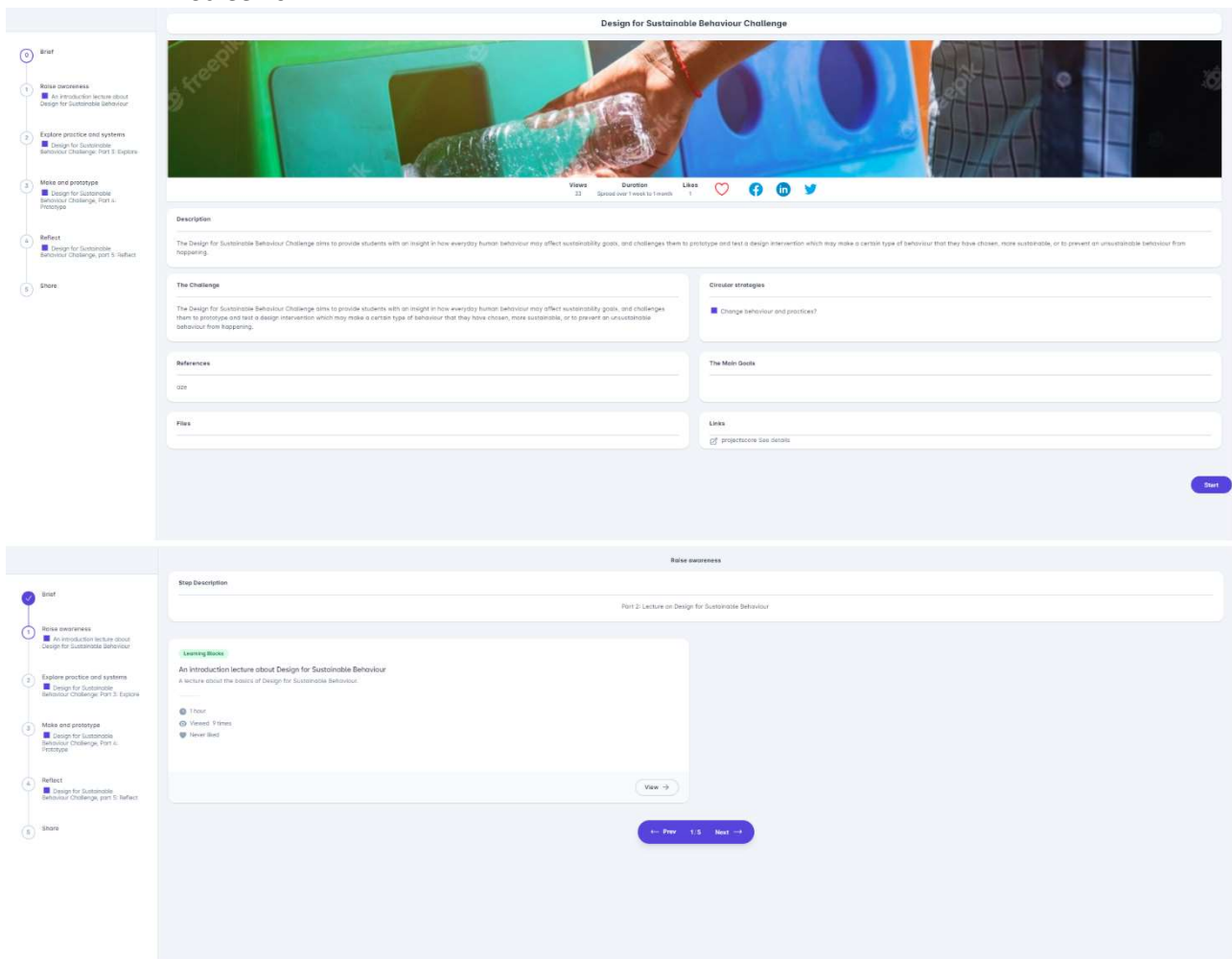
**Step By Step Description**

- 1 Present Ellen Mc Arthur Foundation to t...
- 2 Direct them to the article on Food Waste
- 3 Direct them to the following articles on ...

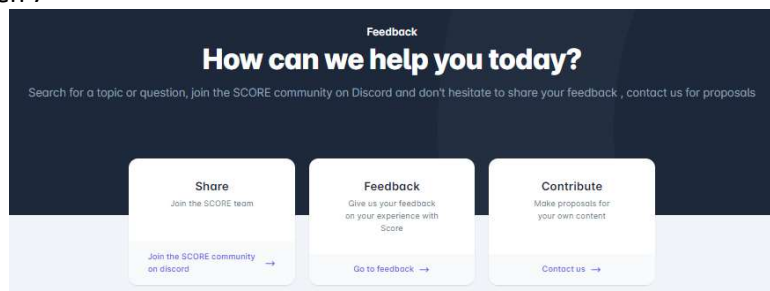
## ➤ Screen 5



## ➤ Screen 6



## ➤ Screen 7



➤ Screen 8

[← Back](#)

## Feedback

**Name**

**Email**

**How do you rate this material?**

	Very Good	Good	Fair	Poor	Very Poor
Content / relevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usefulness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you feel more confident on the subject?**

☐ No

☐ Yes

☐ Unsure

**Have you missed something?**

**Do you have suggestions?**

Cancel

Save

➤ Screen 9

[← Back](#)

## Contribute

**Submit your request**

Your request will be processed and our support staff will get back to you in 24 hours.

**Learning Blocks**

Make proposals for your own content

Contact us →

**Circular Challenges**

Make proposals for your own content

Contact us →

➤ Screen 10



## Sign in

Email address\*

score@score.test

Password\*

\*\*\*\*\*

☐ Remember me

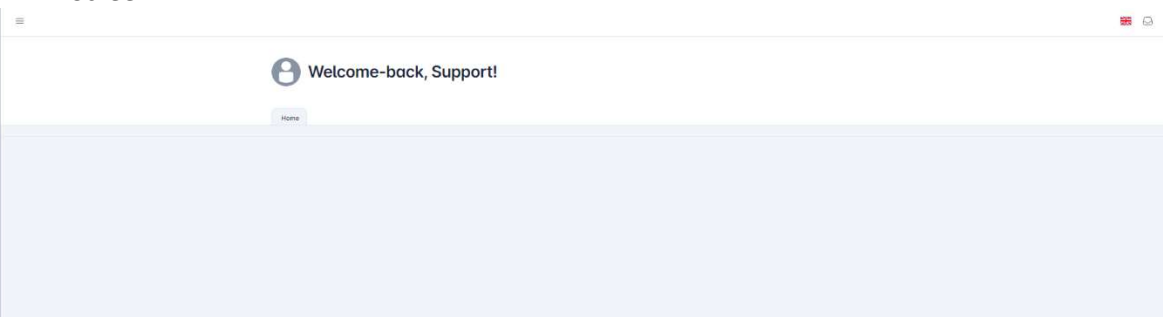
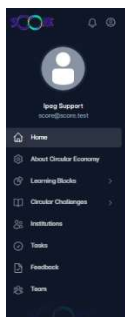
[Forgot password?](#)

Sign in

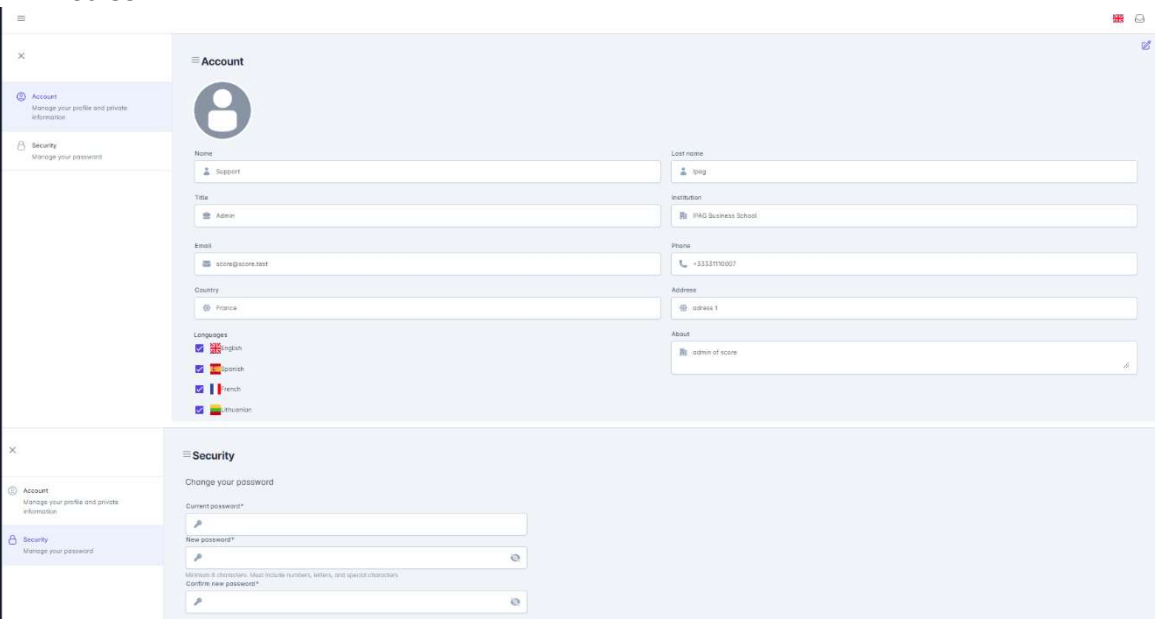
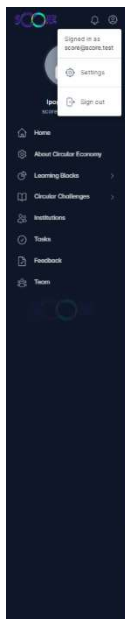
[Back to Home](#)

# Welcome to our community

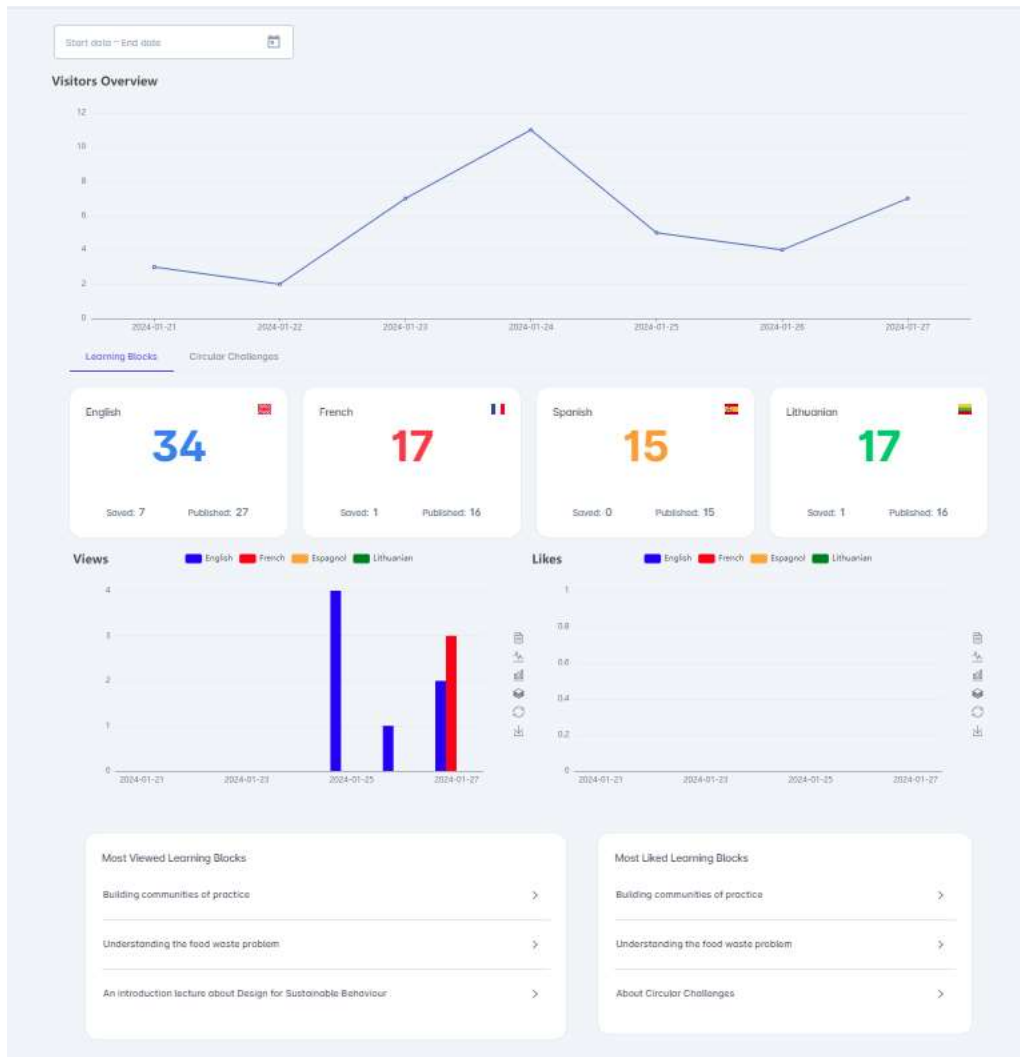
➤ Screen 11



➤ Screen 12



## ➤ Screen 13



## ➤ Screen 14

Description

Empowering Schools for a Circular Future

What is the circular economy?

Teaching about the circular economy

Most views about the SCORE project

Videos

https://www.youtube.com/watch?v=QdLrTgqk

A learning platform for supporting teachers who want to support students to engage with circular topics

Get to know about circular economy, be inspired by learning resources from other educators and take part in circular challenges

https://www.youtube.com/watch?v=QdLrTgqk

Learning Blocks

Most viewed

Choose 3 learning blocks

Circular Challenges

Most viewed

Choose 3 circular challenges

Circular Challenges

Type for sub-challenges...

Design for Sustainable Behaviour Challenge

Circular Challenges

Most viewed

Choose 3 circular challenges

Cancel Save



## ➤ Screen 15

English

Spanish

Lithuanian

French

Learning and teaching

Internal flows and exchanges

People and society

Material and technologies

Formative

Lecture

Lesson Plan

Module

Teacher guidance

Tool

Video

Workbook

Keywords

Behaviour

Blockchain

Business

Energy

Function

Health

Innovation

Low tech

Material processes

Sustainability

Sectors

Electronics

Energy

Health

Health

Material

Quint

Institutions

ets

ESTI Institut of Technology

Search

Show Board

Learning Board

Building communities of practice

Looking for ways to co-create with local communities. Map your community of practice (educational community, parents, local businesses). Contact them to make a local array of people. Original material from Fab Lab Bcn

1 week

View

Learning Board

Understanding the food waste problem

Introduction to food waste problem and the possibility of creating high value products from organic waste. A series of reads to lead a discussion with students on food waste problem and products from organic waste. Original material from Fab Lab Barcelona

1 lesson

View

Learning Board

About Circular Challenges

Intro to Circular Challenges

1 week

View

Learning Board

Design for Sustainable Behaviour Challenge: Part 1: Introduction and set-up

Teacher guidance for preparing for the design for Sustainable Behaviour Challenge

1 hour

View

Learning Board

An introduction lecture about Design for Sustainable Behaviour

A lecture about the basics of Design for Sustainable Behaviour

1 hour

View

Learning Board

Design for Sustainable Behaviour Challenge: Part 3: Explore

Part 3 of the Design for Sustainable Behaviour Challenge: where students will identify and choose an unsustainable behaviour that will be the topic of the end of the challenge

1 week

View

Learning Board

Design for Sustainable Behaviour Challenge: Part 4: Prototype

This is part 4 of the Design for Sustainable Behaviour Challenge, where students learn to select strategies for changing behaviour and prototype a design alternative

1 week

View

Learning Board

Design for Sustainable Behaviour Challenge: part 5: Reflect

This is the 5th and last part of the Design for Sustainable Behaviour Challenge, where the design interventions are discussed and enforced upon

1 week

View

Learning Board

Business model

Students will discover a link that helps them in understanding how a business can be created and how an idea can be transformed in a business model. Furthermore, students will explore the process of business model prototyping and make the key components of a business model be introduced to a well-known tool the "business model canvas" is made with an application a case study

1 week

View

Learning Board

Functional economy

Students are going to learn about the functional economy and its difference from traditional economic model. Learn about how value is created and captured

1 hour

View

Learning Board

Textile environmental impact

Students will learn about the environmental impact of clothing production and consumption

1 week

View

## ➤ Screen 16

Back

English

Spanish

Lithuanian

CO<sub>2</sub> emission

Energy

Waste

Cars

FAB LAB BCN

RECYCLE

RECYCLE

RECYCLE

Water

Car doors

Machine tools

conservation

Fab Lab Barcelona

julia.leirado@laoc.net

Date

11/11/2023

Views

35

Duration

1 week

Likes

1

Building communities of practice

Short description

Looking for ways to co-create with local communities. Map your community of practice (educational community, parents, local businesses). Contact them to make a local array of people. Original material from Fab Lab Bcn

Description

Files











01 Building communities of practice.pdf

Links









Example of use of the tool See details

➤ Screen 17












## ➤ Screen 18

Sectors	Relevant For Which Themes	Pedagogical Formats	Keywords
			
 Health	Santé	Salud	Sveikata
 Textile	Textile	Textil	Tekstilės
 Electronics	Electronique	Electrónica	Elektronika
 Health	Santé	Salud	Sveikata
 Multiple	Plusieurs	Multiple	Daugkartinis
 Energy	Energie	Energia	Energija






## ➤ Screen 19

Sectors	Relevant For Which Themes	Pedagogical Formats	Keywords
			
 Material flows and ecologies	Flux de matières et écologies	Flujos de materiales y ecologías	Medžiagų srautai ir ekologijos
 Products and Technologies	Produits et Technologies	Productos y Tecnologías	Produktai ir technologijos
 People and Society	Les gens et la société	Gente y Sociedad	Žmonės ir visuomenė
 Economy and policies	Économie et politiques	Economía y políticas	Ekonomika ir politika

## ➤ Screen 20

Sectors	Relevant For Which Themes	Pedagogical Formats	Keywords
			
 Teacher guidance	Orientation de l'enseignant	Orientación del profesor	Mokytojo nurodymas
 Workbook	Cahier	Libro de trabajo	Darbo knyga
 Lesson Plan	Plan de cours	Plan de estudios	Pamokos planas
 Module	Module	Módulo	Modulis
 Tool	Outil	Herramienta	Įrankis
 Lecture	Conférence	Conferencia	Paskaita
 Video	Vidéo	Video	Vaizdo įrašas

## ➤ Screen 21

Sectors	Relevant For Which Themes	Pedagogical Formats	Keywords
			
# Energy	Energie	Energia	Energija
# Blockchain	Blockchain	Cadena de bloques	Blockchain
# Raising awareness	Renforcer la sensibilisation	Sensibilización	Sąmoningumo didinimas
# Behaviour	Comportement	Comportamiento	Elgesij
# Business	Affaire	Negocio	Verslui
# Sustainability	durabilité	Sostenibilidad	Tvarumas
# Function	Fonction	función	funkcija
# Innovation	Innovation	Innovación	naujovijų
# Low tech	Low tech	Low tech	Low tech
 Health	Santé	Salud	Sveikata

## ➤ Screen 22

Sectors

Any sectors

Electronics

Energy

Food

Health

Others

Textile

Keywords

# Textile

# Climate

# Energy

# Food

# Health

Circular strategies

Design out waste

Care and Regenerate

Change behaviour and practices?

Others

Refuse and protest

Reuse and repair

Search

New

Show Saved

Circular Challenges

Design for Sustainable Behaviour Challenge

The Design for Sustainable Behaviour Challenge aims to provide students with an insight in how everyday human behaviour may affect sustainability goals, and challenges them to prototype and...

Spread over 1 week to 1 month

Viewed 33 times

Liked Once

View →

Circular Challenges

Clothing as a service

Students will learn what are the environmental, social and economic values as well as barriers of the service-based business model with a supporting case study in the textile sector

6h

Viewed 17 times

Liked Twice

View →

Circular Challenges

Low-Tech

Introduce students to the low-tech philosophy

6h

Viewed 8 times

Never liked

View →

Circular Challenges

From selling to renting?

Students are going to explore challenges firms face when there is a shift from selling clothing towards service business model.

6h

Never viewed

Never liked

View →

Circular Challenges

Simulating climate solutions

Simulate future climate change scale depending on selected parameters

1 hour to 1 week

Never viewed

Never liked

View →

Circular Challenges

Remix the school: giving new value to food waste

Tackling the issue of food waste and circularity at a neighbourhood scale. Teachers go deep on food waste issues, discover the principles of design and the circular economy, learn the theoretic...

Customized from one day to 6 month partnership

Viewed 8 times

Never liked

View →

## ➤ Screen 23

Back

Circular Challenges

0 Brief

1 Raise awareness

2 Explore practice and systems

3 Make and prototype

4 Reflect

5 Share

Design for Sustainable Behaviour Challenge

Views

33

Duration

Spread over 1 week to 1 month

Likes

1

Heart icon

Facebook icon

LinkedIn icon

Twitter icon

Description

The Design for Sustainable Behaviour Challenge aims to provide students with an insight in how everyday human behaviour may affect sustainability goals, and challenges them to prototype and test a design intervention which may make a certain type of behaviour that they have chosen, more sustainable, or to prevent an unsustainable behaviour from happening.

The Challenge

The Design for Sustainable Behaviour Challenge aims to provide students with an insight in how everyday human behaviour may affect sustainability goals, and challenges them to prototype and test a design intervention which may make a certain type of behaviour that they have chosen, more sustainable, or to prevent an unsustainable behaviour from happening.

Circular strategies

Change behaviour and practices?

References

oze

The Main Goals

## ➤ Screen 24



## ➤ Screen 26

Sectors	Circular strategies	Keywords		
				New
Refuse and protest	Refuse and protest	Rechazar y protestar	Atsisakyti ir protestuoti	
Reuse and repair	Réutilisation et réparation	Reutilizar y reparar	Pakartotinis naudojimas ir taisymas	
Design out waste	Concevoir à partir de déchets	Diseño a partir de residuos	Dizainas iš atliekų	
Change behaviour and practices?	Changer les comportements et les pratiques ?	Cambiar comportamientos y prácticas ?	Keisti elgesį ir praktiką ?	
Care and Regenerate	Prendre soin et régénérer	Cuidar y Regenerar	Rūpinimasis ir regeneracija	
Others	autres	Otras	Kiti	

## ➤ Screen 27

Sectors	Circular strategies	Keywords		
				New
#	Health	Santé	Salud	Sveikata
#	Energy	Energie	Energia	Energija
#	Textile	Textile	textil	tekstilė
#	Climate	Climat	Clima	Klimatas
#	Food	Alimentation	Alimentos	Maistas

## ➤ Screen 28

Institutions 8 Institutions				
<input type="text" value="Search institutions"/>	<input type="button" value="+ New Institution"/>			
A				
AZE				
E				
ESTIA Institute of Technology				
F				
Fab Lab Barcelona				
I				
IPAG Business School				
N				
Norwegian University of Science and Technology (NTNU)				
O				
Online Resource				
T				
test IT				
Z				
Žiedinė ekonomika				

E

ESTIA Institute of Technology


m.hamwi@estia.fr


France


https://www.estia.fr/


## ➤ Screen 29

Languages


 Spanish


 English

 French


 Lithuanian


Type


 Circular challenge


 Learning blocks


Administrator


 Marion


 Julia


 Support

 Domantas

 Mikhail


 Cynthia


 Casper


 Issam


Tasks


10 tasks


 Marion Real has edited a circular challenge [Descubrir las pequeñas Manufacturas de Lana] with the Spanish language


 Marion Real has edited a circular challenge [Entrar en el mundo de los Low-Tech] with the Spanish language


 Marion Real has edited a circular challenge [Monedades Locales como herramienta de cambio] with the Spanish language


 Marion Real has edited a circular challenge [Monedades Locales como herramienta de cambio] with the Spanish language


 Marion Real has saved a circular challenge [Entrar en el mundo de los Low-Tech] with the Spanish language

 Marion Real has edited a circular challenge [Monedades Locales como herramienta de cambio] with the Spanish language

 Marion Real has saved a circular challenge [Monedades Locales como herramienta de cambio] with the Spanish language

 Marion Real has published a circular challenge [Reto del Diseño para Comportamientos Sostenibles] with the Spanish language

 Marion Real has edited a circular challenge [Pequeña Manufactura de Lana] with the Spanish language

 Marion Real has edited a circular challenge [Pequeña Manufactura de Lana] with the Spanish language


Task title

Marion Real has edited a circular challenge [Descubrir las pequeñas Manufacturas de Lana] with the Spanish language

Tags

CircularChallenge


By

 Marion Real  
Systemic Design Researcher


Link


## ➤ Screen 30


Languages

 English

Type


 LearningBlocks

 Feedback

 CircularChallenges

Feedback

1 feedback

 tarek aouadi


Name

tarek

Last name

aouadi

Email















 tarek.aouadi@gmail.com

Link

## ➤ Screen 31

Search

New

<div></div> <div>Support Admin</div> <div><div>Email</div><div>Call</div></div>	<div></div> <div>Issam Professor of Entrepreneurship</div> <div><div>Email</div><div>Call</div></div>	<div></div> <div>Julia Future Learning Expert</div> <div><div>Email</div><div>Call</div></div>	<div></div> <div>Marion Systemic Design Researcher</div> <div><div>Email</div><div>Call</div></div>
<div></div> <div>Cynthia Professor</div> <div><div>Email</div><div>Call</div></div>	<div></div> <div>Mikhail Ingénieur de recherche</div> <div><div>Email</div><div>Call</div></div>	<div></div> <div>Casper Professor of Design for Sustainability</div> <div><div>Email</div><div>Call</div></div>	<div></div> <div>Lucy Postdoctoral Research Fellow, Circular Economy and Consumption</div> <div><div>Email</div><div>Call</div></div>
<div></div> <td><div></div><td><div></div><td></td></td></td>	<div></div> <td><div></div><td></td></td>	<div></div> <td></td>	