**EFFRA – European Factories** of the Future Research Association

**Stakeholder Webinar** MiE Work Programme 2025-27

23 May 2023 -**Excellence** in manufacturing **Environmental Sustainability in** Manufacturing





#### MADE **IN EUROPE**

# Agenda 23 May 2023

12h45 - 13h15

Welcome by EFFRA and the European Commission

Made in Europe Work Programme(s) 25-27 - where we stand

13h15 - 15h00

- The overall set of proposed priorities (consultation document)
- Proposed priorities from the perspective of excellence in manufacturing
- Proposed priorities from the perspective of environmental sustainability in manufacturing
- Examples of past and ongoing projects
- Introduction to the modalities of the consultation
- Q & A



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## **European Commission** B **Member States**



**Factories of the Future** Public Private Partnership

2010-2020



2021-2027





## **European Factories of the Future Research** Association

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# **European manufacturing industry vision**

 "Ensuring competitiveness & sustainability and supporting resilient and adaptive manufacturing ecosystems, able to cope with external disturbances and rising environmental and social requirements"

- "Europe to be the leading 'solution provider' in production technology, digitalisation, resource efficiency and circular economy implementation."
- "Europe to be the most attractive region for producing sustainable high-added value goods and services"

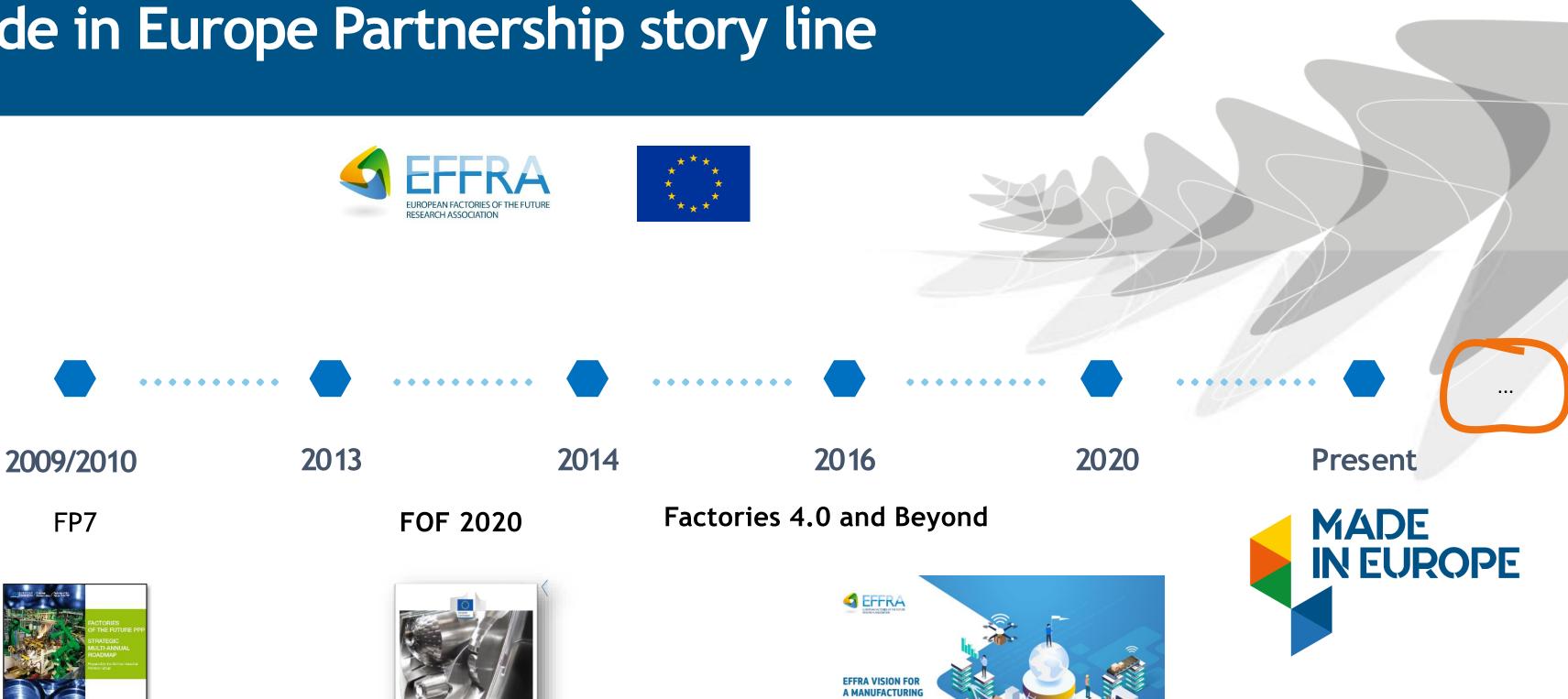


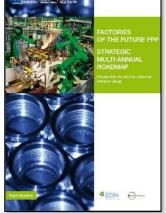
**Political Focus:** 

- **Resilience of European Industry**
- Strategic autonomy of European Industry Environmental sustainability of Europe
- Industry



## Made in Europe Partnership story line







PARTNERSHIP IN **HORIZON EUROPE** 





#### **MiE General objectives**

## MADE IN EUROPE SRIA

#### Manufacturing competitiveness

Leadership & manufacturing excellence, generating new products and new markets

#### **European Green Deal**

*Circular and climate-neutral manufacturing* 

## An Economy that Works for People and SMEs

Attractive value added manufacturing jobs

#### A Europe Fit for the

#### **Digital Age**

Digital transformation of manufacturing industry, trusted and robust

#### **MiE Specific Objectives**

- Excellent, responsive and smart factories & supply chains
- Circular products & Climateneutral manufacturing
- New integrated business, product-service and production approaches; new use models
- Human-centered and humandriven manufacturing innovation

#### **MiE Key Technologies and Enablers**

- Advanced smart material and product processing technologies, and process chains
- Smart mechatronic systems, devices and components
- Intelligent and autonomous handling, robotics, assembly and logistic technologies
- De-manufacturing, recycling technologies, and life-cycle analysis approaches
- Simulation and modelling (digital twins) covering the material processing level up to manufacturing system, and factory and value network level from design until recycling.
- Robust and secure industrial real-time communication technologies, and distributed control architectures and standardized equipment protocols
- Data analytics, artificial intelligence, machine learning and deployment of digital platforms for data management and sharing
- New business and new organisational approaches, including links with regulatory aspects such as safety, data ownership, and liability
- Skilled workforce
- Standards



## **Call 2021**

CL4-2021-TT-01-01: AI enhanced robotics system for smart manufacturing (IA)	CL4- prod
CL4-2021-TT-01-02: Zero-defect manufacturing towards zero-waste (IA)	CL4- func
CL4-2021-TT-01-03: Laser-based technologies for green manufacturing (RIA)	CL4- cont
CL4-2021-TT-01-05: Manufacturing technologies for bio-based materials (RIA)	CL4- hanc
CL4-2021-TT-01-07: Artificial Intelligence for sustainable, agile manufacturing (IA)	CL4- Man (IA)
CL1_2021_TT_01_08. Data_driven Distributed Industrial	

CL4-2021-TT-01-08: Data-driven Distributed Industrial Environments (IA)



CL4-2022-TT-01-07: Digital tools to support the engineering of a Circular Economy (RIA)

## **Call 2022**

-2022-TT-01-01: Rapid reconfigurable duction process chains (IA)

-2022-TT-01-02: Products with complex ctional surfaces (RIA)

-2022-TT-01-03: Excellence in distributed ntrol and modular manufacturing (RIA)

I-2022-TT-01-04: Intelligent work piece Idling in a full production line (RIA)

-2022-TT-01-06: ICT Innovation for nufacturing Sustainability in SMEs (I4MS2)



## **Call 2023**

CL4-2023-TT-01-02: High-precision OR complex product manufacturing – potentially including the use of photonics

CL4-2023-TT-01-04: Factory-level and value chain approaches for remanufacturing

CL4-2023-TT-01-07: Achieving resiliency in value networks through modelling and Manufacturing as a Service

CL4-2023-TT-01-08: Foresight and technology transfer for Manufacturing As A Service





## **Call 2024**

CL4-2024-TT-01-01: Bio-intelligent manufacturing industries

CL4-2024-TT-01-03: Manufacturing as a Service: Technologies for customised, flexible, and decentralised production on demand

CL4-2024-TT-01-05: Technologies/solutions to support circularity for manufacturing



Structured Wiki / MiE SRIA R&I Priorities

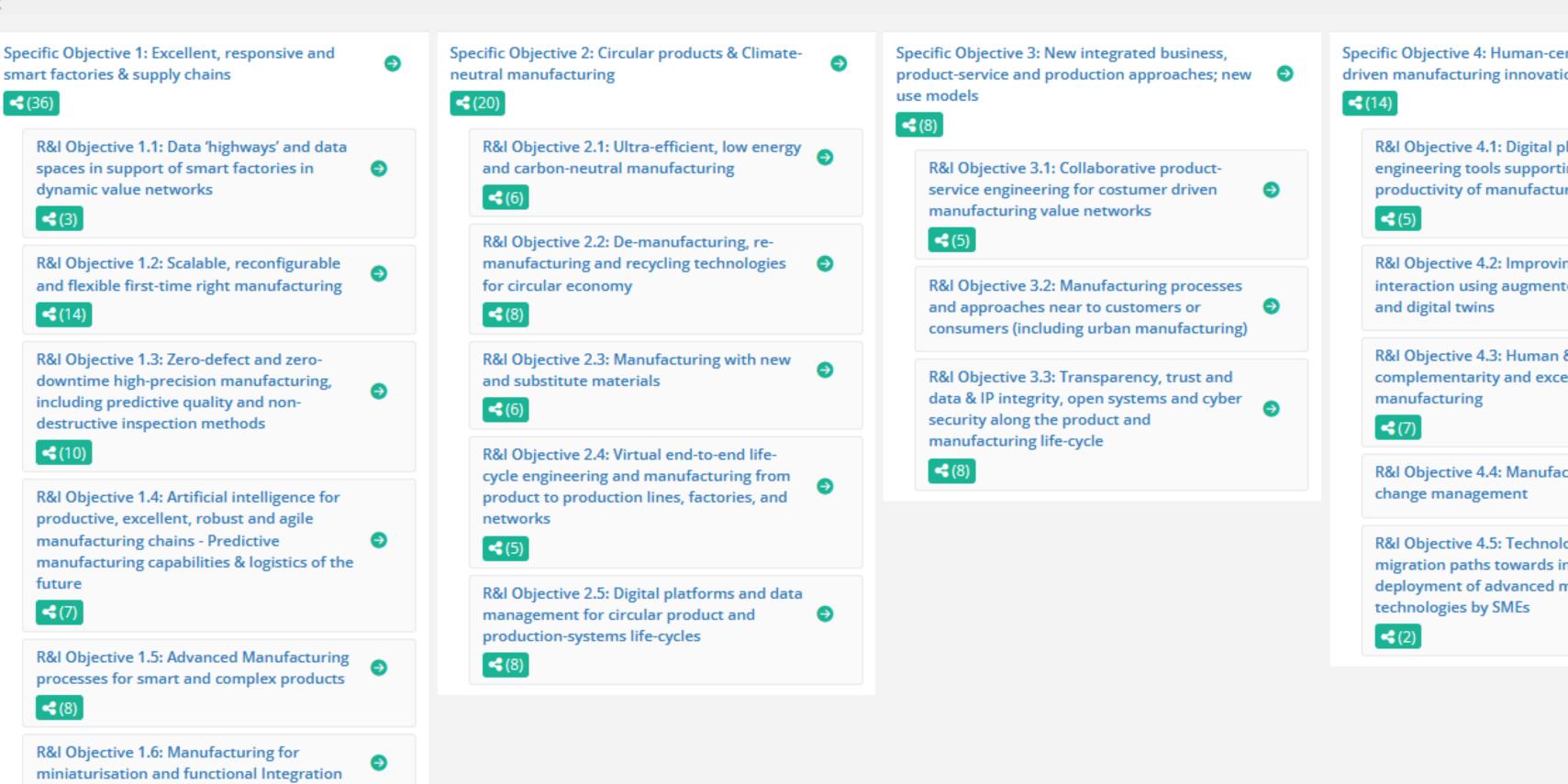
#### MiE SRIA R&I Priorities

Mapped projects (49)

< (9)

## Portfolio analysis - allocation of MiE call topics to SRIA R&I Objectives





Specific Objective 4: Human-centered and humandriven manufacturing innovation

R&I Objective 4.1: Digital platforms and engineering tools supporting creativity and productivity of manufacturing development

R&I Objective 4.2: Improving human device interaction using augmented and virtual reality

Θ

R&I Objective 4.3: Human & technology complementarity and excellence in

R&I Objective 4.4: Manufacturing Innovation and

R&I Objective 4.5: Technology validation and migration paths towards industrial deployment of advanced manufacturing

## Made in Europe and inclusive productivity: doing better (creating more added value) with less

- **Excellent productive** and **flexible** Manufacturing automation for open strategic autonomy
- Sustainable value network resilience and competitiveness through robust and flexible production technologies
- Recovering and preserving the European  $\bullet$ leadership in strategic and high value-added products
- **Circular, connected** manufacturing **ecosystems**
- The next level of circular economy through  $\bullet$ scalable, highly productive and zero-defect remanufacturing technologies
- Manufacturing with new/limited raw materials availability
- Solutions for **energy-efficiency** for realising netzero discrete manufacturing processes and value chains



- Quick response service deployment for maintaining optimal manufacturing operations using trusted AI and digital twins
- Life-cycle management of manufacturing solutions and associated services for flexible, productive and sustainable manufacturing industry
- Data spaces and cloud/edge solutions for responsive and robust manufacturing
- **Digitally enabled compliance and integration** of innovative manufacturing solutions
- Understanding the transformation of the factory work and organisation
- Physical and cognitive augmentation of human capabilities for inclusive and socially sustainable manufacturing
- Digitally enabled upskilling, qualification and job transformation

**Bio-intelligent** Manufacturing



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- Unders factory
  - Physica capabil sustain



## Quick response service deployment for maintaining optimal manufacturing operations using trusted AI and digital twins



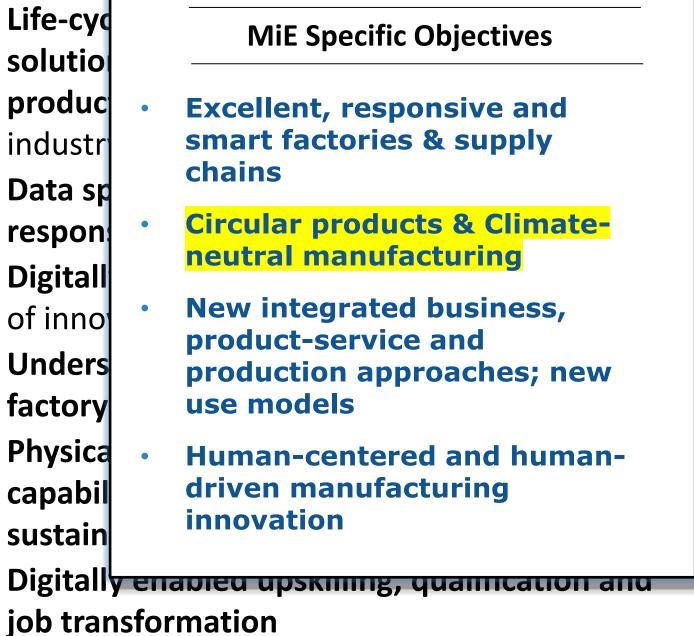
## Made in Europe and inclusive productivity: doing better (creating more added value) with less

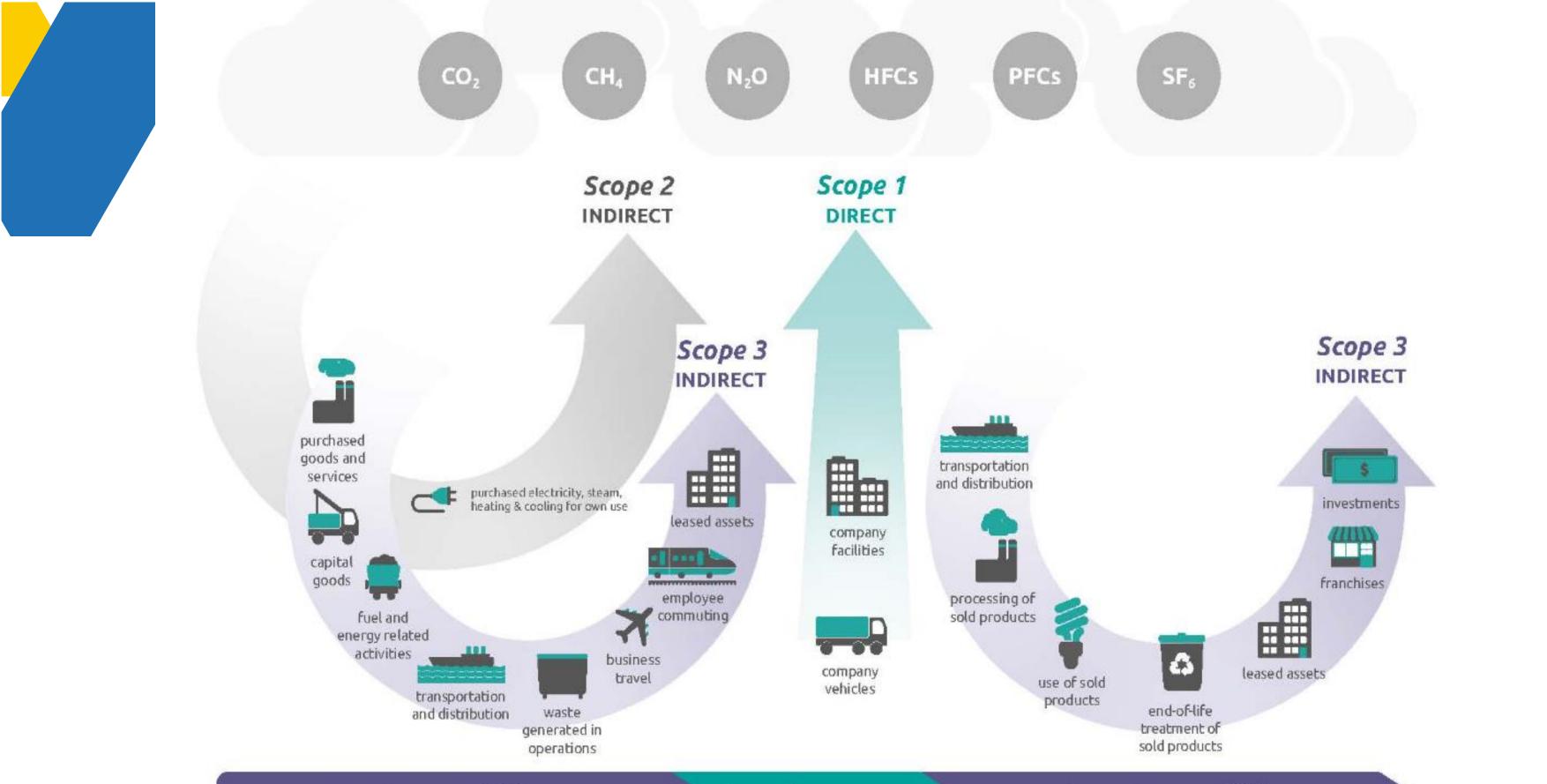
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### Quick response service deployment for maintaining optimal manufacturing operations using trusted AI and digital twins





Upstream activities

Reporting company





Source: <u>https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard\_041613\_2.pdf</u>

Downstream activities



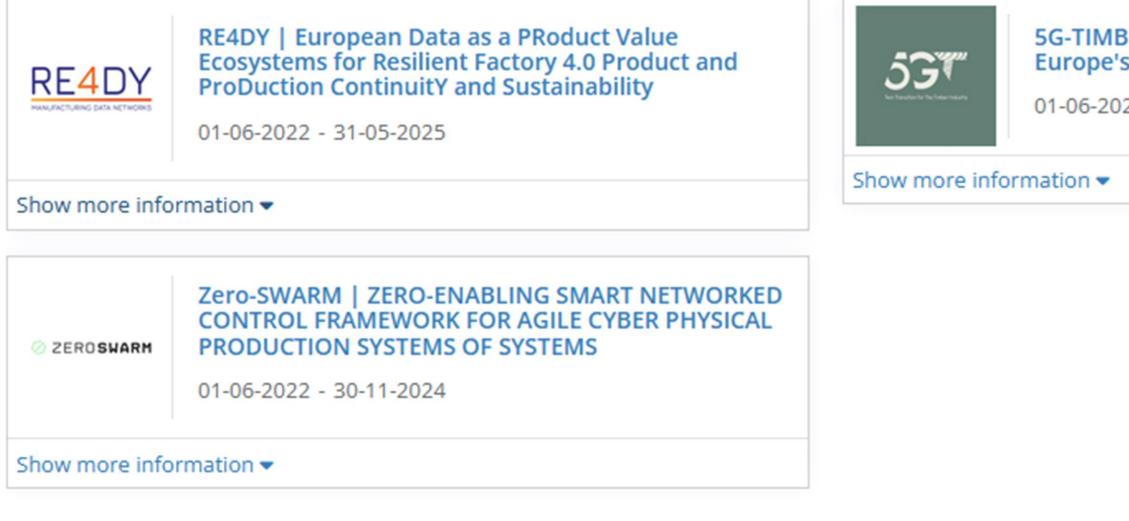


## **Questions**?





#### Toggle all information -





## HORIZON-CL4-2021-TWIN-TRANSITION-01-08: Data-driven Distributed Industrial Environments (IA)

#### 5G-TIMBER | Secure 5G-Enabled Twin Transition for Europe's TIMBER Industry Sector

01-06-2022 - 31-05-2025



#### Toggle all information -



## DT-FOF-11-2020 Quality control in smart manufacturing (IA)



#### InterQ | Interlinked Process, Product and Data Quality framework for Zero-Defects Manufacturing

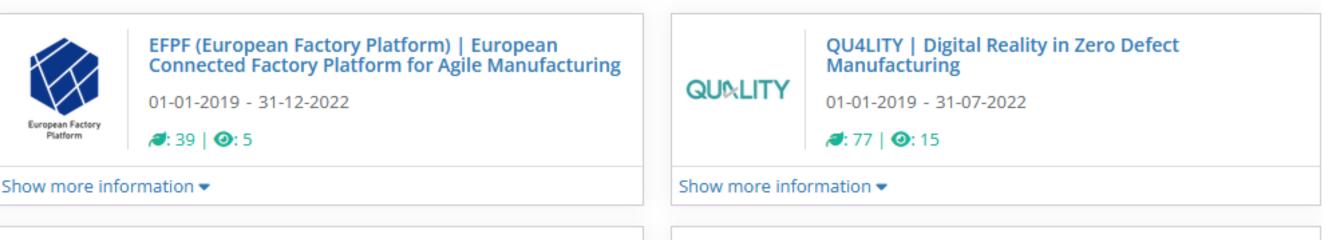
01-11-2020 - 31-10-2023

#### **OPTIMAI | Optimizing Manufacturing Processes** through Artificial Intelligence and Virtualization

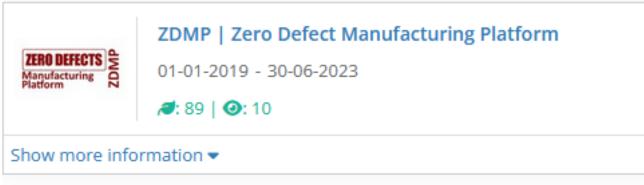
01-01-2021 - 31-12-2023

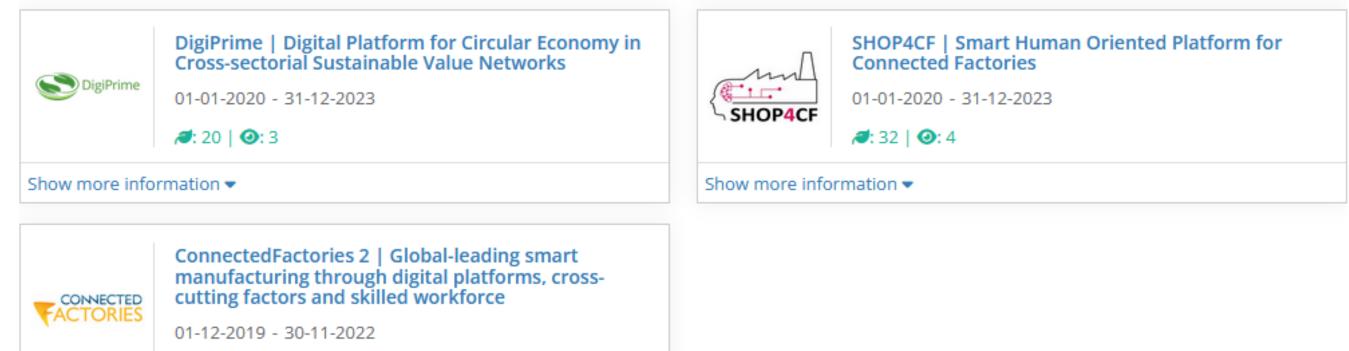


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DT-ICT-07-2018-2019 Digital Manufacturing Platforms for Connected Smart Factories





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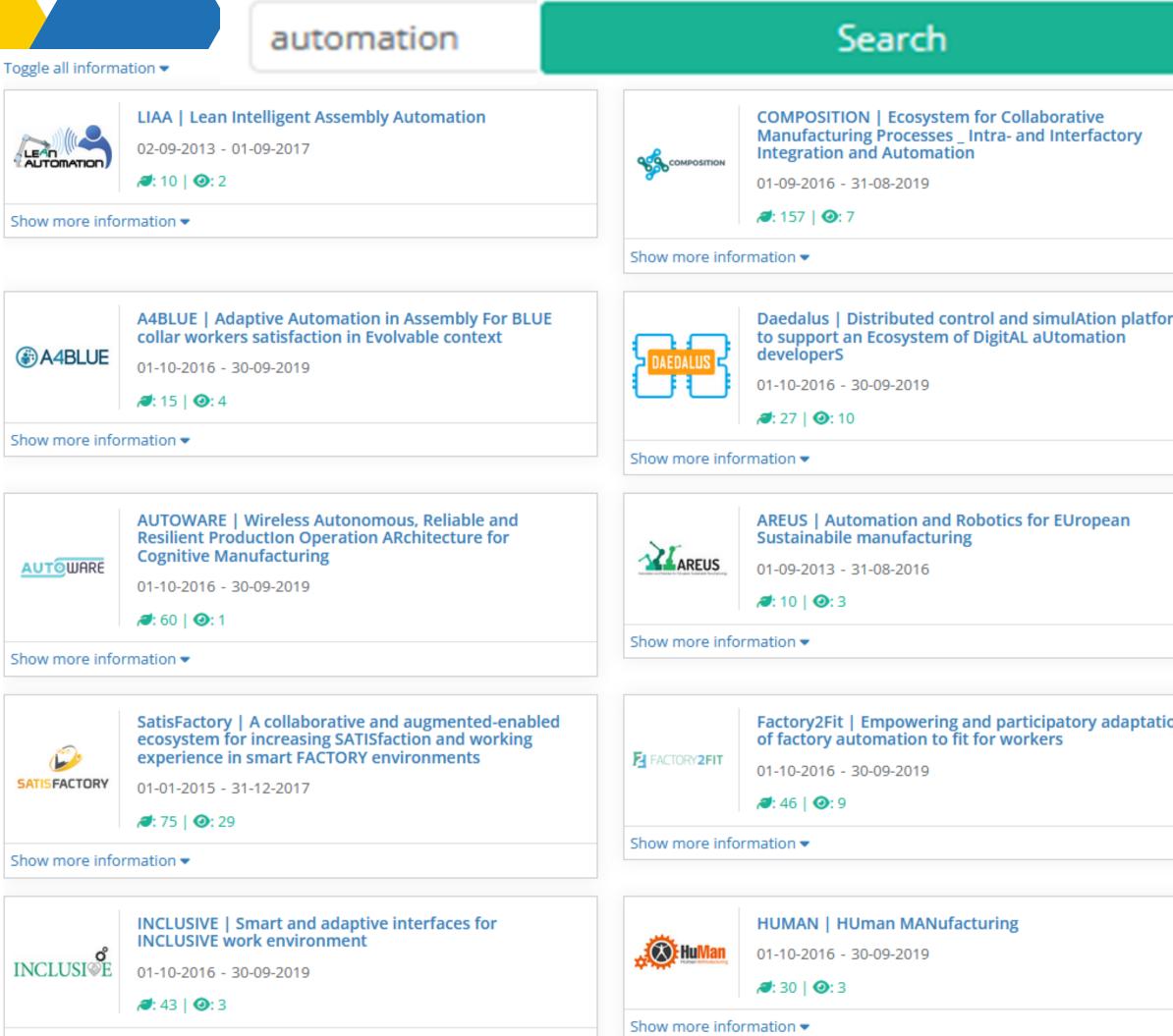
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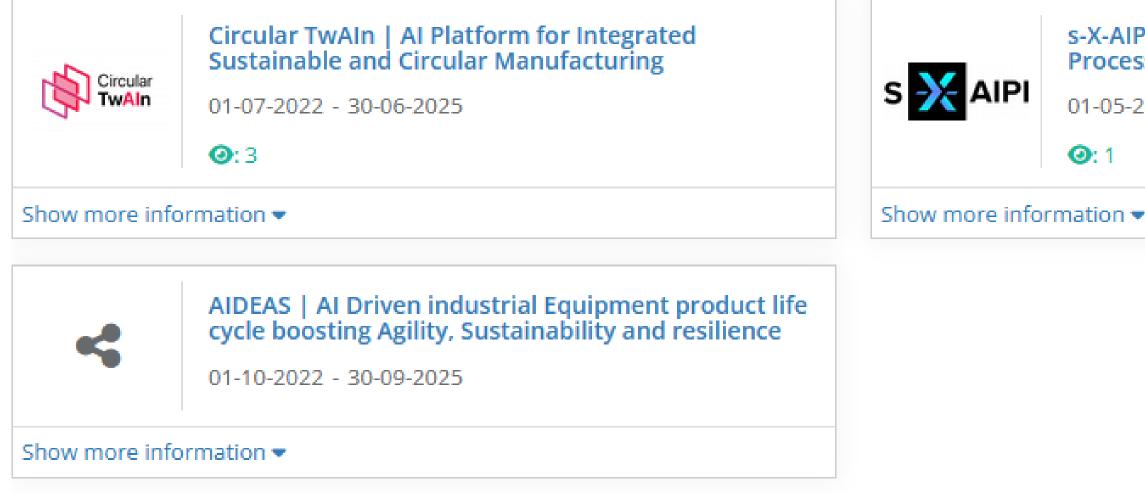


Show more information

	FAR-EDGE   Factory Automation Edge Computing Operating System Reference Implementation 01-10-2016 - 30-10-2019
FAREDGE	<ul> <li>Ø1-10-2018 - 30-10-2019</li> <li>Ø: 17</li> </ul>
Show more info	ormation 🔻
	DICICOR   Decentralised Agile Coordination Across
	DIGICOR   Decentralised Agile Coordination Across Supply Chains
	01-10-2016 - 30-09-2019
DIGICOR	<i>(</i> <b>#</b> ): 42
Show more info	ormation 💌
FACTORY	FACTORY-ECOMATION   Factory ECO-friendly and energy efficient technologies and adaptive autoMATION solutions 01-10-2012 - 30-09-2015
FACTORY ECOMATION	efficient technologies and adaptive autoMATION solutions 01-10-2012 - 30-09-2015 <i>(</i> : 3)
ECOMATION	efficient technologies and adaptive autoMATION solutions 01-10-2012 - 30-09-2015 a: 3 ormation  SCALABLE4.0   Scalable automation for flexible
ECOMATION Show more info	efficient technologies and adaptive autoMATION solutions 01-10-2012 - 30-09-2015 <i>(i</i> : 3) ormation ▼
ECOMATION	solutions 01-10-2012 - 30-09-2015 a: 3 formation • SCALABLE4.0   Scalable automation for flexible production systems

MANUWORK	MANUWORK   Balancing Human and Automation Levels for the Manufacturing Workplaces of the Future 01-10-2016 - 31-03-2020
	<b>#</b> : 26   <b>@</b> : 3
Show more info	rmation 💌

#### Toggle all information -



HORIZON-CL4-2021-TWIN-TRANSITION-01-07: Artificial Intelligence for sustainable, agile manufacturing (IA)

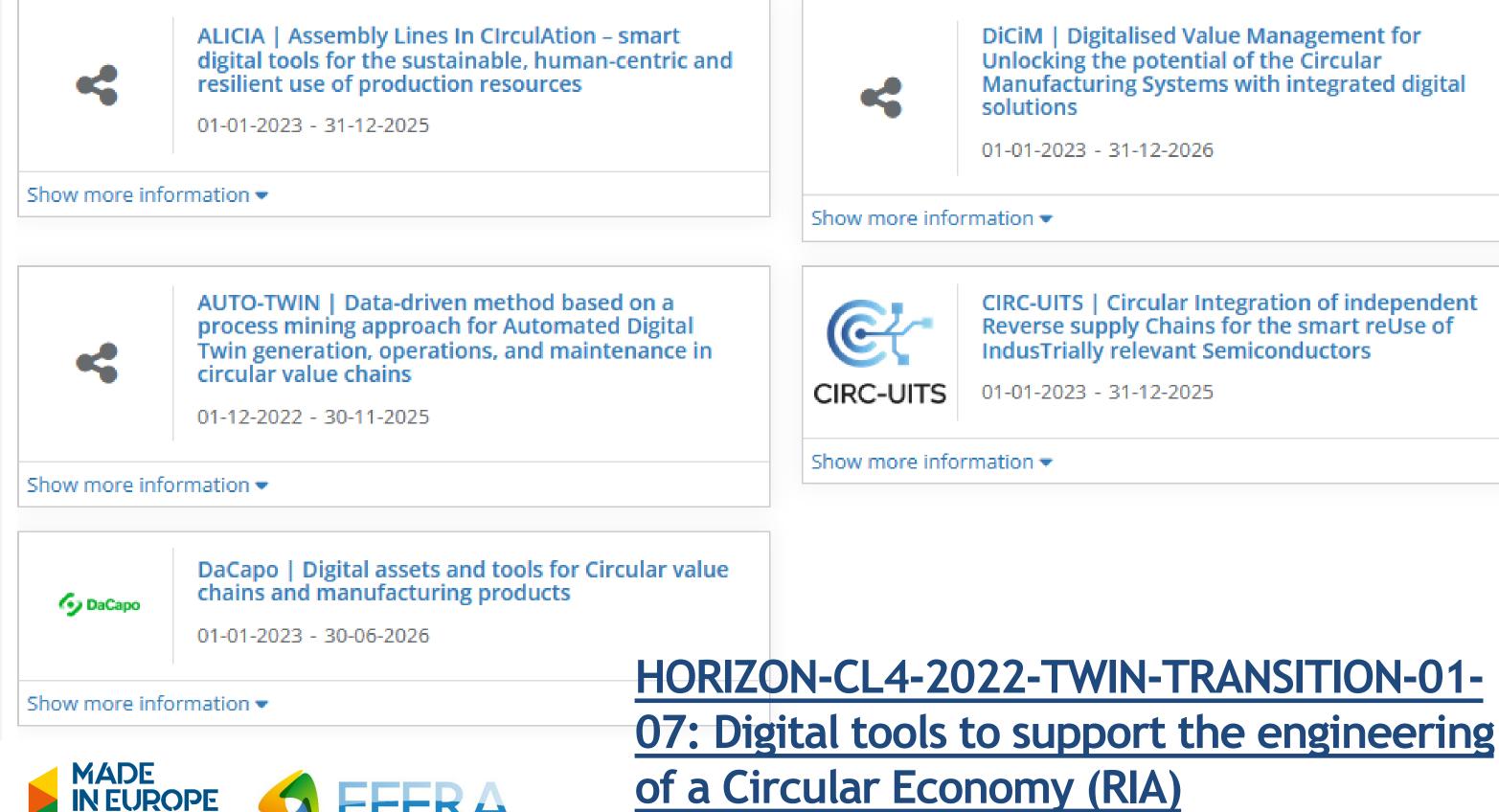


## s-X-AIPI | self-X Artificial Intelligence for European Process Industry digital transformation

01-05-2022 - 30-04-2025



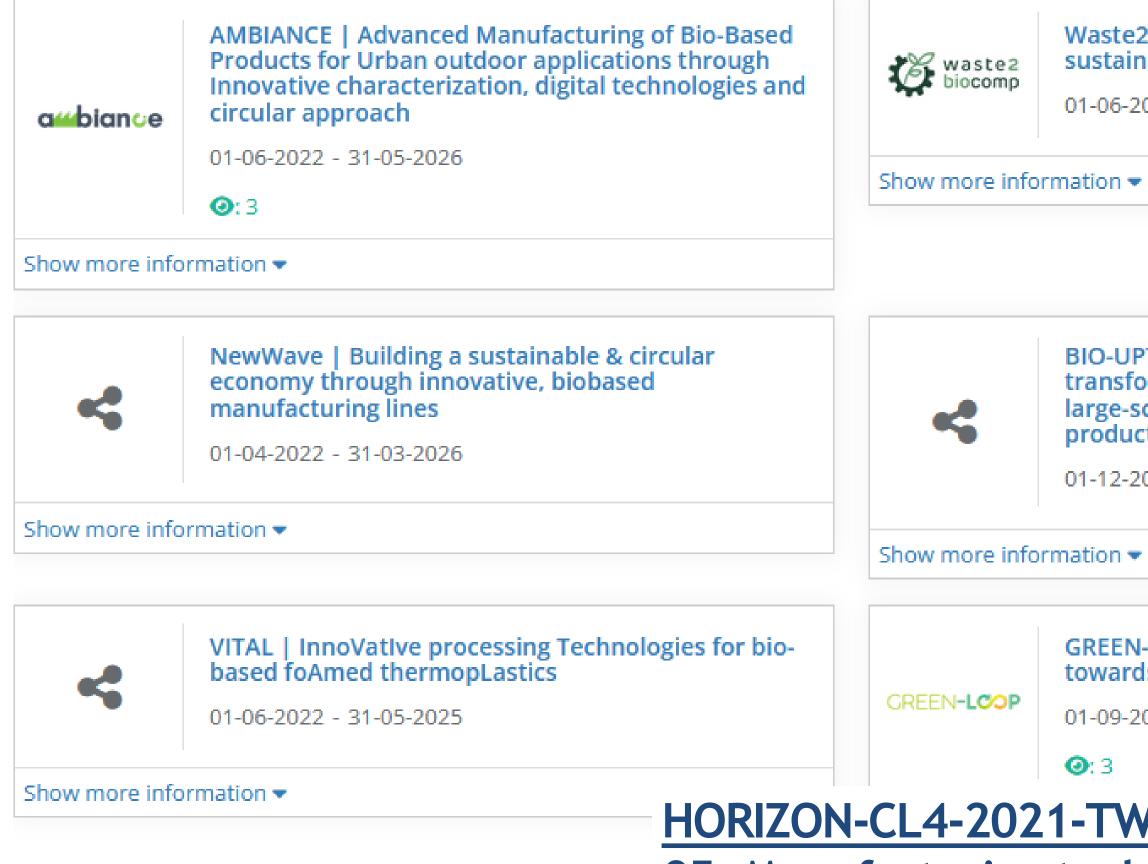
#### Toggle all information -



DiCiM | Digitalised Value Management for Unlocking the potential of the Circular Manufacturing Systems with integrated digital

CIRC-UITS | Circular Integration of independent Reverse supply Chains for the smart reUse of IndusTrially relevant Semiconductors

#### Toggle all information -





## 05: Manufacturing tec based materials (RIA)

e2BioComp   Converting organic waste into ainable bio-based components	
-2022 - 31-05-2025	
▼	
JPTAKE   BIOcomposites in smart plastic formation processes to pave the way for the -scale UPTAKE of sustainable bio-based ucts	
-2022 - 31-05-2026	
N-LOOP   Sustainable manufacture systems rds novel bio-based materials	
-2022 - 31-08-2025	
WIN-TRANSITION-01-	
hnologies for bio-	

#### www.connectedfactories.eu

#### https://portal.effra.eu



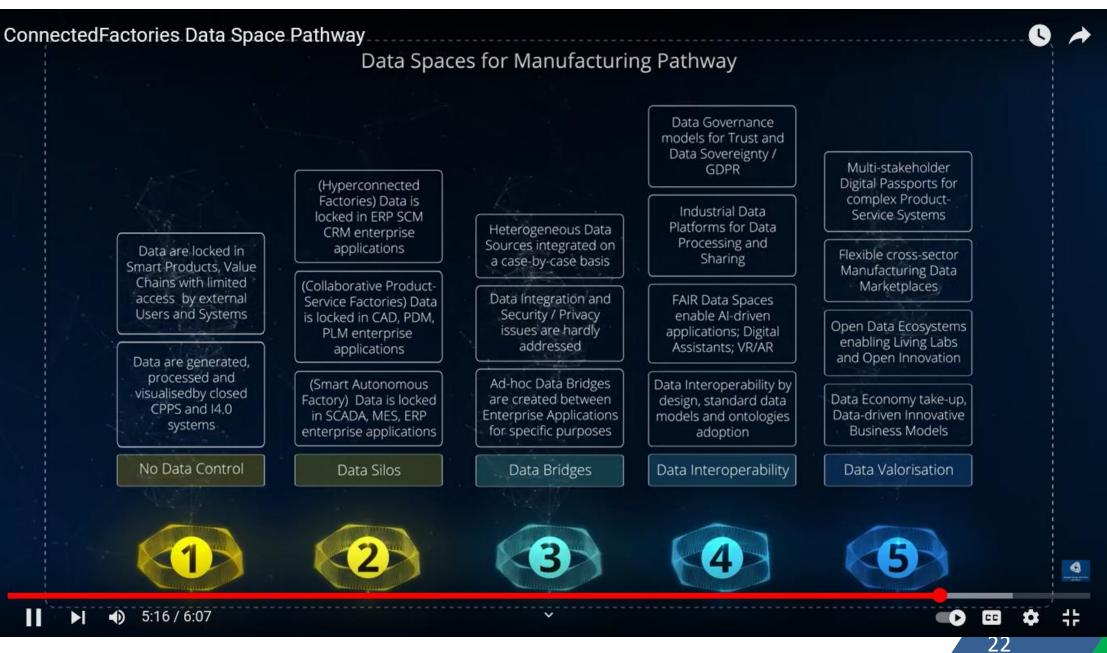
Have a look at the Data Space Pathway Introduction Video here below!



(We recommend viewing in HD. Click on YouTube or click here to view on You Tube)

Also check out the Digital Platforms Use Cases Video, showcasing the step stones to implementing Data Spaces in Manufacturing





# Pathway to Energy Efficiency





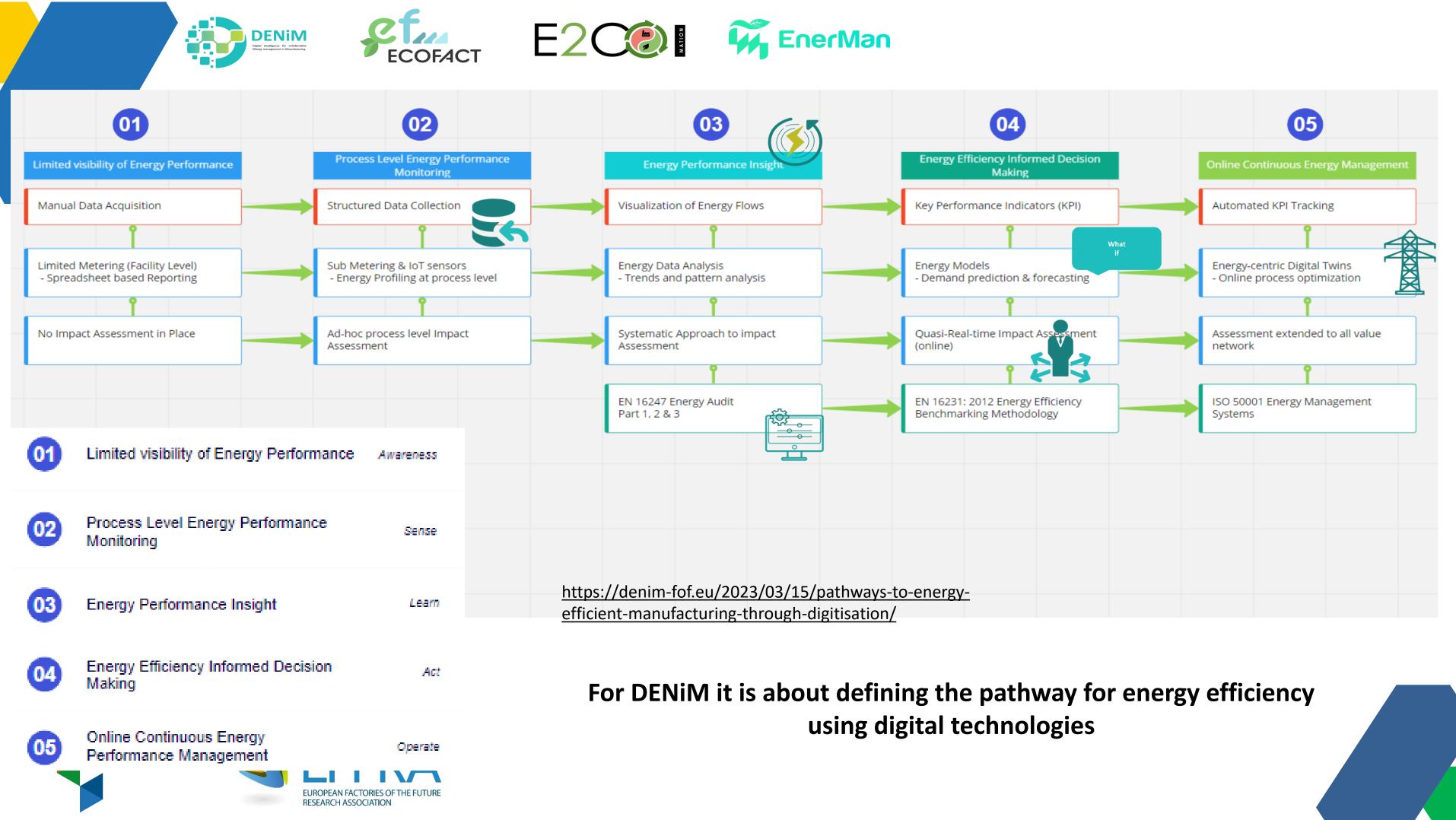
# For DENiM it is about defining the pathway for energy efficiency using digital technologies

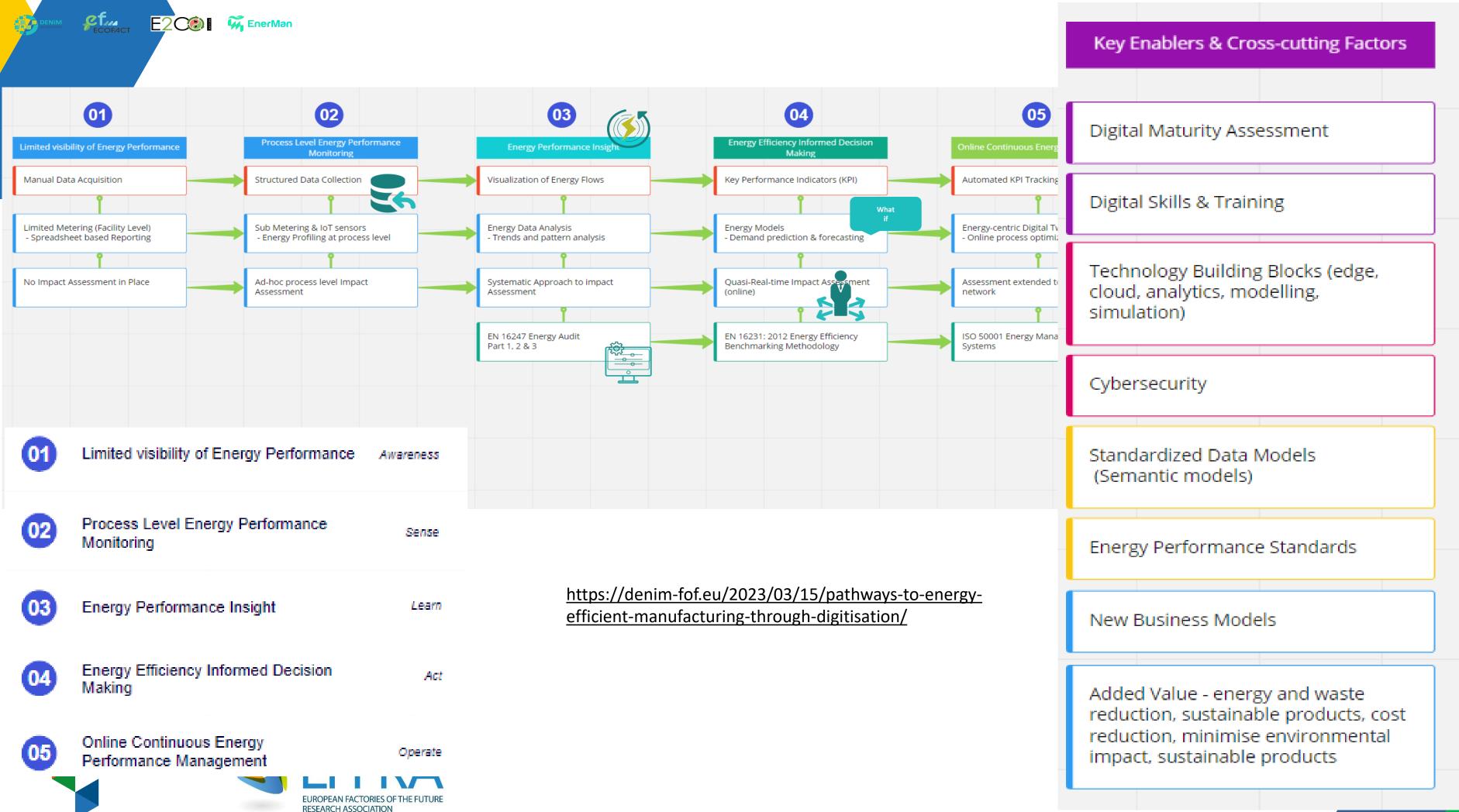




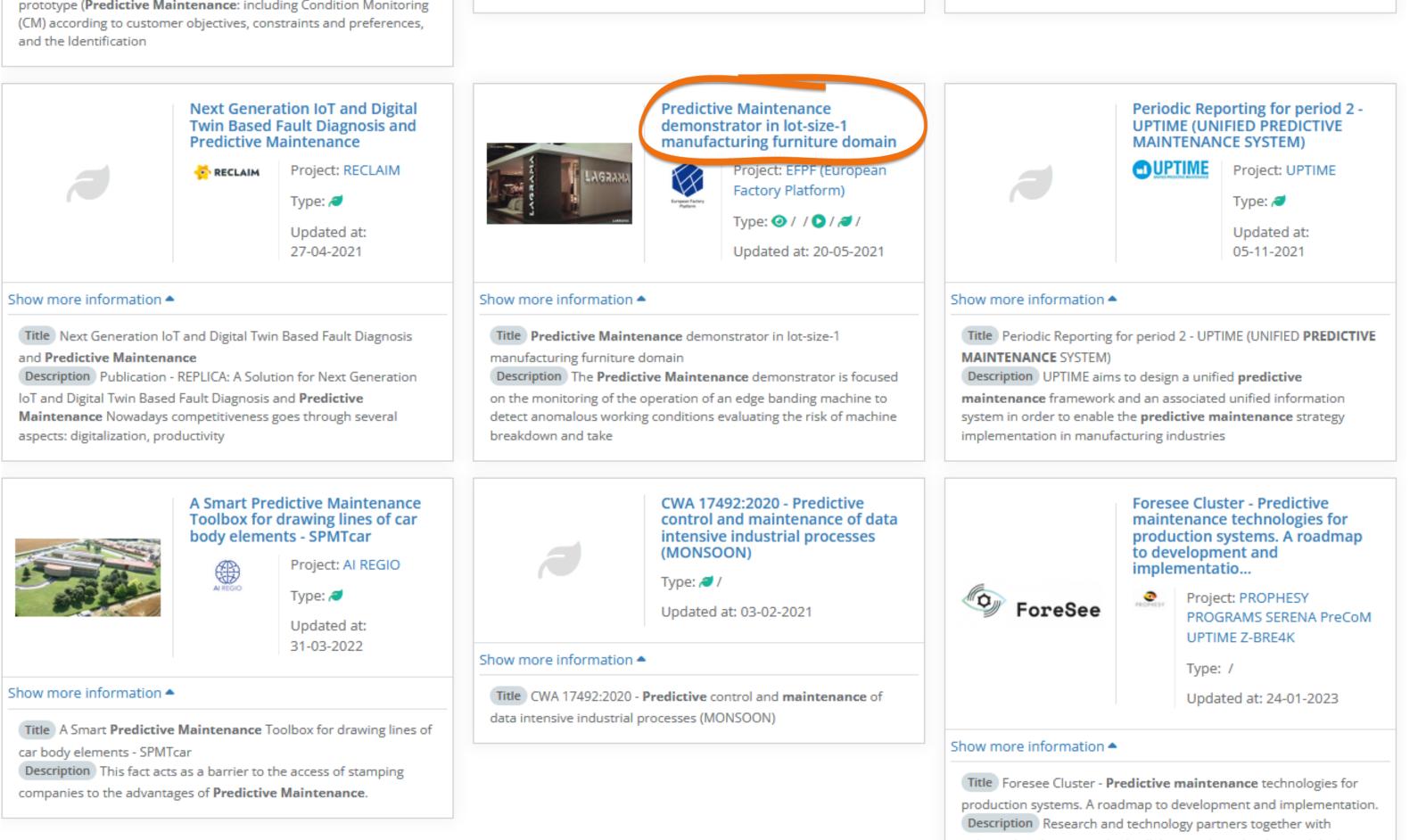








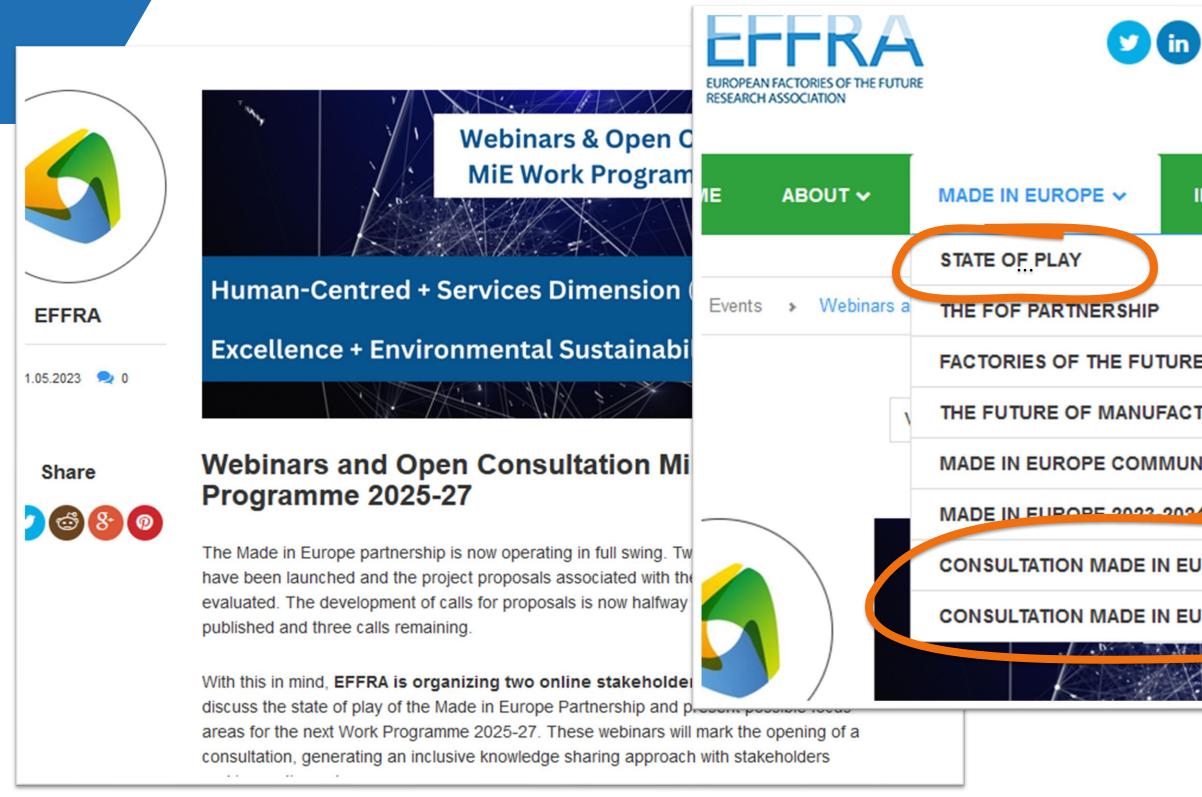
prototype (Predictive Maintenance: including Condition Monitoring



industrial end-users worked collaboratively to develop and deploy solutions that advance maintenance practice in industry towards more efficient, sustainable



## How to contribute to the consultation





INNOVATION PORTAL - OPEN CALLS - MEMBE	RSHIP 🗸
JRE ROADMAP	
ACTURING IS MADE IN EUROPE	DEVEL
IUNITY NEWSLETTER	
024 0411 0	
EUROPE WP 25-27 (EXPERT/STAKEHOLDER PERSPECTIVE)	
EUROPE CONSULTATION WP 25-27 (PROJECT PERSPECTIVE)	ノ
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#### CONSULTATION MADE IN EUROPE WP 25-27 (EXPERT/STAKEHOLDER PERSPECTIVE)

### CONSULTATION MADE IN EUROPE CONSULTATION WP 25-27 (PROJECT PERSPECTIVE)

#### Consultation Made in Europe WP 25-27 -Expert/stakeholder perspective

This page concerns the consultation on the Work Programme 25-27 of the Horizon Europe Programme with respect to manufacturing research & innovation, in particular with regard to the Made in Europe Partnership.

More background to this consultation can be found here.

Please note that there is also a consultation where feedback is requested from the perspective of past or ongoing projects (see here).

Via this consultation, you are invited as an experts/stakeholder to comment and rate (in terms of importance) the suggested priorities for the WP 25-27 that are described in this document

Your prioritisation and comments would address observations such as:

- Which priorities are key for the work programme 25-27? You can express the importance of the priorities by rating them from 0 to 100 in steps of 10.
- · Please add comments to explain why a priority matters in order to generate impact on the competetiveness and sustainability of Manufacturing in Europe.
- . If the R&I Objectives were only partially addressed in the past, please describe which aspects should be addressed more specifically in the next work programme.

Please also note that:

- For this consultation, your answer to the consultation is publicly available via your profile page on the EFFRA Innovation portal.
- You can edit and refine your input at any time. You just need to save the comments when you edit your response. There is no 'final submission button'

#### Access to the consultation:

First, please make sure that you are logged in on the EFFRA Innovation Portal (https://portal.effra.eu).



# perspective

More background to the consultations in preparation of the Made in Europe Partnership can be found here. This page concerns the track that focusses on obtaining information from the project's perspective. The guidance regarding the consultation from the expert/stakeholder perspective can be found here.

The suggested priorities for the WP 25-27 that are described in this document have been included in a taxonomy list on the EFFRA Innovation Portal.

Project representatives are requested to provide the following feedback:

- please add a comment that explains briefly:

Please note that the information that is provided by the projects is made publicly available via the respective project pages on the EFFRA Innovation Portal. Also, you can add and edit feedback in several steps, the list and editing permissions will stay available.

Portal, then please let us know

Please see the screenshot of a project page here below - the edit buttons are only available to these users that have editing permissions on the project.

Images

### Consultation Made in Europe WP 25-27- Projects'

 indicate the priorities to which your project has contributed most. Please only indicate the items that are really relevant (You can use the rating bar to indicate differences in the relevance)

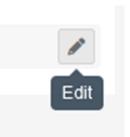
 what the project has contributed essentially which future developments are in particular necessary, drawing from the (expected) outcome of your project

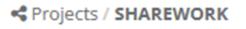
If you wish to include and promote other projects (also national and regional projects) on the EFFRA Innovation

## Contribute via your profile or via your project

$\checkmark$
es ?info Wiki
~







#### SHAREWORK | Safe and effective Hur

- Summary
- O \* Results, demos, etc. (69)
- Attached files
- ▶ **③** Ø More information & hyperlinks
- Cordis data
- Images
- Geographical location(s)
- Last Structured mapping
- Unfold all / Fold all
  - Consultation MiE 25-27 Priorities (-)
  - Factories of the Future Partnership Made in Eu
- Significant innovations, exploitable results and



## **Questions**?





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## Contact: info@effra.eu





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