Made in Europe Partnership

10 July 2023

EFFRA
EUROPEAN FACTORIES OF THE FUTURE RESEARCH ASSOCIATION

MADE IN EUROPE

Made in Europe Partnership story line

EFFRA
EUROPEAN FACTORIES OF THE FUTURE RESEARCH ASSOCIATION

FoF
Factories of the Future
Public Private Partnership

MADE IN EUROPE

...

2009/2010 — 2013 — 2014 — 2016 — 2020 — Present

FP7

FOF 2020

Factories 4.0 and Beyond

Factories of the Future Partnership - Made in Europe Partnership

Mapped projects (376) Mapped results (3) Key content

FP7 - Factories of the Future

(150) (1)

- FP7-FoF-2010 (25)
- FP7-FoF-2011 (36)
- FP7-FoF-2012 (37)
- FP7-FoF-2013 (52)

H2020 - Factories of the Future

(177) (1)

- H2020-FoF-2014 (29)
- H2020-FoF-2015 (28)
- H2020-FOF-2016 (37)
- H2020-FOF-2017 (23)
- H2020-FoF-2018 (18)
- H2020-FoF-2019 (20)
- H2020-FoF-2020 (29)

Made in Europe (MiE)

(49) (1)

- HORIZON-CL4-2021-TWIN-TRANSITION-01 (26)
- HORIZON-CL4-2022-TWIN-TRANSITION-01 (23)
- HORIZON-CL4-2023-TWIN-TRANSITION-01
- HORIZON-CL4-2024-TWIN-TRANSITION-01

MADE IN EUROPE SRIA

MiE General objectives

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 & Climate-neutral manufacturing**
- **New integrated business, product-service and production approaches; new use models**
- **Human-centered and human-driven 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**

Made in Europe (MiE)

Mapped projects (49) | Mapped results (1) | Key content

Associate your results, demos, ... | Associate your projects

HORIZON-CL4-2021-TWIN-TRANSITION-01

(26)

- HORIZON-CL4-2021-TWIN-TRANSITION-01-01: AI enhanced robotics system for smart manufacturing (IA) (4)
- HORIZON-CL4-2021-TWIN-TRANSITION-01-02: Zero-defect manufacturing towards zero-waste (IA) (6)
- HORIZON-CL4-2021-TWIN-TRANSITION-01-03: Laser-based technologies for green manufacturing (RIA) (4)
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(23)

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- HORIZON-CL4-2022-TWIN-TRANSITION-01-03: Excellence in distributed control and modular manufacturing (RIA) (4)
- HORIZON-CL4-2022-TWIN-TRANSITION-01-04: Intelligent work piece handling in a full production line (RIA) (4)
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- HORIZON-CL4-2022-TWIN-TRANSITION-01-07: Digital tools to support the engineering of a Circular Economy (RIA) (5)

HORIZON-CL4-2023-TWIN-TRANSITION-01

- HORIZON-CL4-2023-TWIN-TRANSITION-01-02: High-precision OR complex product manufacturing – potentially including the use of photonics
- HORIZON-CL4-2023-TWIN-TRANSITION-01-04: Factory-level and value chain approaches for remanufacturing
- HORIZON-CL4-2023-TWIN-TRANSITION-01-07: Achieving resiliency in value networks through modelling and Manufacturing as a Service
- HORIZON-CL4-2023-TWIN-TRANSITION-01-08: Foresight and technology transfer for Manufacturing As A Service

HORIZON-CL4-2024-TWIN-TRANSITION-01

- HORIZON-CL4-2024-TWIN-TRANSITION-01-01: Bio-intelligent manufacturing industries
- HORIZON-CL4-2024-TWIN-TRANSITION-01-03: Manufacturing as a Service: Technologies for customised, flexible, and decentralised production on demand
- HORIZON-CL4-2024-TWIN-TRANSITION-01-05: Technologies/solutions to support circularity for manufacturing

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Made in Europe (MiE)

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Made in Europe 2023-2024 Calls

On the 6th December 2022, the European Commission officially adopted the main Horizon Europe Work Programme 2023-2024. In this context, the call topics under Cluster 4 (and therein, under the Made in Europe programme) were made available. You can consult the work programme here.

While the 2023 Made in Europe Call has closed, the 2024 call topics are available through the Funding & Tenders Portal. Below, you may find below the topics and their respective deadlines for the submission of proposals:

- **HORIZON-CL4-2024-TWIN-TRANSITION-01-03: Manufacturing as a Service: Technologies for customised, flexible, and decentralised production on demand** – Open on 19th April 2023 and closed on 7th February 2024

- **HORIZON-CL4-2024-TWIN-TRANSITION-01-05: Technologies/solutions to support circularity for manufacturing** – Open on 19th April 2023 and closed on 7th February 2024

- **HORIZON-CL4-2024-TWIN-TRANSITION-01-01: Bio-intelligent manufacturing industries** – Open on 19th April 2023, closing of first stage on 7th February 2024, and closing of second stage on 24th September 2024

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Examples of relevant past/ongoing projects

Toggle all information

Circular TwAIn | AI Platform for Integrated Sustainable and Circular Manufacturing

01-07-2022 - 30-06-2025

: 3

Show more information

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

01-05-2022 - 30-04-2025

: 4

Show more information

AIDEAS | AI Driven industrial Equipment product life cycle boosting Agility, Sustainability and resilience

01-10-2022 - 30-09-2025

Show more information

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

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Examples of relevant past/ongoing projects

Toggle all information

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

01-01-2023 - 31-12-2026

Show more information

DaCapo | Digital assets and tools for Circular value chains and manufacturing products

01-01-2023 - 30-06-2026

Show more information

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

01-01-2023 - 31-12-2025

Show more information

ALICIA | Assembly Lines In CIrculAtion – smart digital tools for the sustainable, human-centric and resilient use of production resources

01-01-2023 - 31-12-2025

Show more information

AUTO-TWIN | Data-driven method based on a process mining approach for Automated Digital Twin generation, operations, and maintenance in circular value chains

01-12-2022 - 30-11-2025

Show more information

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

Examples of relevant past/ongoing projects

Toggle all information

AMBIANCE | Advanced Manufacturing of Bio-Based Products for Urban outdoor applications through Innovative characterization, digital technologies and circular approach

01-06-2022 - 31-05-2026

: 3

Show more information

Waste2BioComp | Converting organic waste into sustainable bio-based components

01-06-2022 - 31-05-2025

Show more information

BIO-UPTAKE | BIOcomposites in smart plastic transformation processes to pave the way for the large-scale UPTAKE of sustainable bio-based products

01-12-2022 - 31-05-2026

Show more information

GREEN-LOOP | Sustainable manufacture systems towards novel bio-based materials

01-09-2022 - 31-08-2025

: 3

Show more information

VITAL | InnoVatIve processing Technologies for bio-based foAmed thermopLastics

01-06-2022 - 31-05-2025

Show more information

NewWave | Building a sustainable & circular economy through innovative, biobased manufacturing lines

01-04-2022 - 31-03-2026

Show more information

HORIZON-CL4-2021-TWIN-TRANSITION-01-05: Manufacturing technologies for bio-based materials (RIA)

EUROPEAN FACTORIES OF THE FUTURE RESEARCH ASSOCIATION

Examples of relevant past/ongoing projects

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

Toggle all information

EFPF (European Factory Platform) | European Connected Factory Platform for Agile Manufacturing

01-01-2019 - 31-12-2022

: 39 | : 5

Show more information

QU4LITY | Digital Reality in Zero Defect Manufacturing

01-01-2019 - 31-07-2022

: 77 | : 15

Show more information

ZDMP | Zero Defect Manufacturing Platform

01-01-2019 - 30-06-2023

: 89 | : 10

Show more information

KYKLOS 4.0 | An Advanced Circular and Agile Manufacturing Ecosystem based on rapid reconfigurable manufacturing process and individualized consumer preferences

01-01-2020 - 31-12-2023

: 33 | : 7

Show more information

DigiPrime | Digital Platform for Circular Economy in Cross-sectorial Sustainable Value Networks

01-01-2020 - 31-12-2023

: 20 | : 3

Show more information

SHOP4CF | Smart Human Oriented Platform for Connected Factories

01-01-2020 - 31-12-2023

: 32 | : 4

Show more information

ConnectedFactories 2 | Global-leading smart manufacturing through digital platforms, cross-cutting factors and skilled workforce

01-12-2019 - 30-11-2022

: 23

Show more information

MADE IN EUROPE SRIA

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- **Skilled workforce**
- **Standards**

MiE SRIA R&I Priorities

Mapped projects (49)

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

Specific Objective 1: Excellent, responsive and smart factories & supply chains (36)

- R&I Objective 1.1: Data 'highways' and data spaces in support of smart factories in dynamic value networks (3)
- R&I Objective 1.2: Scalable, reconfigurable and flexible first-time right manufacturing (14)
- R&I Objective 1.3: Zero-defect and zero-downtime high-precision manufacturing, including predictive quality and non-destructive inspection methods (10)
- R&I Objective 1.4: Artificial intelligence for productive, excellent, robust and agile manufacturing chains - Predictive manufacturing capabilities & logistics of the future (7)
- R&I Objective 1.5: Advanced Manufacturing processes for smart and complex products (8)
- R&I Objective 1.6: Manufacturing for miniaturisation and functional Integration (9)

Specific Objective 2: Circular products & Climate-neutral manufacturing (20)

- R&I Objective 2.1: Ultra-efficient, low energy and carbon-neutral manufacturing (6)
- R&I Objective 2.2: De-manufacturing, re-manufacturing and recycling technologies for circular economy (8)
- R&I Objective 2.3: Manufacturing with new and substitute materials (6)
- R&I Objective 2.4: Virtual end-to-end life-cycle engineering and manufacturing from product to production lines, factories, and networks (5)
- R&I Objective 2.5: Digital platforms and data management for circular product and production-systems life-cycles (8)

Specific Objective 3: New integrated business, product-service and production approaches; new use models (8)

- R&I Objective 3.1: Collaborative product-service engineering for costumer driven manufacturing value networks (5)
- R&I Objective 3.2: Manufacturing processes and approaches near to customers or consumers (including urban manufacturing)
- R&I Objective 3.3: Transparency, trust and data & IP integrity, open systems and cyber security along the product and manufacturing life-cycle (8)

Specific Objective 4: Human-centered and human-driven manufacturing innovation (14)

- R&I Objective 4.1: Digital platforms and engineering tools supporting creativity and productivity of manufacturing development (5)
- R&I Objective 4.2: Improving human device interaction using augmented and virtual reality and digital twins
- R&I Objective 4.3: Human & technology complementarity and excellence in manufacturing (7)
- R&I Objective 4.4: Manufacturing Innovation and change management
- R&I Objective 4.5: Technology validation and migration paths towards industrial deployment of advanced manufacturing technologies by SMEs (2)

WP 25-27 EFFRA Consultation - Priorities - 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 leadership in **strategic and high value-added products**
- **Circular, connected** manufacturing **ecosystems**
- The next level of circular economy through **scalable, highly productive and zero-defect re-manufacturing technologies**
- **Manufacturing with new/ limited raw materials** availability
- Solutions for **energy-efficiency** for realising net-zero 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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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).

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

- **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)
- please add a comment that explains briefly:
  - **what the project has contributed essentially**
  - **which future developments are in particular necessary, drawing from the (expected) outcome of your project**

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.

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

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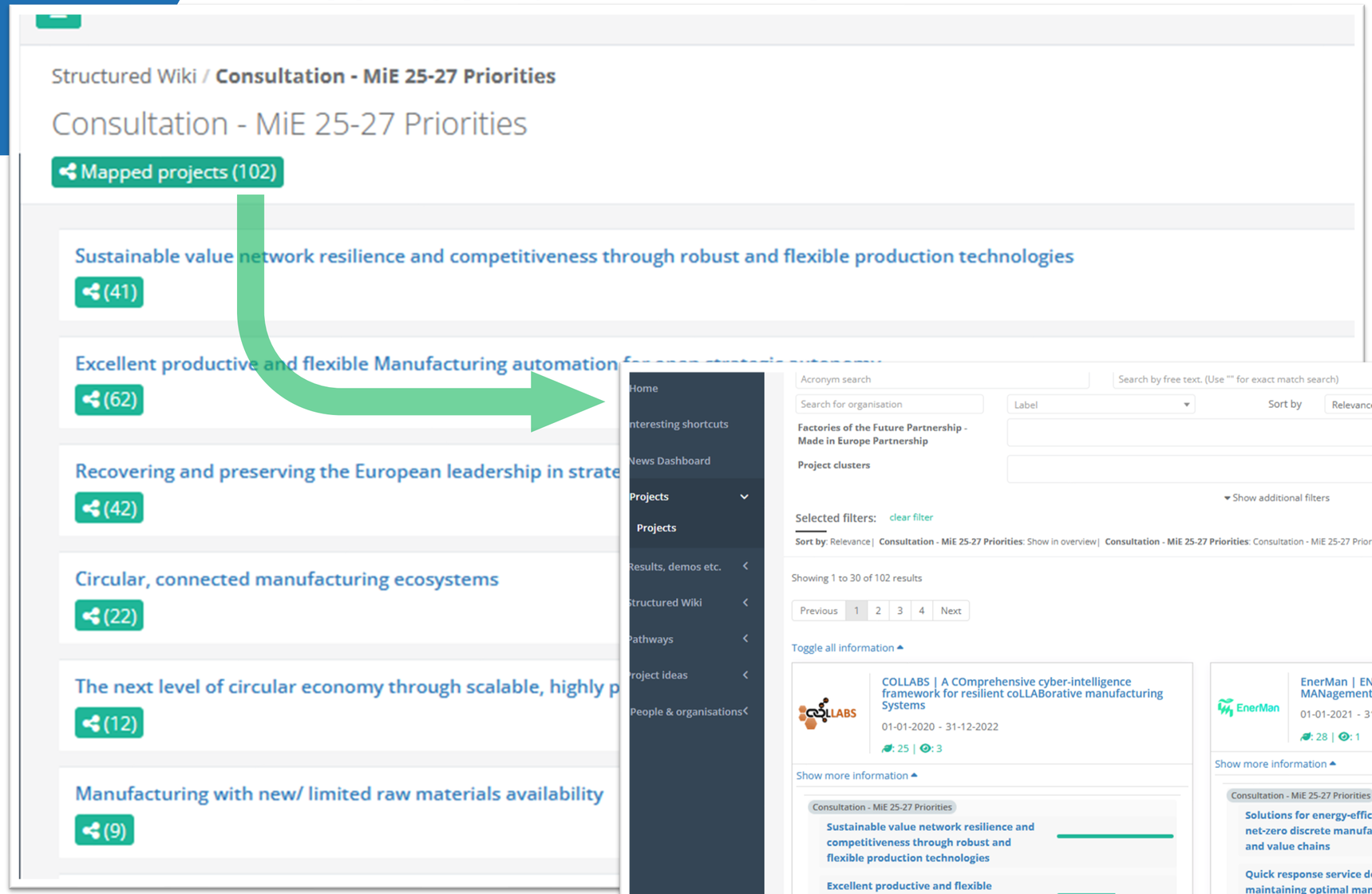
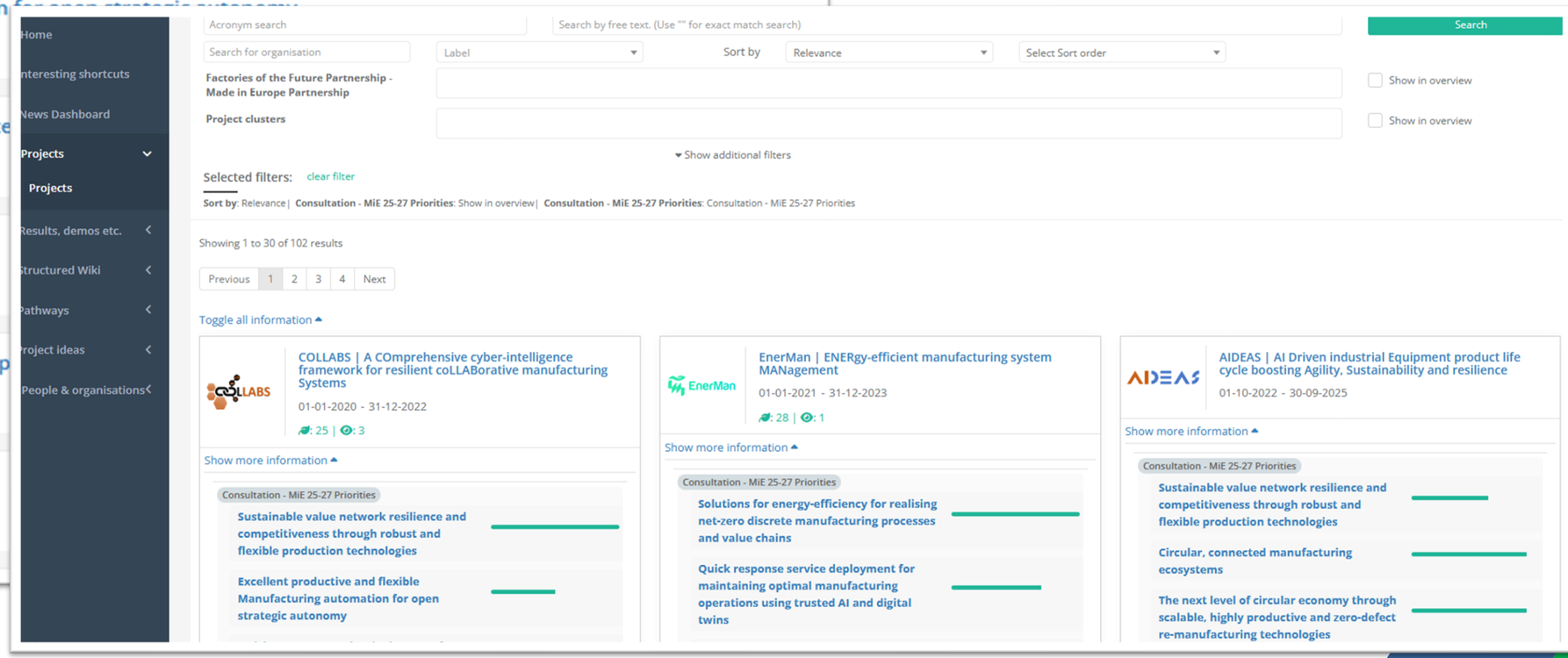
Ongoing consultation
Mapping projects to the priorities of the consultation document





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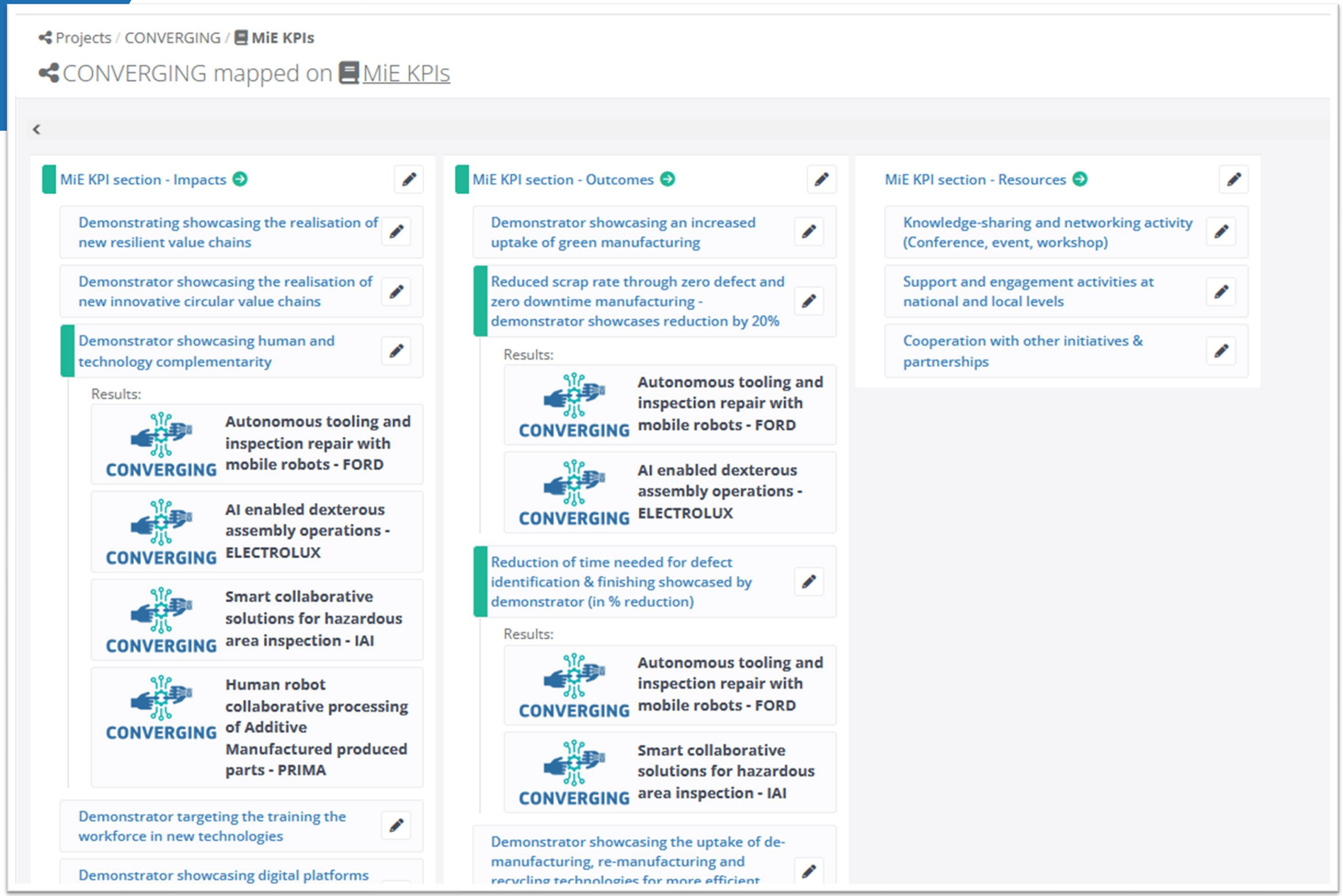
Made in Europe Progress monitoring
Mapping demonstrators and project actions on MiE KPIs



Promoting the demonstrators and exploitable technologies

EFFRA

23.03.2023 0

Share




Collaborative robotics land in European factories

Sharework and SHERLOCK are two projects funded through Factories of the Future, EFFRA's partnership with the European Commission on manufacturing. Together, they provide validated solutions for a safe fenceless implementation of robots working hand in hand with workers in industrial shopfloors

At its core and through its partnerships with the European Commission, Made in Europe and its predecessor Factories of the Future, the European Factories of the Future Research Association (EFFRA) is tackling shared technological challenges such as collaborative robotics. Promoting precompetitive research and encouraging the collaboration between diverse international stakeholders at the industry and research levels, EFFRA is addressing all aspects of manufacturing, from sustainability and efficiency to digitalization and human aspects; many of these demonstrators, use cases, and exploitable results, can be consulted by accessing EFFRA's Innovation Portal, where we encourage all innovation actors to promote their work.

Toggle all information

SEAT S.A – Automotive Industrial Scenario - Operator collaborative support on assembling/disassembling car body heavy ...

Project: SHAREWORK

Type: /

Updated at: 01-02-2023

Show more information

Project acronym SHAREWORK

ALSTOM – Railway Industrial Scenario - Human-Robot Collaboration to improve trains' manufacturing processes

Project: SHAREWORK

Type: /

Updated at: 01-02-2023

Show more information

Project acronym SHAREWORK

CEMBRE – Metal Industrial Scenario - Human-Robot Collaboration (HRC) at the load/unload stations of logistic manufactu...

Project: SHAREWORK

Type: /

Updated at: 01-02-2023

Show more information

Project acronym SHAREWORK

Goizper Group – Capital Goods Scenario - Human-Robot collaboration (HRC) for operator's assistance on intermittent ind...

Project: SHAREWORK

Type: /

Updated at: 01-02-2023

Show more information

Project acronym SHAREWORK

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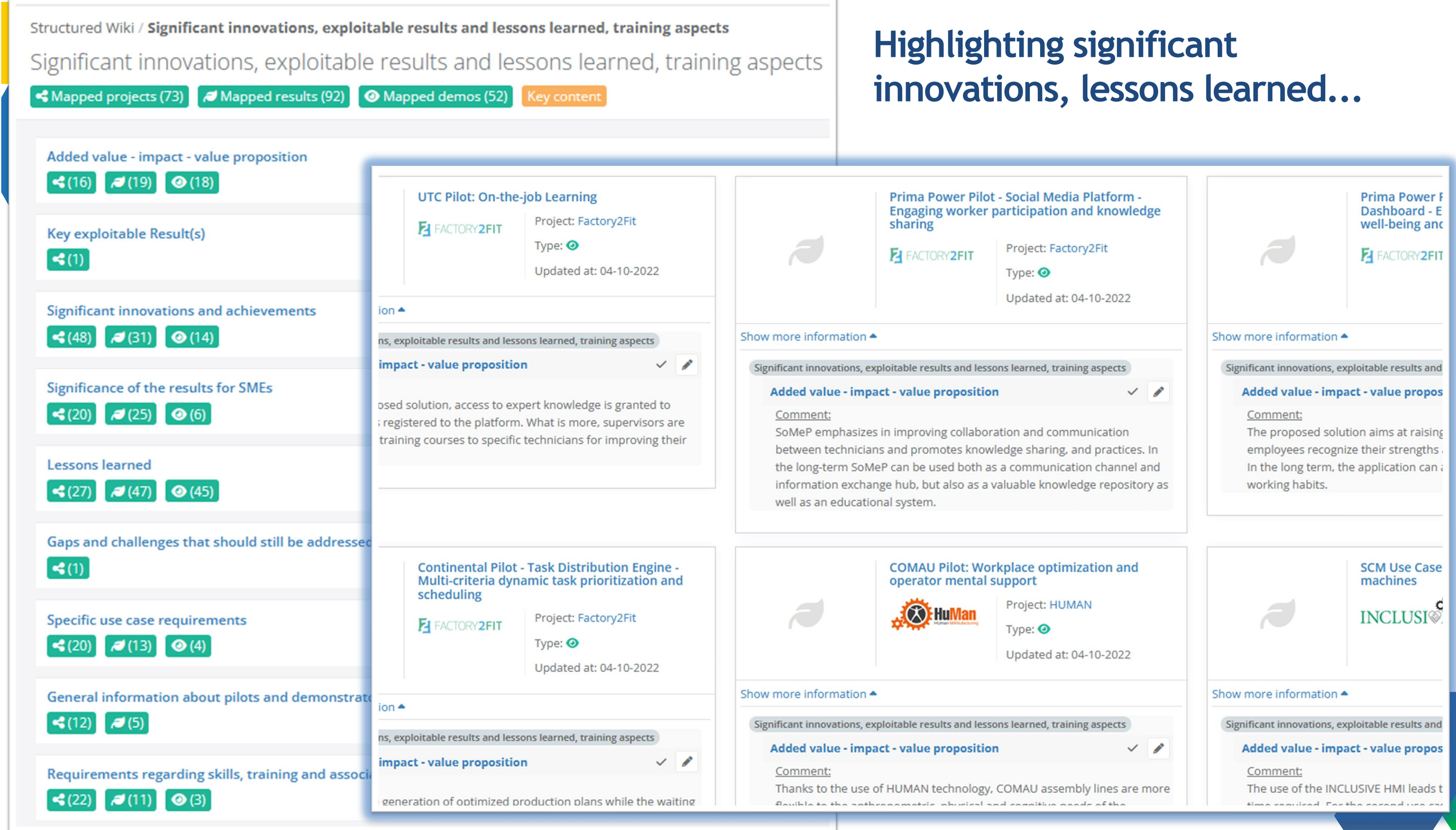
Highlighting significant innovations, lessons learned…



www.connectedfactories.eu
https://portal.effra.eu

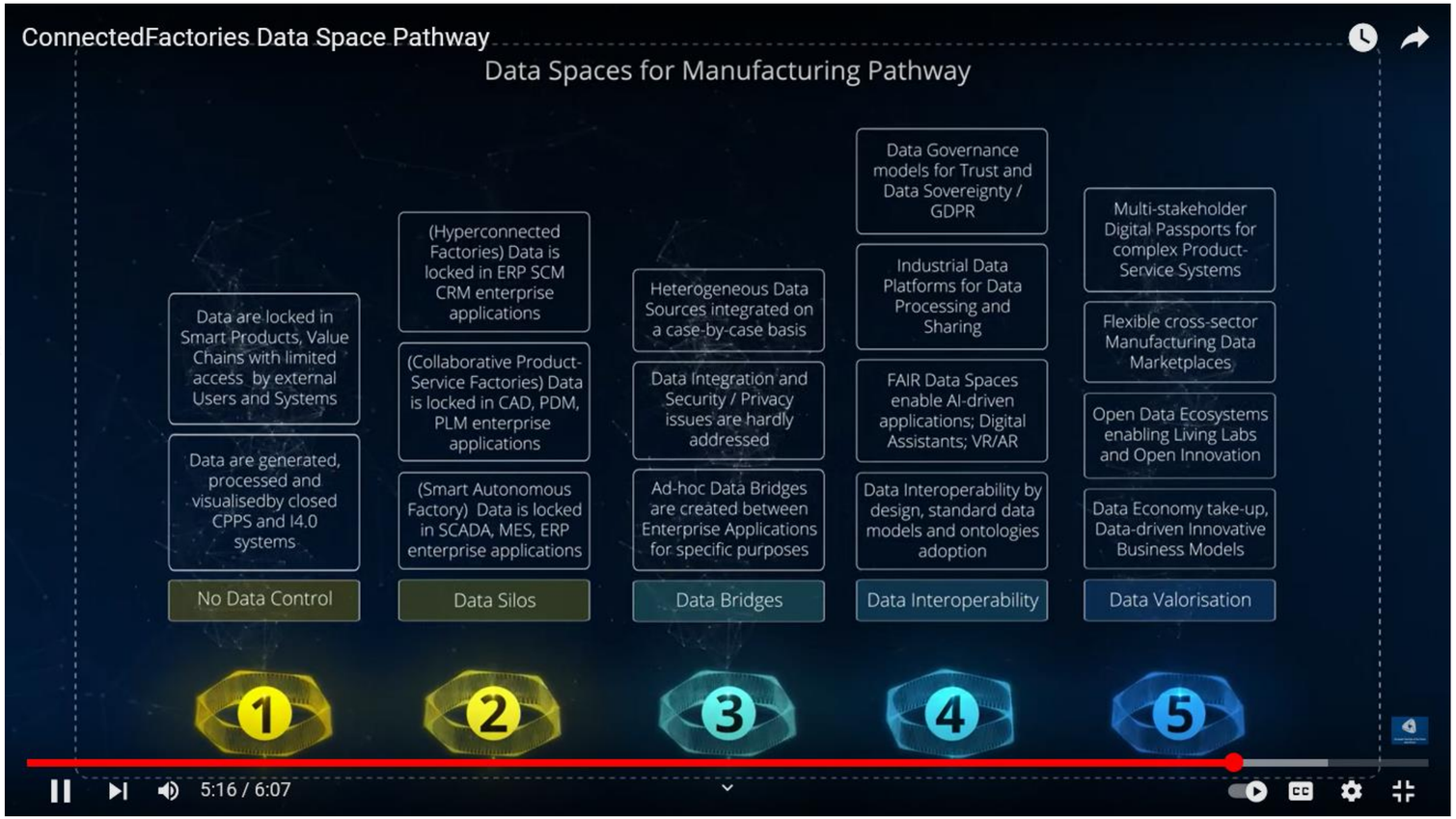
HOME ABOUT CROSS-CUTTING FACTORS PATHWAYS SHARE CASES

Data Space Pathway

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



Data Spaces for Manufacturing Pathway

No Data Control

Data are generated, processed and visualised by closed CPPS and I4.0 systems

Data are locked in Smart Products, Value Chains with limited access by external Users and Systems

Data Silos

(Smart Autonomous Factory) Data is locked in SCADA, MES, ERP enterprise applications

(Collaborative Product-Service Factories) Data is locked in CAD, PDM, PLM enterprise applications

(Hyperconnected Factories) Data is locked in ERP SCM CRM enterprise applications

Data Bridges

Ad-hoc Data Bridges are created between Enterprise Applications for specific purposes

Data Integration and Security / Privacy issues are hardly addressed

Heterogeneous Data Sources integrated on a case-by-case basis

Data Interoperability

Data Interoperability by design, standard data models and ontologies adoption

FAIR Data Spaces enable AI-driven applications; Digital Assistants; VR/AR

Industrial Data Platforms for Data Processing and Sharing

Data Governance models for Trust and Data Sovereignty / GDPR

Data Valorisation

Data Economy take-up, Data-driven Innovative Business Models

Open Data Ecosystems in Didactic Factories and Experimental Facilities

Flexible cross-sector Manufacturing Data Marketplaces

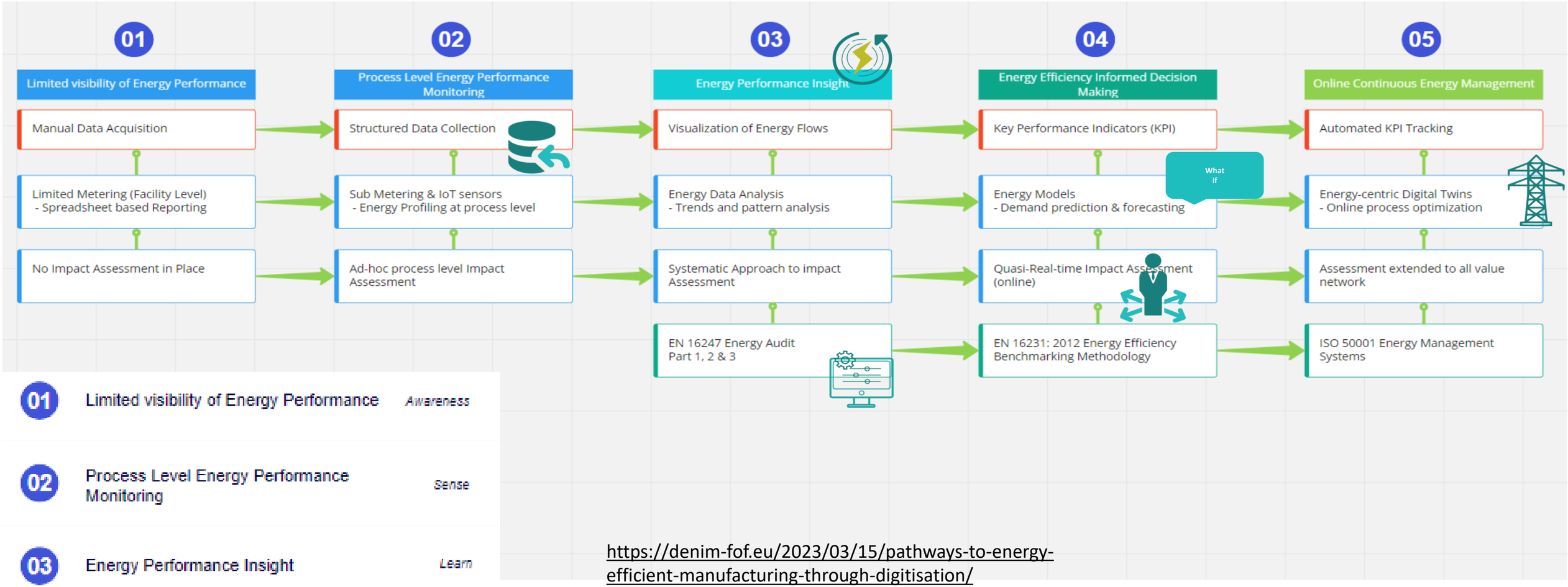
Multi-stakeholder Digital Passports for complex Product-Service Systems

Pathway to Energy Efficiency

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

01	Limited visibility of Energy Performance	*Awareness*
02	Process Level Energy Performance Monitoring	*Sense*
03	Energy Performance Insight	*Learn*
04	Energy Efficiency Informed Decision Making	*Act*
05	Online Continuous Energy Performance Management	*Operate*

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



01	Limited visibility of Energy Performance	*Awareness*
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https://denim-fof.eu/2023/03/15/pathways-to-energy-efficient-manufacturing-through-digitisation/

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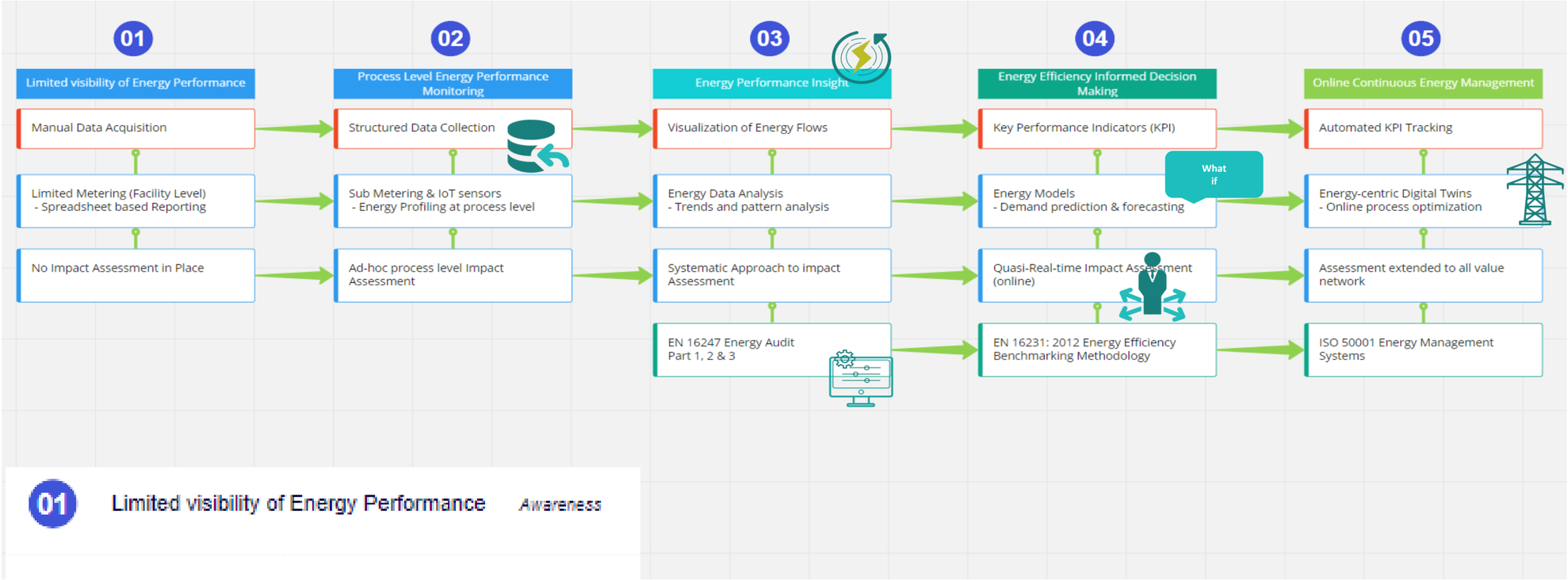

01 Limited visibility of Energy Performance — *Awareness*

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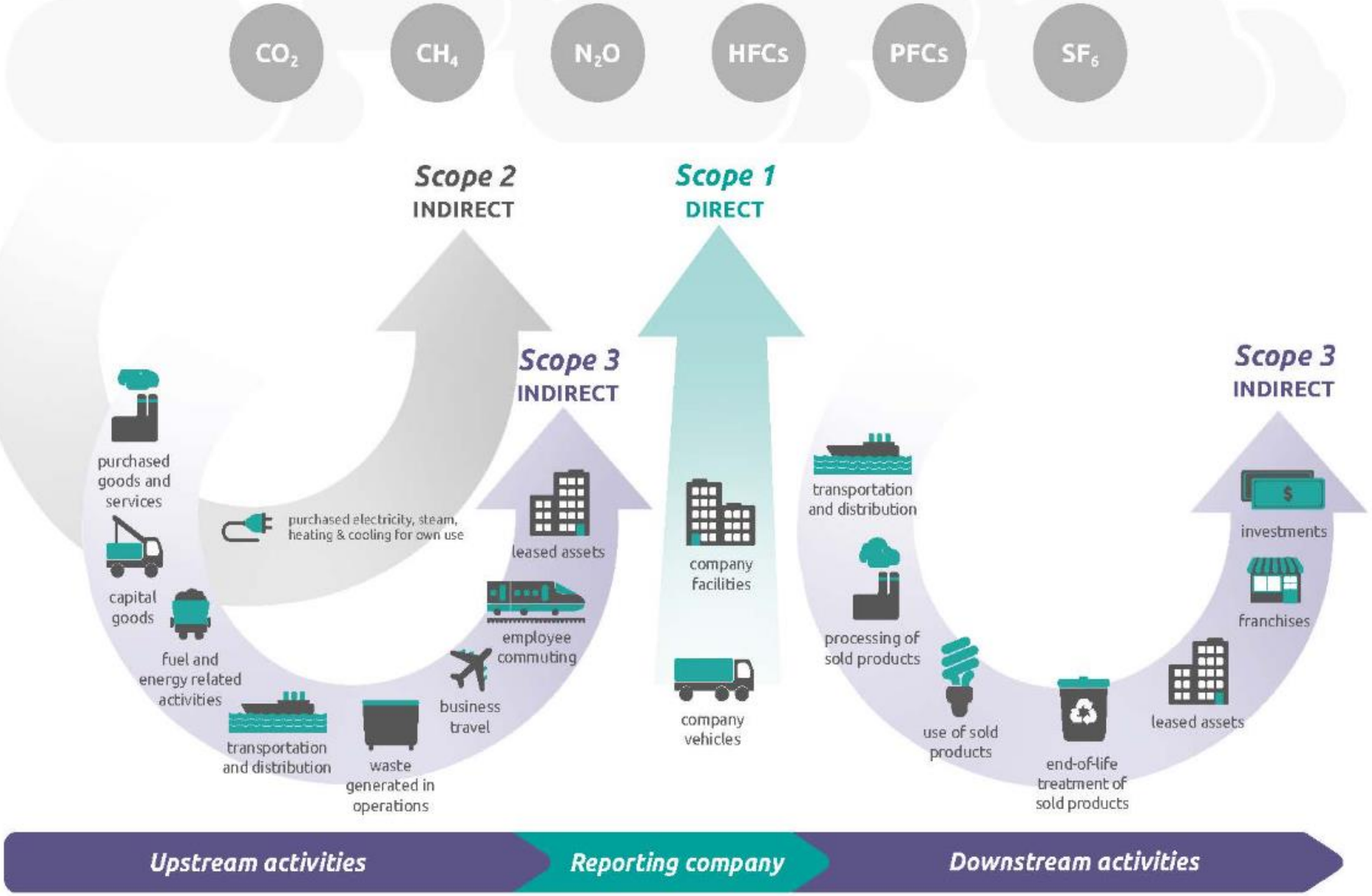
https://denim-fof.eu/2023/03/15/pathways-to-energy-efficient-manufacturing-through-digitisation/

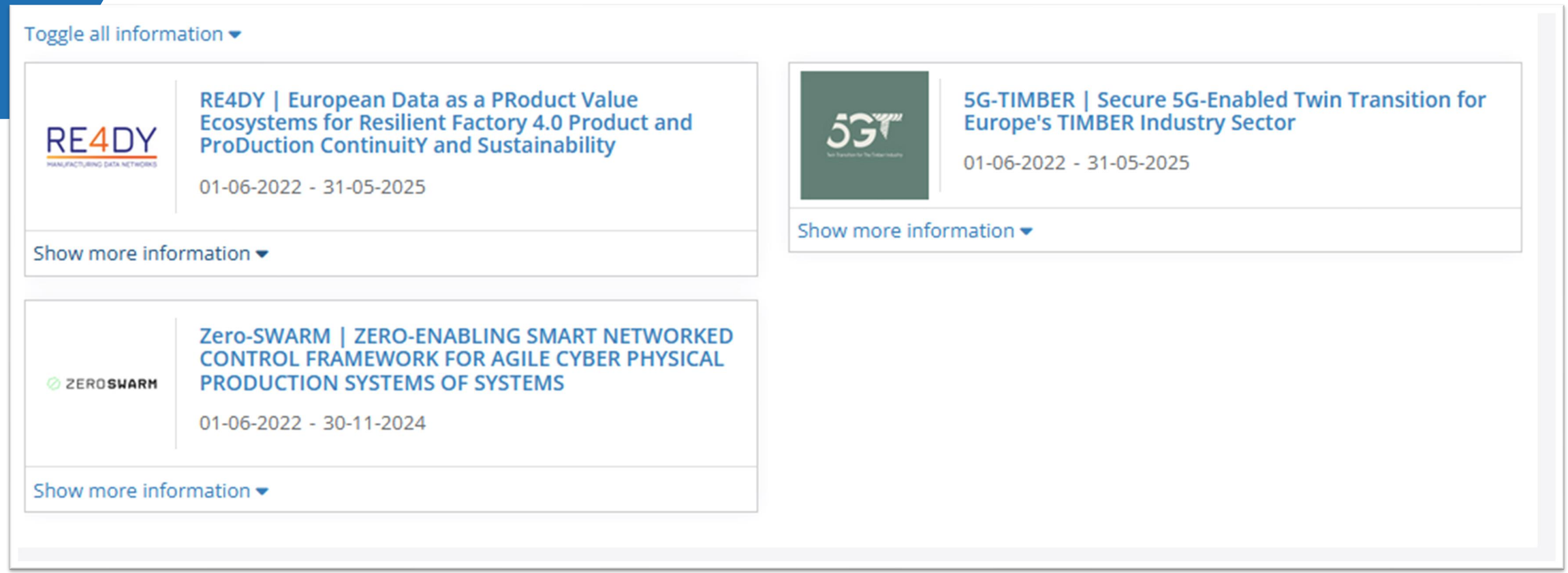
Key Enablers & Cross-cutting Factors

- Digital Maturity Assessment
- Digital Skills & Training
- Technology Building Blocks (edge, cloud, analytics, modelling, simulation)
- Cybersecurity
- Standardized Data Models (Semantic models)
- Energy Performance Standards
- New Business Models
- Added Value - energy and waste reduction, sustainable products, cost reduction, minimise environmental impact, sustainable products



Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

Examples of relevant past/ongoing projects



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

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Examples of relevant past/ongoing projects

Toggle all information

i4Q | Industrial Data Services for Quality Control in Smart Manufacturing

01-01-2021 - 31-12-2023

: 32

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

01-11-2020 - 31-10-2023

: 11

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DAT4.ZERO | Data Reliability and Digitally-enhanced Quality Management for Zero Defect Manufacturing in Smart Factories and Ecosystems

01-10-2020 - 31-03-2024

: 5

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OPTIMAI | Optimizing Manufacturing Processes through Artificial Intelligence and Virtualization

01-01-2021 - 31-12-2023

: 20

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

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automation

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LIAA | Lean Intelligent Assembly Automation

02-09-2013 - 01-09-2017

: 10 | : 2

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COMPOSITION | Ecosystem for Collaborative Manufacturing Processes _ Intra- and Interfactory Integration and Automation

01-09-2016 - 31-08-2019

: 157 | : 7

Show more information

FAR-EDGE | Factory Automation Edge Computing Operating System Reference Implementation

01-10-2016 - 30-10-2019

: 70 | : 17

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A4BLUE | Adaptive Automation in Assembly For BLUE collar workers satisfaction in Evolvable context

01-10-2016 - 30-09-2019

: 15 | : 4

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Daedalus | Distributed control and simulAtion platform to support an Ecosystem of DigitAL aUtomation developerS

01-10-2016 - 30-09-2019

: 27 | : 10

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DIGICOR | Decentralised Agile Coordination Across Supply Chains

01-10-2016 - 30-09-2019

: 42

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AUTOWARE | Wireless Autonomous, Reliable and Resilient ProductIon Operation ARchitecture for Cognitive Manufacturing

01-10-2016 - 30-09-2019

: 60 | : 1

Show more information

AREUS | Automation and Robotics for EUropean Sustainabile manufacturing

01-09-2013 - 31-08-2016

: 10 | : 3

Show more information

FACTORY-ECOMATION | Factory ECO-friendly and energy efficient technologies and adaptive autoMATION solutions

01-10-2012 - 30-09-2015

: 3

Show more information

SatisFactory | A collaborative and augmented-enabled ecosystem for increasing SATISfaction and working experience in smart FACTORY environments

01-01-2015 - 31-12-2017

: 75 | : 29

Show more information

Factory2Fit | Empowering and participatory adaptation of factory automation to fit for workers

01-10-2016 - 30-09-2019

: 46 | : 9

Show more information

SCALABLE4.0 | Scalable automation for flexible production systems

01-01-2017 - 30-06-2020

: 22 | : 9

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INCLUSIVE | Smart and adaptive interfaces for INCLUSIVE work environment

01-10-2016 - 30-09-2019

: 43 | : 3

Show more information

HUMAN | HUman MANufacturing

01-10-2016 - 30-09-2019

: 30 | : 3

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MANUWORK | Balancing Human and Automation Levels for the Manufacturing Workplaces of the Future

01-10-2016 - 31-03-2020

: 26 | : 3

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THANK YOU

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