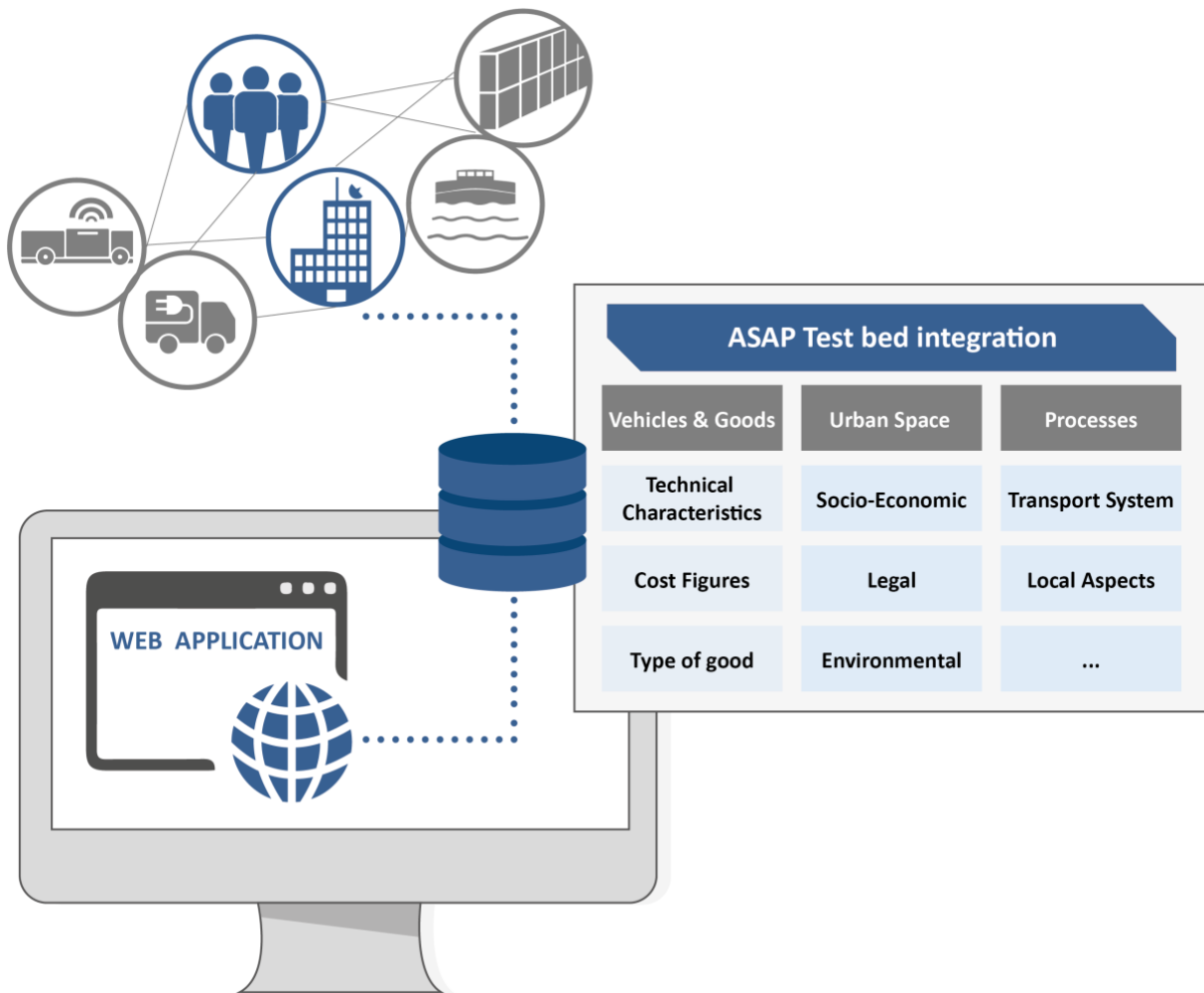


AWAKEN SLEEPING ASSETS PROJECT

Technical requirements and platform concept document



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D4.2: Technical requirements and platform concept document

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Project partners

Organisation	Country
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h2 projekt.beratung KG h2pro	AUSTRIA
Fraunhofer Institut für Materialfluss und Logistik FHG	GERMANY
Freie und Hansestadt Hamburg Behörde für Wirtschaft und Innovation Hamburg	GERMANY
Association pour la Recherche et le Developement des Methodes et Processus Industriels - Centre de Gestion Scientifique ARMINES	FRANCE
L'agence mobile de messagerie ecologique Fluids	FRANCE
Orange S.A Orange	FRANCE
Stockholms stad Stockholm	SWEDEN
Stockholm Vatten och Avfall SVOA	SWEDEN



Document history

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Abbreviations

ASAP *Awaken Sleeping Assets Project*

CSRF *Cross-Site-Request-Forgery*

GDPR *General Data Protection Regulation*

HTTPS *Hypertext Transfer Protocol Secure*

SQL *Structured Query Language*

WCAG *Web Content Accessibility Guidelines*

XSS *Cross-Site-Scripting*

1. Introduction

The purpose of this deliverable is to elaborate the concept and the technical requirements of the planned Awaken Sleeping Assets Project (ASAP) platform. The deliverable is divided into four parts. At the beginning, the technical requirements are explained. Next, the concept of the platform is presented. This is divided into basic and project-specific concepts. Finally, a brief insight into the further steps regarding the implementation of the platform is given.

2. Technical Requirements of the Web-Application

This section describes the essential technical prerequisites that are crucial for the effective operation of the web platform and provides a comprehensive framework for building a resilient and user-centric web platform.

Hosting and Infrastructure:

- A reliable and scalable cloud hosting service capable of handling the projected traffic of 500 clicks per day.
- Server resources should be capable of handling concurrent usage by 50 personas (users) at a time.

Angular 14 Framework:

- The platform should be developed using Angular 14 to take advantage of the latest features and improvements in the framework.

Docker:

- Use a Docker image for deployment.

Responsive Design:

- The platform should be responsive and compatible with various devices, including desktops, tablets, and smartphones.

Caching Mechanism:

- Implement a caching mechanism (e.g., Redis) to reduce server load and improve response times for frequently accessed data.

Security Measures:

- Implement proper security measures to protect against common web application vulnerabilities, such as e.g. Structured Query Language (SQL) injection, Cross-Site-Scripting (XSS), Cross-Site-Request-Forgery (CSRF).
- Ensure secure communication using Hypertext Transfer Protocol Secure (HTTPS) for data transmission.
- Implement user authentication and authorization mechanisms to control access to sensitive data and features for test phase and upload functions.

Performance Optimization:

- Optimize frontend and backend code to ensure fast loading times and smooth user experience.
- Minimize HTTP requests and reduce payload size by compressing assets (e.g., JavaScript, CSS).
- Use lazy loading techniques for components and modules to improve initial page load times.

Scalability and Redundancy:

- Design the platform with scalability in mind to handle potential traffic growth in the future.
- Implement redundancy and failover mechanisms to ensure high availability and minimize downtime.

Monitoring and Analytics:

- Integrate monitoring tools to track server performance, identify bottlenecks, and proactively address issues.
- Implement analytics to gather insights into user behaviour and platform usage.

Testing and Quality Assurance:

- Conduct thorough testing, including unit testing, integration testing, and end-to-end testing, to ensure the platform functions are as expected and free from critical bugs.

Data Backup and Recovery:

- Regularly backup the platform's data and ensure the ability to recover the system in case of data loss or failures.

Accessibility:

- Ensure the platform is accessible to users with disabilities, adhering to accessibility guidelines (e.g., Web Content Accessibility Guidelines (WCAG)).

Version Control:

- Use version control systems like Git to manage and track changes to the codebase.

Documentation:

- Maintain comprehensive documentation that covers installation, setup, and development guidelines for the platform.

Legal Compliance:

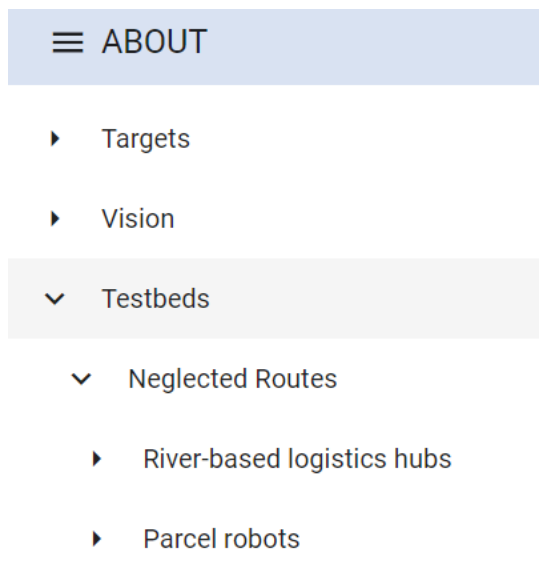
- Ensure compliance with relevant data protection and privacy regulations (e.g., General Data Protection Regulation (GDPR)) if applicable to the platform's users.

3. Platform Concept

3.1. Basic User Experience Concept for Web-Application

This section introduces fundamental user experience principles that form the basis for shaping the design and operational aspects of the web application. Within this context, the section delves into strategic methodologies meticulously developed to ensure a browsing experience that seamlessly harmonizes with user requirements, placing them at the focal point of the digital interaction.

Drop down navigation menu:



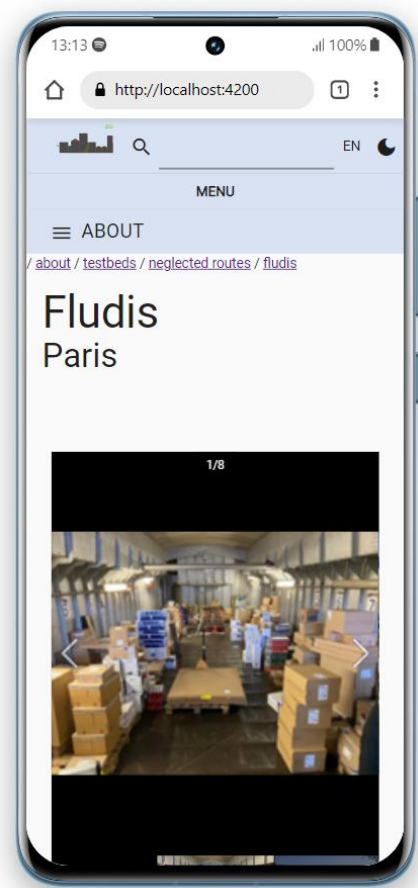
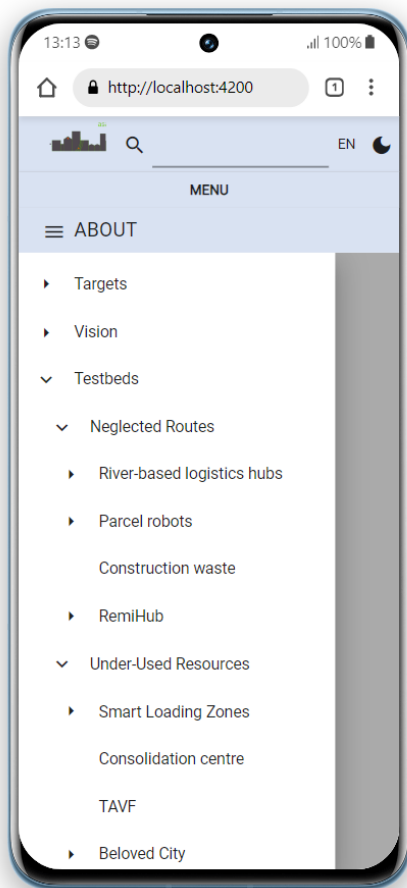
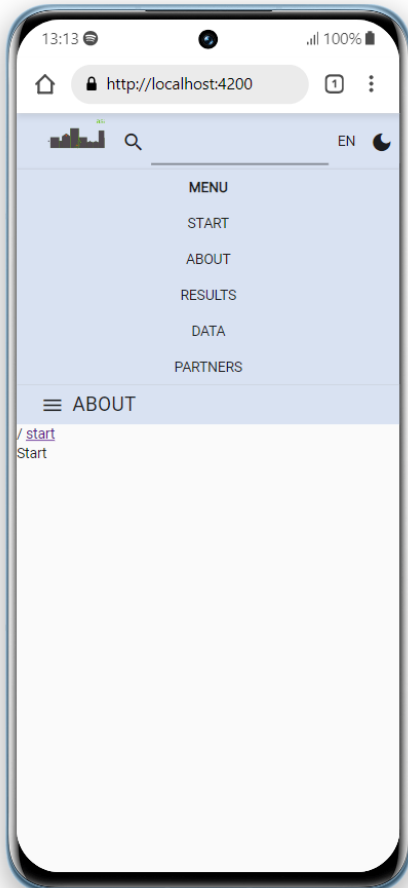
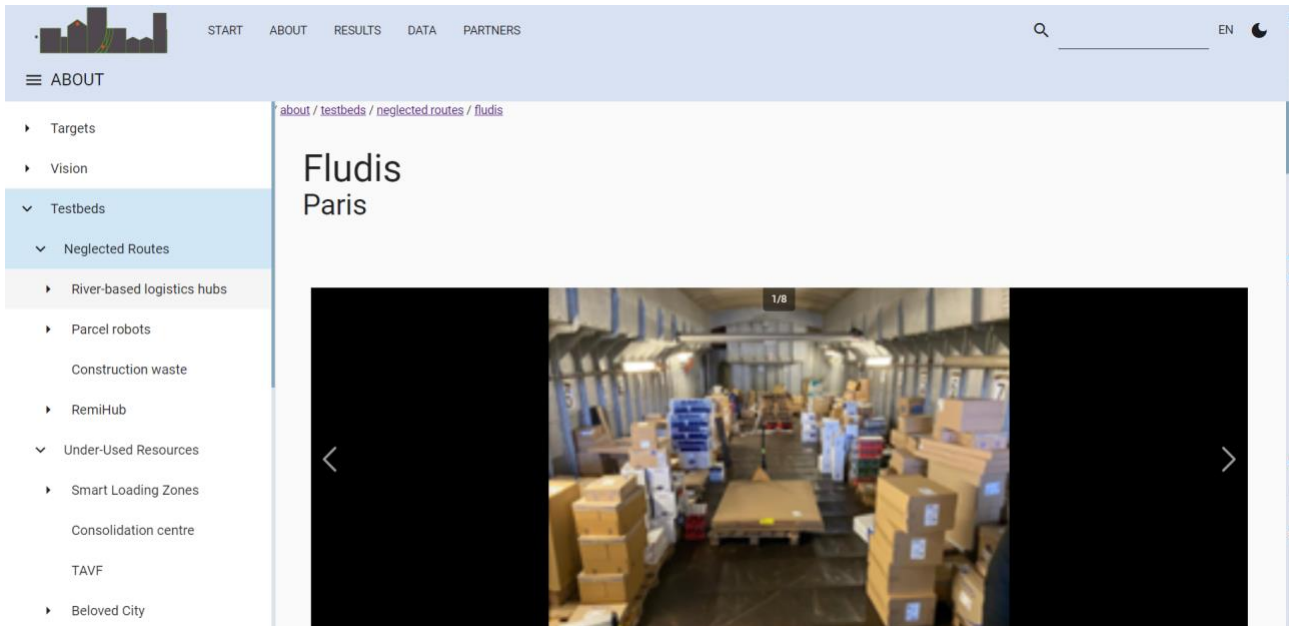
For increased usability by organizing and presenting a hierarchical structure of website sections and content. When users hover or click on a parent link, a dropdown menu expands to reveal subcategories or related pages, providing easy access to relevant content without cluttering the main page.

Clickpath for better orientation and operability:



Clickpath, also known as breadcrumb navigation, is a visual representation of the user's path within a website. It displays the sequence of pages or steps the user has followed to reach their current location and provides users with a clear understanding of their location within the website's structure. It thus reduces disorientation and improves navigation efficiency. Users can easily backtrack to previous pages or levels in the website's hierarchy, as well as grasp the relationship between different pages, which is helping them comprehend the context of the current content.

Responsive design and accessibility (compare with accessibility in technical requirements)



Search Engine to allow searching for key points on the whole website:

Enables users to find specific information quickly and efficiently or key points throughout the entire website. The search functionality appears as a text input box, where users can enter the keywords, they are seeking. Upon submission, the search engine retrieves relevant results and presents them in a user-friendly manner.

3.2. Project Specific Platform Concept

Within this section, a specialized platform concept is introduced, meticulously crafted to synchronize with the distinctive attributes of the project ASAP. Furthermore, the section offers insights into the elaborated results of a collaborative partner workshop which took place to gain deeper insights into the intentions and aspirations of stakeholders involved in the project.¹

General Content:

The “About menu” will serve as a comprehensive source of information, offering insights into the projects vision and targets. Users will have access to a detailed overview of various testbeds, organized into the distinct categories neglected routes, under-used resources, and idle and new infrastructure.

Moreover, the platform will provide valuable insights on goods and areas, as well as the integration of SDGs that relate to the testbeds examined in ASAP.

Users can expect a well-structured data section, where they can access details about the scientific methods employed and the basis data used.

Workshop to investigate Stakeholder Intention:

Method: Domain Story Telling

- Involving stakeholders (from different institutions) from the project to ask for functionality and design wishes of the platform regarding their role (municipality, company, research)
- Stories that were told are translated into requirements to structure the platform
- Platform is now designed with different entries so that the user is led directly to the most relevant information and content regarding its role (all content is available for all roles but it is shown differently)

A decision tree for a more structured entry on the platform:

¹ For detailed information, please refer to Deliverable “D4.1: Stakeholder preferences and requirements report”

- E.g.: I am a municipality → My city has problems with pollution → I want to inform me about last mile delivery with zero emission vehicles → Projects with this focus are shown
- The platform can tailor the user experience based on the individual's role and preferences. By offering different entry points, users can access content or features that are most relevant to them, leading to a more personalized and engaging experience.
- For users who may be less familiar with the platform or the subject matter, the decision tree offers valuable guidance and support, assisting them in navigating and accessing information more effectively.

4. Next Steps

The platform's progression will unfold systematically: The initial prototype, complete with a functional menu and a brief description of every trail, will be developed and tested. It will be temporarily and securely hosted on a server using a Docker image, with access exclusively granted to project partners.

The subsequent phase involves incorporating the decision tree, offering users tailored entry points. Partners will then provide feedback, refining the platform's user experience. Moving forward, iterative releases of the platform with new content regarding the projects results will be introduced, each informed by partner feedback. This iterative process will continue until the project's conclusion.

In summary, the platform's advancement involves a structured approach encompassing prototype development, secure hosting, decision tree and content integration, partner feedback, and iterative enhancements. This progression ensures the platform aligns with project requirements and user preferences, resulting in a responsive and adaptable resource.

How the platform will be hosted and continued after the end of the project is currently still open. The project team is contacting various existing European institutions hosting already platforms to enable integration of the proposed ASAP platform.