Interreg CENTRAL EUROPE
European Union
European Regional Development Fund
4STEPS

TRANSNATIONAL TOOL OF INNOVATIVE SERVICES

Deliverable D.T3.8.3

Final Version
02/2022

Project Number	CE1492
Project Name	Towards the application of Industry 4.0 in SMEs
Project Acronym	4STEPS
Work package	WPT3 – The Digital Innovation Hubs in action
Activity	Activity A.T3.8
Deliverable	Deliverable D.T3.8.3
Responsible project partner	Vorarlberg University of Applied Sciences (FHV)
WP responsibility	Vorarlberg University of Applied Sciences (FHV)
Dissemination Level	Public
Date of Preparation	02/2022
This document must be referred to as	Deliverable
Author	Dr. Florian Maurer, David Hutter, MSc
Contributors	Viktoriia Simakova, Mario Ströhle, Dr. Steffen Finck, Dr. Michael Hellwig, Prof. (FH) Dr-Ing. Jens Schumacher

Contents

Executive Summary/Management Summary

The 4STEPS project is addressing the main challenge of Industry 4.0 (I4.0) as a tool towards a new, digital industrial revolution holding the promise of increased flexibility in manufacturing, mass customization, increased speed, better quality, and improved productivity and its development is supporting the RIS3 in the target regions in the different sectors. SMEs in the target regions are lagging in the adoption of innovative tools and solutions proposed by the I4.0 revolution and need to increase transnational collaboration in facing this challenge. Within the 4STEPS project, six Digital Innovation Hubs in six Central Europe countries have been designed and developed. Each Digital Innovation Hub acts as a knowledge and competence center for the stakeholders in Central Europe and offers a broad repertoire of services. Furthermore, the Digital Innovation Hubs are interconnected and thus enlarge its service portfolio by cooperation and collaboration. These synergies have positive effects on the project stakeholders, which can benefit from international competencies and skills.

Within this activity (deliverable report A.T3.8) a transnational tool has been developed. This tool act as a service wiki about designed and developed Digital Innovation Hubs and allows to identify of the best services provided within the conducted pilot studies.

1. Introduction & initial situation

This report at hand is a supplement to the deliverable D.T3.8.3: a transnational tool of innovative services. The implemented tool is a web application, which presents information about the different Innovation Hubs, including their offered services.

1.1. Initial situation: work package description

Work package 3 is based on the previous results (T1, T2) enabling the project partners to identify intervention models and related operative plans, in which co-design and open innovation will be the main behavior models and facilitated by the development of an integrated system of competencies within the DIHs. In T3, under the coordination of Vorarlberg University of Applied Sciences, the partners will test a set of actions included in the Transnational Action Plan, according also to the catalog (T1) and the TAP (T2). The pilot will be implemented by the Digital Innovation Hub and will also test the innovation of skills acquired by the workers and citizens involved.

1.1.1. Pilot Italy:

In Italy, the LP will collaborate with the PP2 for the development of a pilot focused on innovation and research, training and skills, innovative financing and credit, internationalization.

1.1.2. Pilot Poland:

In Poland 2 an investment of 2 pcs of robotic arms (exceeding € 15.000), which will constitute a simple technologic line, will serve as a training facility for those who want/need to upgrade their engineering skills. Combining 2 pcs together is a simulation of the real technology line, where multiple operations are performed by different robots and machines.

1.1.3. Pilot Austria:

In Austria, the pilot will set up a prototype of a smart service factory of the future. For this, PP4 will integrate its I4.0 laboratories including its socio-technical resources, internal and external project stakeholders to develop cyber-physical smart/intelligent production artefacts. This cyber-physical system integrates the resources of the customer, people (quadruple helix participants, employees), information, and technology and considers their particular needs and requirements to the set-up of and to simulate an automated smart service factory of the future.

1.1.4. Pilot Czech Republic:

In the Czech Republic, the DIH will manage educational managers' workshops, rapid prototyping workshops for SMEs in different sectors, and a quadruple helix lab.

1.1.5. Pilot Hungary:

In Hungary, the pilot is focused on a detailed analysis of the companies -out of the T1 results- how they reacted to the crisis.

1.2. Initial situation: deliverable description

A tool will be developed to identify the best services provided within the pilots to be transferred among all the DIH and beyond.

2. Technical infrastructure

The website is hosted on the EU version of PythonAnywhere (https://eu.pythonanywhere.com) under the domain http://4stepsservices.eu.pythonanywhere.com/. PythonAnywhere offers a free user account for restricted resources and automated termination for inactive applications, which is sufficient to run the developed web application.

The website is developed using the web framework “Flask” with Python 3. To manage the collected comparison data, the SQL toolkit SQLAlchemy is used to store the data in a small SQLite database. The database is small enough to also be hosted on PythonAnywhere’s provided file storage. The stored data include the comparison data for each pairing of services and the ratings on the different Innovation Hubs.

The rest of the operations of the application are handled within the provided file storage and handled with Python scripts.

3. Structure

The website is structured into 6 different segments:

- Home
- About
- Service Wiki & Guidelines
- Service Evaluation
- Service Needs
- Hubs Overview

3.1. Home

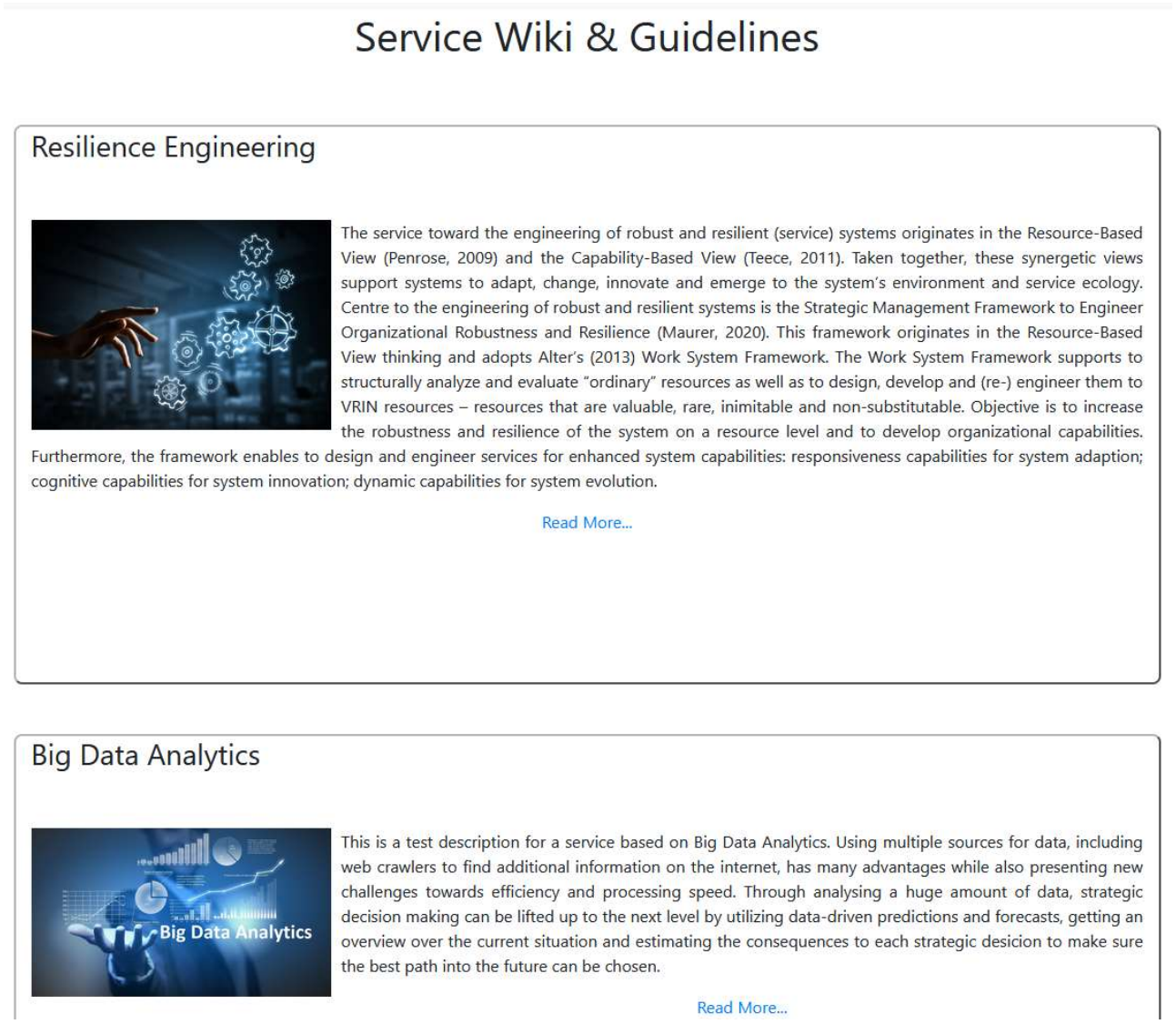
The "Home" section simply redirects the user to: https://www.interreg-central.eu/Content.Node/4STEPS.html. The link opens in a new tab to make it easier for the user to return to the website.

3.2. About

The "About" section presents a small overview of the websites' purpose, the data processing, the usage of cookies, and the copyright concerning the content of the website. It also contains an explanation of the 4STEPS project and provides a link to all involved project partners.

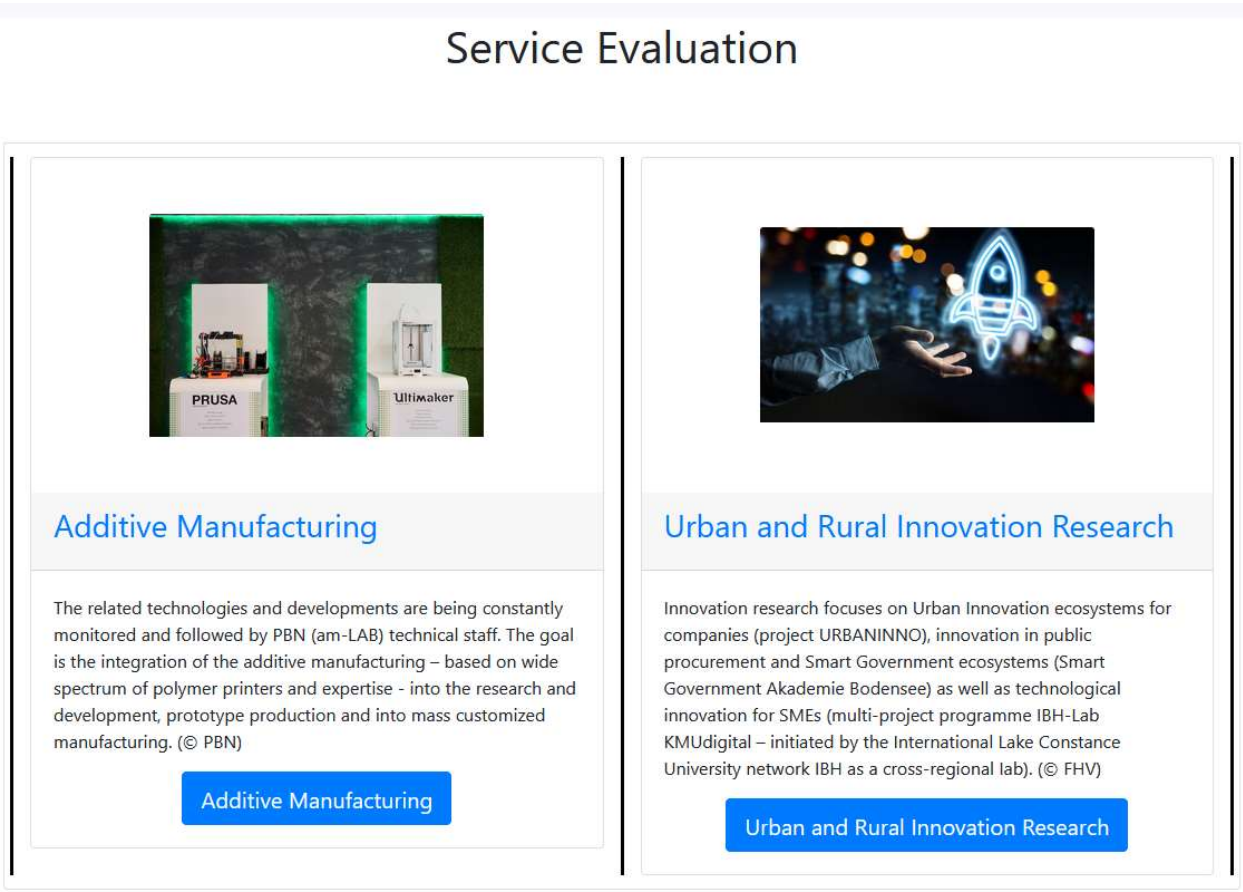
3.3. Service wiki & guidelines

The "Service Wiki & Guidelines" section contains an overview of the different service categories, providing a short description of each category and providing a link to subpages. The subpage of each service category lists the different services of the selected category. For each service offered by one of the Innovation Hubs, a description and the contact information of the respective Innovation Hub are provided.



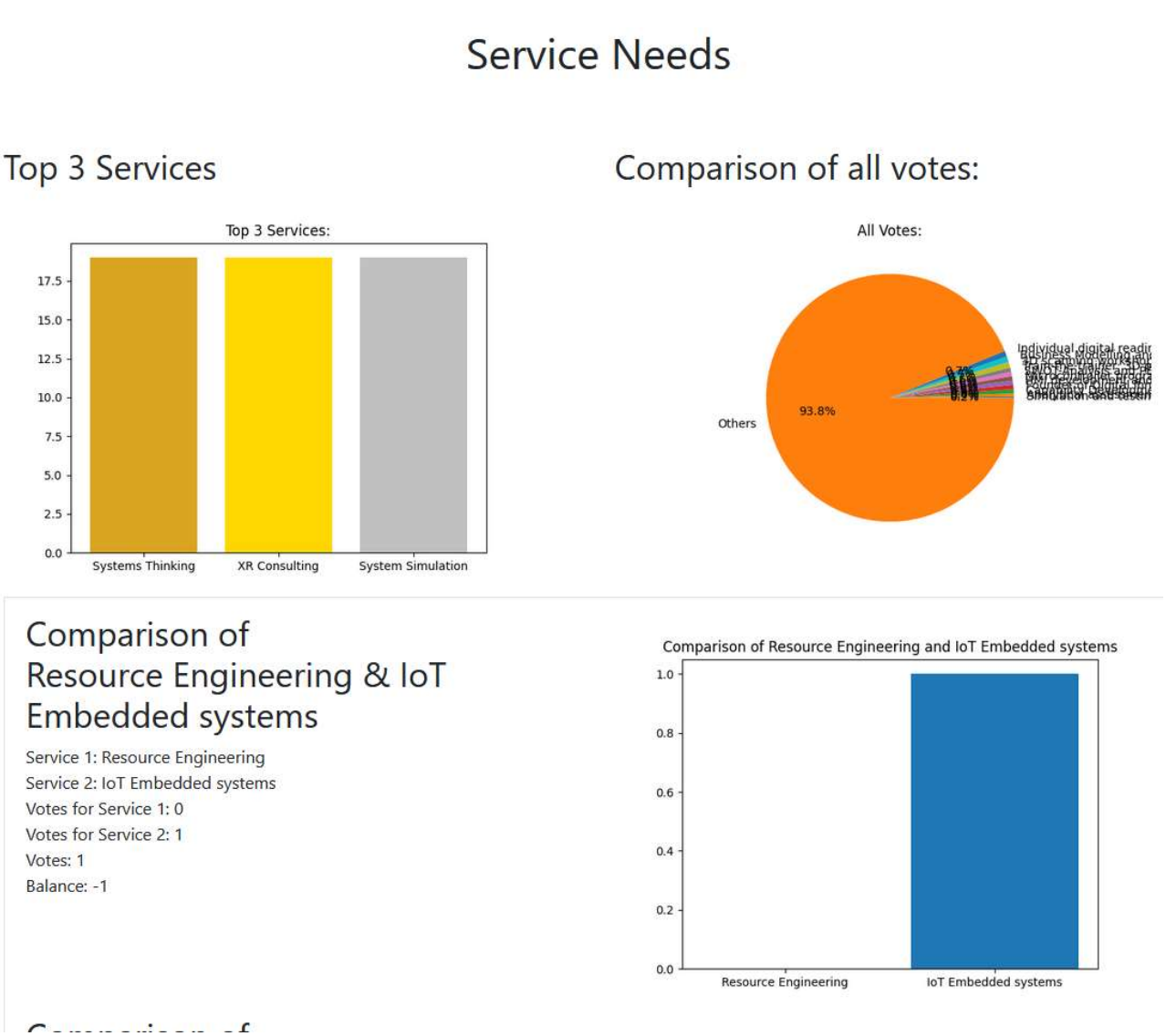
3.4. Service Evaluation

The "Service Evaluation" section allows the user to compare individual services with each other and pick whichever of the two presented services are preferred by the user. The votes on the comparisons are collected anonymously and stored. For the comparison, two randomly picked services are described to the user. The user can either take a closer look at the service by clicking the name of the service or vote for one of the two compared services by clicking the button below the service description. Every time the user votes for one of the services, two new services are randomly selected to be compared with each other, until all services have been compared or the user stops/leaves the section.



3.5. Service Needs

The “Service Needs” section presents the collected voting data of the service comparisons, showing the 3 services with the most votes, an overview of the vote distribution, and a direct comparison for each service pairing. For each pairing, the given balance shows if Service 1 or Service 2 was favoured, a negative number indicating Service 2 was favoured with n votes over Service 1, whereas a positive balance value means Service 1 was favoured over Service 2 with n votes. The votes for each Service are also shown using a bar plot and by displaying the actual amounts of votes for each service and the number of times the comparison has been made by a user.



3.6. Hubs Overview

The “Hubs Overview” section contains information about all contributing Innovation Hubs and allows the user to rate each Hub on the categories:

- Innovativeness
- Technology Support
- Human-Centricity
- Sustainability
- Resilience for Industry

Each rating of the user gets added to the total rating of each hubs category.

4. Conclusion

This report is a summary of the output of deliverable D.T3.8.3: Transnational tool of innovative services. It is a supplement to the implemented PythonAnywhere site, accessible via: http://4stepsservices.eu.pythonanywhere.com/