AI REDGIO 5.0
Project overview

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Funded by the European Union

HORIZON-CL4-2022-TWIN-TRANSITION-01-06: ICT Innovation for manufacturing Sustainability in SMEs (I4MS2)

Made In Europe Partnership – Innovation Action (IA)
TRL 5 to 7

I4MS2 builds on I4MS and addresses more significantly a sustainable and resilient production. In this context, I4MS2 calls for Innovation Action projects that will support European SMEs and mid-caps to innovate and make more sustainable their products, production processes and business models through experimentation and testing. Proposals should describe their complementarity to existing initiatives, namely the network of European Digital Innovation Hubs.

The following **technology areas** should be addressed in proposals:
- Artificial Intelligence applied to manufacturing, with a specific focus of AI applications at the edge;
- Cybersecure Industrial Internet of Things enabling trustworthy sharing of industrial data and value creation, to achieve further flexibility and agility of supply chains;
- Advanced interfaces and collaboration within smart working environments such as collaborative robots.

AI REDGIO 5.0 figures

AI REDGIO 5.0 PROJECT

Regions and (E)DIHs alliance for AI-at-the-Edge adoption by European Industry 5.0 Manufacturing SMEs

Coordinator: Politecnico di Milano
Duration: 36 months (2023-2025)
EU contribution: € 7 462 614 (total costs € 9 363 060)

43 partners from **18** Countries
15 Vanguard Regions:

- **22** EU leading edge **Regional Representatives**
- **13** EU leading edge **Technology Providers** (10 SMEs Midcaps)
- **7 Industrial Cases** SMEs or MIDCAPs

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Why it is important?

EDIH Catalogue
Direct connection with EDIH4MANU network

The European Digital Innovation Hubs will form part of a large network and **collaborations will be one of the main keys they will have to better support SMEs** and the public sector by taking advantage of the experience and knowledge of other hubs.

Depending on their characteristics (sector, technology, geographic location), several **EDIHs may work together in a structured way**, in order to jointly develop common services or provide a package of innovative services in a way that aligns with the objectives and needs of the companies. concerned parties.

For this reason, define ways EDIHs can collaborate, is essential to offer the best support to stakeholders.

METHODIH: Main pillars

SERVICE PIPELINES
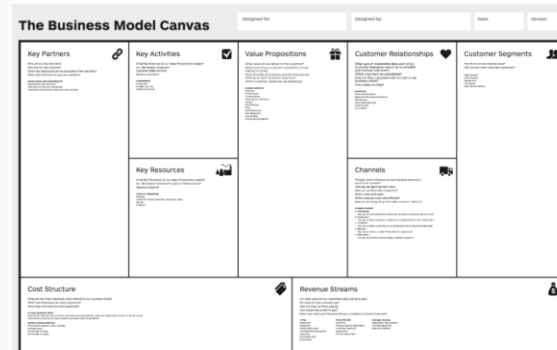Tool to match service offering and customer needs
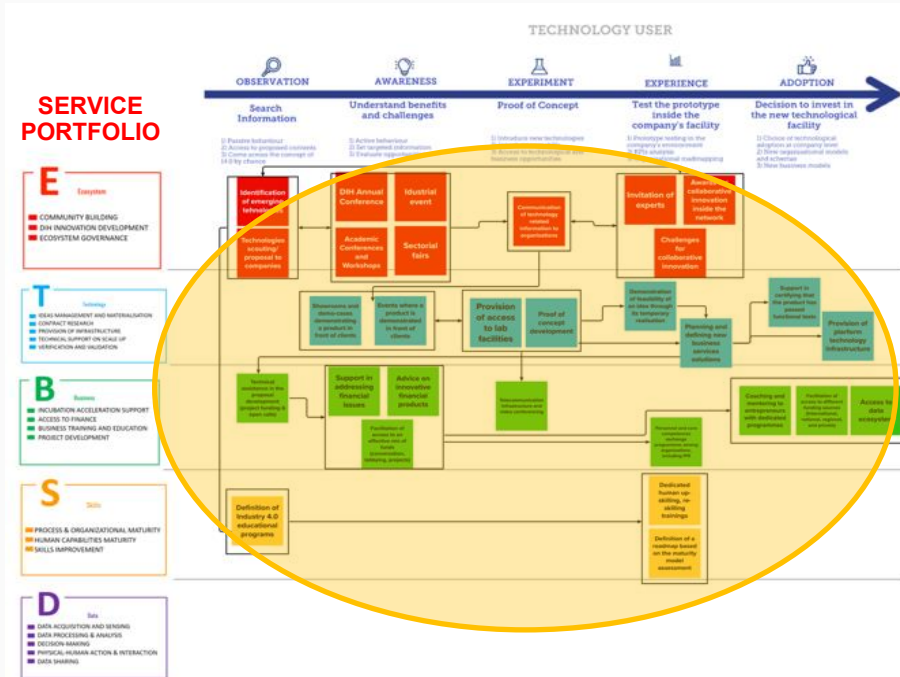
CUSTOMER JOURNEYS
To analyse the DIH customer base, to identify main barriers and needs

METHODIH – Methodology for DIHs
Set of methods and frameworks defined to create common standards among DIHs

BUSINESS MODEL
To describe the DIH business, as a multi-stakeholder and no-profit organisation.

To describe the DIH offering according to a structured framework

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The **DIH4Industry** marketplace will be enhanced through **AI REDGIO** project with specific **services** and **solutions** for **AI-at-the-edge**.

The **DIH4INDUSTRY** Market Platform

Services, **expertise** and **knowledge exchange** within a network of **Manufacturing Digital Innovation Hubs**.

A single access point for DIH practitioners and policy makers to identify which EC DIHs are active in the Manufacturing domain, where they are located, which experiments they are supporting and which services they are providing for the Digital Transformation of EU Manufacturing Industry.

Ecosystem

A central hub for all DIHs network focused on Industry 4.0.

Marketplace

A showcase of D-BEST (Data, Business, Ecosystem and technology) services made available by DIHs for their SMEs digitalization support.

Community

A collaborative environment (powered by DIHIWARE) which DIHs may use for fostering the creation of new innovations by forming new projects and supporting the networking among the DIH members.

Powered by
DIHIWARE
DIGITAL COLLABORATION HUB

dih4industry.eu
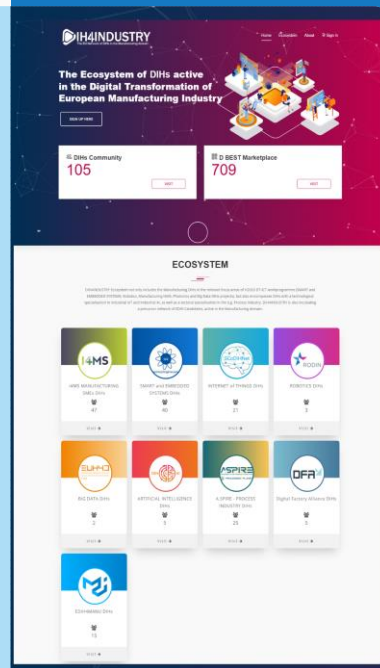
In order to show and exploit the benefits of applying Artificial Intelligence in Manufacturing, three types of experiments will be conducted:

- TEchnology and REgulatory SAndboxes (TERESA) experiments in the Didactic Factories of 14 Regions;
- SME-driven experiments in selected 7 Regions by project's partners;
- 20 additional SMEs-driven experiments as outcome of the 1.2M two waves of Open Calls, with a 60k each funding.

All of them are supervisioned and coordinated by a common methodology and by a shared framework for defining and measuring KPI.

A **SME-driven experiment** is the demonstration of the development and implementation of an **AI-based solution in a real industrial environment**. It is driven by the collaboration among a technical provider who collects the needs and develops the AI solution and an industrial company who explains the current AS-IS scenario and demonstrates the feasibility of the adoption of the solution. The beneficial impact of the use of AI will be evaluated through the monitoring of specific Key Performance Indicators (KPIs).
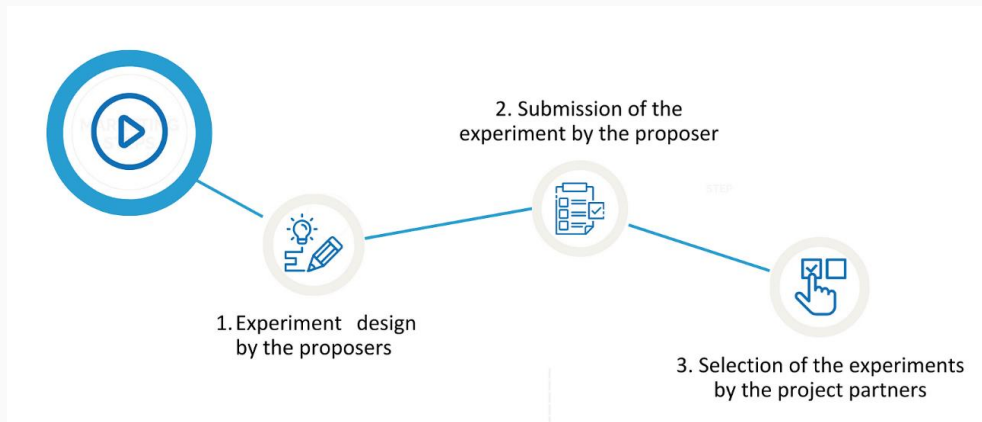
1 REAL TIME MONITORING FOR CONTROL & DETECTION OF PRODUCTION **(IT)**

2 AI AND DTWINS FOR AGILITY IN MOULD MAKING **(FR)**

3 AI-BASED AUTONOMOUS MACHINE FOR SAFER FASTER AGRICULTURE **(IT)**

4 PREDICTIVE MAINTENANCE AND ZERO-DEFECT PRODUCTION OF MOULDS **(SL)**

5 AI-ENABLED DIGITAL TWINS FOR VIRTUAL COMMISSIONING **(ES)**

6 INTELLIGENT CONTEXTUALISED VISUAL SYSTEM FOR ERROR REDUCTION **(UK)**

7 QUALITY ASSURANCE OF CLOTHING PRODUCTION **(RO)**

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With the aim of **expanding the AI REDGIO 5.0 ecosystem**, the project foresees two different Open Calls to finance **20 additional experiments**. This represents a huge opportunity for **SMEs and small mid-caps** to participate in the process of Digital Transformation of Industry 5.0, receiving **complementary funding for the full implementation of their experiments**.

1. Experiment design by the proposers

2. Submission of the experiment by the proposer

3. Selection of the experiments by the project partners

The **first Open Call** will be launched at **December 2023** to support 10 SME-driven experiments. The call will be open for 4 months, while experiments should be completed in 6 months.

A **Didactic Factory (DF)** offers **training and education** and perform test activities and experimentations, creating awareness and disseminating beneficial effects of the application of innovative digital technologies (i.e. Artificial Intelligence) in manufacturing applications. In AI REDGIO 5.0, the Didactic Factory experiments will focus on **TEchnology and REgulatory SAndboxes (TERESA)**.

A selection of innovative AI applications/tools/services for human-machine interaction will be tested/experimented on a limited scale and in a secure and controlled way, according to the "test before invest" paradigm (**technical sandbox**).

The experiments will involve volunteers to test such solutions in real regulatory conditions in a gradual way before going to the Industrial plants, pursuant to a specific testing plan agreed and monitored by the competent authority (**regulatory sandboxes**). This will allow to better understand the relevant regulatory and ethical issues and to better assess the viability of such innovative tools, in particular in terms of their application of and compliance with regulatory, ethical and supervisory requirements.

What is a TERESA?

"**Technical and Regulatory Sandbox**" for AI, enabling a testing environment for innovative human-machine interaction products and services, where ethical challenges and shortcomings of the regulatory framework concerning such products and services can be addressed

Experiments running on a limited scale and in a secure and controlled way, according to the "test before invest" paradigm (Technical Sandbox), with the involvement of volunteers (representing the Civil Society dimension within the sandbox) to test such solutions in real regulatory conditions in a gradual and controlled way before going to the Industrial plants, pursuant to a specific testing plan agreed and monitored by the competent authority (Regulatory Sandboxes)

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WISE implications: Legal and Ethical issues tested in AI REDGIO 5.0 TERESA

- **W**ell-being, Comfort and Acceptance
- **I**nclusion and special categories of workers
- **S**afety of the worker
- **E**rgonomics and improving working conditions

Well-being, Comfort and Acceptance	Inclusion and special categories of workers	Safety of the worker	Ergonomics and Improving working conditions
• Impact on mental well-being and self-esteem, frustration, feeling of usefulness, emotional dependence and overconfidence on the machine, human dignity, autonomy and oversight, concerns/willingness in collaborating with a machine	• effects on older workers, effects on novices, effects on workers with cognitive or physical disabilities/impairment, social isolation, risk of discrimination/bias	• Health and Safety of the workers, risks of harm, privacy,…	• ergonomics, stress reduction, fatigue reduction, effects on workers' skills

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THANKS

Does anyone have any questions?

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