



InvestCEC

Detailed online platform functional and technical specifications – D2.2

Enspire Science



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Table of Contents

1. EXECUTIVE SUMMARY	6
2. INTRODUCTION	7
3. PLATFORM REQUIREMENTS SPECIFICATION	8
3.1. Introduction	8
3.1.1. PURPOSE.....	8
3.1.2. INTENDED AUDIENCE	8
3.1.3. SCOPE	8
3.2. Overall Description	9
3.2.1. OPERATING ENVIRONMENT.....	9
3.2.2. USER CHARACTERISTICS	9
3.2.3. PRODUCT FEATURES	10
3.2.4. ASSUMPTIONS AND DEPENDENCIES.....	10
3.3. System Features and Requirements	10
3.3.1. SYSTEM FEATURES	11
3.3.1.1. Homepage.....	11
3.3.1.2. Sign-up and Login	11
3.3.1.3. Data Collection and Data Management	11
3.3.1.3.1. Organisations	11
3.3.1.3.2. Individuals	12
3.3.1.3.3. Initiatives / projects	12



3.3.1.4. Discussion Forums	14
3.3.1.5. Updates Section.....	14
3.3.1.6. Resources Page.....	15
3.3.1.7. Contact page.....	15
3.3.2. EXTERNAL INTERFACE REQUIREMENTS	15
3.3.2.1. User Interface	15
3.3.2.2. Hardware Interface.....	16
3.3.2.3. Software Interface	16
3.3.3. NON-FUNCTIONAL REQUIREMENTS	16
3.3.3.1. Performance Evaluation	17
3.3.3.2. Security Requirements	17
3.3.3.3. Quality Attributes	17
3.3.3.3.1. Usability	17
3.3.3.3.2. Reliability.....	17
3.3.3.3.3. Supportability.....	17
3.4. Other Requirements	17



List of Figures

Figure 1. Example for an organisation registration form	13
Figure 2. Discussion forums.....	14



1. Executive summary

The Horizon Europe project InvestCEC will develop a replicable model for the initiation of circular economy projects in cities and regions, that will improve collaboration between entrepreneurs, investors and policy makers.

This deliverable aims to provide the technical specifications for the InvestCEC stakeholder platform, which will serve as a meeting point for stakeholders involved in a given local/regional circular economy project where they can update, exchange information and monitor the project progress. The platform will be demonstrated in the scope of the demonstration of the InvestCEC model in The City of Klagenfurt, Austria. The platform can be accessed via: <https://investcec.enspire.science/>

This deliverable covers the platform requirements specification, including:

- purpose, scope and target audience for the platform
- an overall description of the platform and its features
- system features and requirements

During the project, the platform will be further developed based on users' feedback and improved understanding of the involved stakeholders' needs and the features that can meet them and increase the participation in the platform.

2. Introduction

The circular economy is one of the core principles of the EU's Green Deal. But a significant hurdle in getting circular economy projects off the ground is funding, as these projects are often classified as high-risk.

The Horizon Europe project **InvestCEC** will develop a replicable model for the initiation of circular economy projects in cities and regions, that will improve collaboration between entrepreneurs, investors and policy makers.

InvestCEC will demonstrate the effectiveness of the model in Klagenfurt, Austria, as a test case, and set the ground for replication in other European cities and regions, ensuring that the principles and measures developed in the project can be utilised across Europe.

3. Platform requirements specification

3.1. Introduction

3.1.1. PURPOSE

The purpose of this document is to describe the online platform which will be developed in the scope of the InvestCEC project. The platform will serve as a meeting point for stakeholders involved in a given local/regional circular economy project where they can update, exchange information and monitor the project progress. This document defines and describes the interfaces, functions, performance, security, and quality assurance requirements for the online stakeholders' platform.

3.1.2. INTENDED AUDIENCE

This document aims to provide:

1. Developers – who will develop this online platform during the scope of the InvestCEC project. In a wider context, it will also aim at prospective developers who may need to develop a similar platform for future projects.
2. Testers – Individuals who will test the functionality of the platform in the pilot stage, in order to assess whether it serves its purpose or not.
3. Circular economy project managers – Individuals/organizations who are managing projects in circular economy and would like to set up a similar platform.
4. Interested end users – Anyone who is interested in understanding the needs and purposes of the platform.

3.1.3. SCOPE

The online platform's objectives are as follows:

- Serve as an information and update center for stakeholders involved in a circular economy project.
- Store and allow access to all relevant information and documents related to a given circular economy project.

- Facilitate communication and interactions between stakeholders involved in a circular economy project through an online channel (complementing offline communication).
- Allow stakeholders to monitor and express feedback on a given circular economy project.

The platform will be developed for the specific circular economy project taking place in Klagenfurt to connect the local authorities, the entrepreneurs delivering circular economy solutions for Klagenfurt, the investors who invest in these solutions and the citizens of Klagenfurt (and potentially adjacent cities). However, this document will allow the replicability of the platform through providing the specifications and functions of the platform, which can be reproduced for local circular economy project in other geographical contexts.

The expected short, medium, and long-term benefits of the platform are as follows:

Through this platform, stakeholders will be able to communicate, interact and co-create the project addressing all parties' needs. In this platform, the stakeholders will become a community of practice focused on sharing the best practices on the implementation of the circular economy project and creating new knowledge to advance a domain of professional practice. Furthermore, the platform should serve as a place for citizens to follow the project and provide feedback on its implementation.

There are several risks to be noted and addressed:

- Low or lack of incentives for stakeholders' engagement and interaction on the platform.
- Stakeholders' reluctance to expose their operations/models (fear of competition and non-acceptance from users)

To mitigate these risks, we need to make sure that the platform and its features are of value for the stakeholders, including updating the functions and features based on the feedback received from them.

3.2. Overall Description

3.2.1. OPERATING ENVIRONMENT

The online platform will be developed using WordPress and further PHP-based plugins and customized modules. This will ensure that the platform will be accessible using any contemporary web browser.

3.2.2. USER CHARACTERISTICS

The platform will support user access and user customized content.

The platform will accommodate 3 types of users' groups:

- Platform administrators: this group will include the individuals that are responsible for the development and daily maintenance of the platform.
- Registered stakeholders: this group will include all relevant stakeholders, who will be officially registered to the system. This group may include: Investors, SMEs and entrepreneurs in the field of circular economy, regions and cities' representatives, NGOs and policy makers involved in a specific circular economy project.
- External / ad-hoc / non-registered users: this group will include any other user who may wish to browse the public sections of the platform. Member of this group will not have to register on one hand, but on the other hand, they will not be able to actively participate in any of the platform's activities.

The user management will include: a user register and information management facility (fully supporting GDPR practices), secured login facility (2 factor authentication will be considered, at least for the Platform administrators group), access control and grant permissions (at user group level).

All users should be familiar with web technology.

3.2.3. PRODUCT FEATURES

The following features will be included:

- **Data management** – The basis for all other features of the platform will be the data management facility. The platform will allow for data collection about any relevant stakeholder and/or entity (such as projects). The data management facility will fully comply with GDPR regulations.
- **Discussion forums** – An interactive feature allowing involved stakeholders to interact with one another.
- **Updates section** – One sided section allowing to upload content related to the project and its progress.
- **Resources page** – An archive of documents and files available for download, links to relevant digital documents or online information and any other type of content that can be considered as a resource for stakeholders.
- **Contact page** – Contact details and contact form that can be completed by those who want to provide feedback, ask questions, etc.

3.2.4. ASSUMPTIONS AND DEPENDENCIES

There are no assumptions or dependencies to list at this stage.

3.3. System Features and Requirements

This section provides the detailed requirements for the primary system features for the platform.

3.3.1. SYSTEM FEATURES

3.3.1.1. Homepage

The homepage will include an array of boxes, representing the most updated activities in the system. This may include latest updates (posts), latest events, latest open discussions in the forum, and other relevant unclassified information.

In addition to that, the homepage will include the options of logging in to the platform (or registering in case of a new user), and subscribing to the platform communication facilities (e.g. a newsletter).

Clicking on each of these boxes will take the user to the specific activity or system area.

3.3.1.2. Sign-up and Login

- **Description** – This function is mandatory for the user groups of admins and stakeholders wishing to get a privileged access to the platform. Without logging in to the platform, the access will be limited to public information only.
- **Functional Requirements** – The following functionalities are required:
 1. Users should be able to access the sign-up page and enter their name, country, stakeholder group (i.e., investors, entrepreneur, local/regional authority representative, citizen, other – with option to elaborate), user name, password, and password confirmation through entering it again.
 2. Admin users will not need sign up, but receive an admin user (including username and initial password) when the platform is developed.
 3. Users should be able to retrieve their passwords (e.g., if forgotten). They should be required to provide their email address and will receive an email with a new password.

3.3.1.3. Data Collection and Data Management

The platform will collect and manage data about the participating individuals, organizations, initiatives/projects. This data will serve as the infrastructure to all other features of the platform. The data collection and management will comply with state-of-the-art security, data protection and privacy practices (full GDPR compliant). Example of registration forms is provided in Figure 1 below.

The following data will be collected:

3.3.1.3.1. ORGANISATIONS

- The data to be collected about the participating organisations will include:
- Organisation name
- Organization type – Dropdown should include the options:
 - Project management
 - Local/regional authority

- Venture capital
- Public investor
- SME
- Company
- Other (this option should open a text box for mandatory description with 50 characters limit).
- Contact information: contact person, address, phone and email address.

3.3.1.3.2. INDIVIDUALS

The data to be collected about the participating individuals will include:

- Name
- Affiliation – Dropdown should include the options:
 - Citizen
 - Local municipality employee
 - Investor
 - Entrepreneur
 - Other (this option should open a text box for mandatory description with 50 characters limit).
- Contact information: address, phone and email address.
- Affiliation: Citizen, Local municipality employee, Investor, Entrepreneur, other

3.3.1.3.3. INITIATIVES / PROJECTS

The data to be collected about the initiatives / projects will include:

- Title
- Nature of initiative / project:
 - National initiative
 - EU-initiative
 - International initiative
 - EU-funded project
- Stage – Dropdown should include the options:
 - Initial
 - On-going
 - Completed
- Linked to Organisation: [name of organisation]
- Contact information: First name, last name, address, email, phone

Figure 1. Example for an organisation registration form

Organisations

Organisation name *(Required)*

Organisation type *(Required)*

Contact information

Contact person *(Required)*

<input type="text"/>	<input type="text"/>
First Name	Last Name

Address *(Required)*

Country *(Required)*

eMail *(Required)*

Password *(Required)*

<input type="password"/>	<input type="password"/>
Enter Password	Confirm Password

Strength indicator

Phone *(Required)*

3.3.1.4. Discussion Forums

- **Description**– A web environment where users (stakeholders involved in a local/regional CE project) can bring up issues for discussion and respond to any contribution, thus creating threaded discussions that can spawn a discussion tree where the discussion branches out in sub threads.
- **Use cases** – There are several use cases:
 1. Reading – Users will only read posts and discussions in the forums. All messages should be displayed and clickable (to get to the entire thread).
 2. Posting – Users will start new threads and discussion in the forum. A ‘post new thread’ button should be included in the top and bottom of the main forum page.
 3. Commenting – Users will enter to a thread and post a comment to an existing discussion. A ‘post new comment to this thread’ button should be included in the top and bottom of the thread page.

Figure 2. Discussion forums

Forums

FORUM	TOPICS	
Circular economy solutions	0	No Topics
Financial discussions	0	Matt Watson 🕒 1 month, 2 weeks ago
General feedback and inputs	0	No Topics
Klagenfurt community discussions	0	No Topics
Sustainable energy	0	No Topics
Waste reduction and recycling	0	No Topics

3.3.1.5. Updates Section

- **Description** – The updates section is a segment in the platform’s homepage containing information and content about the CE project’s progress. It contains recent updates and funding opportunities, and include a link directing to a page where all updates (since the outset of the platform) are available.
- **Use cases** – There are two use cases:

1. Uploading content – Admins will upload content to the update section to make it available to other users.
2. Consuming content – Users consume the content uploaded to the updates section.

3.3.1.6. Resources Page

- **Description** – The resources page will be accessible through the platform’s homepage, and will contain documents, files, images, publications, reports, manuals, etc. related to the local/regional CE project. Through this page, users will be able to download and consume content that have been published by the admin in this page.
- **Use cases** – There are two use cases:
 1. Uploading content – Admins will upload content to the resources page to make it available to other users.
 2. Consuming content – Users consume (download or online) the content uploaded to the resources page.

3.3.1.7. Contact page

- **Description** – A web page where contact details and a contact form are available for the platform users. It should include a short text inviting them to share their feedbacks, questions, and insights with us.
- **Use case** – Users who wish to contact us will use this page to do so.

3.3.2. EXTERNAL INTERFACE REQUIREMENTS

This section describes the interface requirements for the system. Requirements for user, hardware, software, and communication interfaces are defined.

3.3.2.1. User Interface

User interface of the platform will be easy to use and understandable. It uses English and German language since our application is designed for German people at any age. User interfaces are explained in details below.

- **Login and sign-up interface** – The homepage of the website will include two visible buttons: “Sign up” and “Login”. If the user hasn’t sign-up yet, they will click the sign up and will be moved to the sign-up page. If the users have already signed up, they will use the login button to connect to their account. The login page will also include a sign-up button to direct those who are not registered to the sign-up page. The sign-up process should be composed of the following steps:
 - Step 1 – The user clicks sign up and is transferred to a page with a drop down asking to “Choose which type of stakeholder group you belong to, the click next” including the type of options:
 - *Organization*

- *Individual*
 - *Initiative/project*
- Step 2 – Once the user chose the stakeholder group and clicked next, he will be transferred to the relevant form, depending on their choice (Organizations – the form presented in sub-section 3.1.3.1; Individuals – The form presented in sub-section 3.1.3.2; Initiatives/projects – The form presented in sub-section 3.1.3.3). This page should include a “back” button to go back to step 1, and a “send” button to send the form. All fields are mandatory.
 - Step 3 – Once the form is completed and the user pressed send, the registration form should be sent to the email address: InvestCEC-admin@empire-science.com. The email should include a “accept registration” and “reject registration” buttons that, by clicking on them, will automatically inform the user whether their registration is approved or not.
- **Forum interface** – The forum main page will include the button “new post” for users who want to add a new thread. By clicking it, users will be directed to a new page with a form to complete in order to post. The form will request the user to insert their name (unless logged in to the system, and in this case the user name will be the name), main topic of the thread (title – the line to appear in the forum’s main page) and body text.
The forum main page will include only the main topic of the thread (i.e., a list of thread represented by their titles in the main page). Once clicking on a thread title, the entire thread will open on a new page. A “comment” button will be available for users in the thread’s page, for them to be able to post a comment to a specific thread.
 - **Contact form interface** – The contact page should include a contact form asking users to fill in their name, email address and message. A “submit” button should be included.

3.3.2.2. Hardware Interface

The platform will work on the web, allowing access from the different devices that provide access to the web. No other hardware is required.

3.3.2.3. Software Interface

The platform will work on the web, allowing access from the different devices that provide access to the web. No other hardware is required.

3.3.3. NON-FUNCTIONAL REQUIREMENTS

In this section, requirements which are non-functional will be outlined. Non-functional requirements are separated into performance requirements, security requirements and quality attributes (usability, accessibility, reliability, supportability).

3.3.3.1. Performance Evaluation

- The web platform should run in the latest version of browsers.
- The web platform should display the homepage as quick as possible.

3.3.3.2. Security Requirements

The web platform defined in this SRS must follow industry recommended practices for secure development.

3.3.3.3. Quality Attributes

3.3.3.3.1. USABILITY

- Web platform designed for the use through web supporting devices.
- English and German language so that everyone literate with either languages can use it.
- Users have to know how to use the web and how to read and write messages.

The platform will be easy to use and understandable so that no time is required for users to become productive users.

3.3.3.3.2. RELIABILITY

- The content and information uploaded to the platform by admins and users will be regularly monitored to increase accuracy and reduce potential mis/dis-information.
- Accessing the platform will be available 24/7, while only requiring an internet connection and a web browser.

3.3.3.3.3. SUPPORTABILITY

- The codes will be easy to understand and readable.
- All design architecture will be well documented.

3.4. Other Requirements

The platform will be piloted in the InvestCEC project as part of the Klagenfurt demonstration, in order to demonstrate its functionality and contribution to inter-stakeholder communication and to local circular economy projects. However, as InvestCEC aims at providing resources, tools and practices that will facilitate replication in other cities and regions across Europe, the online stakeholder platform and the different functions and features described in this document should also be replicable by design. Essentially, the ability to replicate the platform (technically and content wise) should be considered during the development and maintenance of the platform.