EFFRA – European Factories of the Future Research Association

Stakeholder Webinar Consultation MiE Work Programme 2025-27

16 May 2023 - Human-centered manufacturing Services in Manufacturing
Agenda 16 May 2023

9h30 – 10h00
Welcome by EFFRA and the European Commission
Made in Europe Work Programme(s) 25-27 - where we stand

10h00 – 10h45
Proposed priorities from the perspective of human-centred manufacturing
The modalities of the consultation
Examples of past and ongoing projects
Q & A

10h45 – 11h00: Break

11h00 – 11h30
Proposed priorities from the perspective of services in manufacturing
Examples of past and ongoing projects
Q & A
European Commission & Member States

European Factories of the Future Research Association

Factories of the Future
Public Private Partnership
2010-2020

Made in Europe
2021-2027
“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

2009/2010
FP7

2013
FOF 2020

2014
Factories 4.0 and Beyond

2016

2020

Present

...
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
## Call 2021

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Title</th>
<th>Type</th>
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<tbody>
<tr>
<td>CL4-2021-TT-01-01</td>
<td>AI enhanced robotics system for smart manufacturing (IA)</td>
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<tr>
<td>CL4-2021-TT-01-02</td>
<td>Zero-defect manufacturing towards zero-waste (IA)</td>
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<td>CL4-2021-TT-01-03</td>
<td>Laser-based technologies for green manufacturing (RIA)</td>
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<tr>
<td>CL4-2021-TT-01-05</td>
<td>Manufacturing technologies for bio-based materials (RIA)</td>
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<tr>
<td>CL4-2021-TT-01-07</td>
<td>Artificial Intelligence for sustainable, agile manufacturing (IA)</td>
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<tr>
<td>CL4-2021-TT-01-08</td>
<td>Data-driven Distributed Industrial Environments (IA)</td>
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## Call 2022

<table>
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<tr>
<td>CL4-2022-TT-01-01</td>
<td>Rapid reconfigurable production process chains (IA)</td>
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<tr>
<td>CL4-2022-TT-01-02</td>
<td>Products with complex functional surfaces (RIA)</td>
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<tr>
<td>CL4-2022-TT-01-03</td>
<td>Excellence in distributed control and modular manufacturing (RIA)</td>
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<tr>
<td>CL4-2022-TT-01-04</td>
<td>Intelligent work piece handling in a full production line (RIA)</td>
<td></td>
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<tr>
<td>CL4-2022-TT-01-06</td>
<td>ICT Innovation for Manufacturing Sustainability in SMEs (I4MS2) (IA)</td>
<td></td>
</tr>
<tr>
<td>CL4-2022-TT-01-07</td>
<td>Digital tools to support the engineering of a Circular Economy (RIA)</td>
<td></td>
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</tbody>
</table>
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
Portfolio analysis - allocation of MiE call topics to SRIA R&I Objectives

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

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

Specific Objective 2: Circular products & Climate-neutral manufacturing

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

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

R&I Objective 3.1: Collaborative product-service engineering for customer driven manufacturing value networks
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 cybersecurity along the product and manufacturing lifecycle

Specific Objective 4: Human-centered and human-driven 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 and digital twins
R&I Objective 4.3: Human & technology complementarity and excellence in manufacturing
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
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
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 manufacturing technologies
- **Manufacturing with new/limited raw materials**
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- **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

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
Examples of relevant past/ongoing projects

- **Factory2Fit | Empowering and participatory adaptation of factory automation to fit for workers**
  01-10-2016 - 30-09-2019
  Views: 46 | Comments: 9

- **A4BLUE | Adaptive Automation in Assembly For BLUE collar workers satisfaction in Evolvable context**
  01-10-2016 - 30-09-2019
  Views: 15 | Comments: 4

- **INCLUSIVE | Smart and adaptive interfaces for INCLUSIVE work environment**
  01-10-2016 - 30-09-2019
  Views: 43 | Comments: 3

- **HUMAN | HUman MANufacturing**
  01-10-2016 - 30-09-2019
  Views: 30 | Comments: 3

**FOF-04-2016 Continuous adaptation of work environments with changing levels of automation in evolving production systems**
Collaborative assembly in a fenceless environment (IK4-TEKNIKER)

Summary

Attached files

More information & hyperlinks

Web resources: https://vimeo.com/330958923
Country: ES
Address: EIBAR

Associated resources

Publication (1)
White paper - Human-centred factories from theory to industrial practice. Lessons learned and recommendations

Associated projects
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Description</th>
<th>Dates</th>
<th>Views</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROSSINI</td>
<td>RObot enhanced SenSing, INtelligence and actuation to improve job quality in manufacturing</td>
<td>01-10-2018 - 31-03-2022</td>
<td>🍂: 52</td>
<td>🍋: 4</td>
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<tr>
<td>HR-Recycler</td>
<td>Hybrid Human-Robot RECYcling plant for electrical and eLectronic equipment</td>
<td>01-12-2018 - 30-11-2022</td>
<td>🍂: 54</td>
<td>🍋: 3</td>
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<tr>
<td>CoLlaboratE</td>
<td>Co-production CeLL performing Human-Robot Collaborative AssEmbly</td>
<td>01-10-2018 - 31-03-2022</td>
<td>🍂: 92</td>
<td>🍋: 9</td>
</tr>
<tr>
<td>SHAREWORK</td>
<td>Safe and effective HumAn-Robot coopEration toWards a better cOmpetiveness on cuRrent automation lack manufacturing processes.</td>
<td>01-11-2018 - 31-10-2022</td>
<td>🍂: 61</td>
<td>🍋: 4</td>
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<tr>
<td>SHERLOCK</td>
<td>Seamless and safe human - centred robotic applications for novel collaborative workplaces</td>
<td>01-10-2018 - 30-09-2022</td>
<td>🍂: 7</td>
<td>🍋: 4</td>
</tr>
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</table>


**DT-FOF-02-2018 Effective Industrial Human-Robot Collaboration (RIA)**
## Examples of relevant past/ongoing projects

<table>
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<tr>
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<th>Start Date - End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flently</td>
<td>Flently - the essence of human-robot interaction</td>
<td>01-06-2022 - 31-05-2025</td>
</tr>
<tr>
<td>COGNIMAN</td>
<td>COGNgitive Industries for smart MANufacturing (COGNIMAN)</td>
<td>01-01-2023 - 31-12-2026</td>
</tr>
<tr>
<td>CONVERGING</td>
<td>Social industrial collaborative environments integrating AI, Big Data and Robotics for smart manufacturing</td>
<td>01-09-2022 - 31-08-2026</td>
</tr>
<tr>
<td>AI-PRISM</td>
<td>AI Powered human-centred Robot Interactions for Smart Manufacturing</td>
<td>01-10-2022 - 30-09-2025</td>
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**HORIZON-CL4-2021-TWIN-TRANSITION-01-01: AI enhanced robotics system for smart manufacturing (IA)**
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ConnectedFactories Online workshop - Business and legal workshop 2022

Joint value creation ... But how?
Success factors of the subscription business model

Value in Use

Provider

Customer
FoF.NMP.2013-5 - Innovative design of personalised product-services and of their production processes based on collaborative environments
FoF-05-2014 Innovative Product-Service design using manufacturing intelligence
ICP4Life | An Integrated Collaborative Platform for Managing the Product-Service Engineering Lifecycle
01-01-2015 - 01-01-2019

PROSECO | Collaborative Environment for Design of Aml enhanced Product-Services Integrating Highly Personalised Innovative Functions with Minimal Ecological Footprint along Life Cycle and of Their Production Processes
01-10-2013 - 30-09-2017
How to contribute to the consultation

Webinars and Open Consultation MiE Programme 2025-27

The Made in Europe partnership is now operating in full swing. The first webinars have been launched and the project proposals associated with the first calls have been evaluated. The development of calls for proposals is now halfway published and three calls remaining.

With this in mind, EFFRA is organizing two online stakeholder webinars to discuss the state of play of the Made in Europe Partnership and present possible focus areas for the next Work Programme 2025-27. These webinars will mark the opening of a consultation, generating an inclusive knowledge sharing approach with stakeholders.

The Made in Europe Partnership website offers a consultation page for experts and stakeholders to contribute to the future roadmap of manufacturing in Europe.
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 competitiveness 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).

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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 focuses 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 users that have editing permissions on the project.
Contribute via your profile or via your project
THANK YOU

Contact:
info@effra.eu

@EFFRA_Live
EFFRA.EU