Industry 5.0 – EU perspective

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Recent decades and years…

…….a remarkable **surge in technological advancements**, catalysing transformative shifts across various industries;

……**BUT** the ongoing twin transition point to significant challenges of the rapid implementation of advanced technologies in industry, as well as **uncertainties** with regard to technological trajectories and **effects on workers and society at large, global competitiveness, technology sovereignty, and the climate change pressures.**

Industry 5.0

- To address new emerging challenges of the twin transition and in order to make sure that we harness the technologies‘ real potential for driving industrial leadership, prosperity and sustainable competitiveness, as well as enhance industry’s positive societal and environmental impact – a **new system thinking approach in industry is needed.**

- **Industry 5.0** presents a transformative vision in promoting a **human-centric approach for industry,** while incorporating **systemic aspects of competitiveness, resilience, sustainability and inclusivity**. It can help EU industries and economy to adapt to the post twin-transition era and contributes to a long-term sustainable competitiveness of EU industry.

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Not a revolution

Rather than representing a technological leap forward, **Industry 5.0** nests the Industry 4.0 approach in a broader context and provides a **holistic approach to twin transition-driven challenges.**

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From awareness-raising to implementation (2023-2024)

- ERA Industrial **Technologies Roadmap on Human-centric enabling technologies** and organisational innovations for industry (July 2024)
- Funding of **Horizon Europe projects** for Industry 5.0
- **Industry 5.0 Community of Practice** (Nov 2023)

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ERA industrial technologies roadmap on human-centric R&I for the manufacturing sector

The roadmap shows how industrial stakeholders can take a leading role in achieving **human-centric outcomes in technology development and adoption**, such as improving workers' safety and wellbeing, upskilling or learning.

There are significant **opportunities to capture the transformative potential of ground-breaking technologies** like artificial intelligence and virtual worlds **through more human-centric and user-driven design approaches**.

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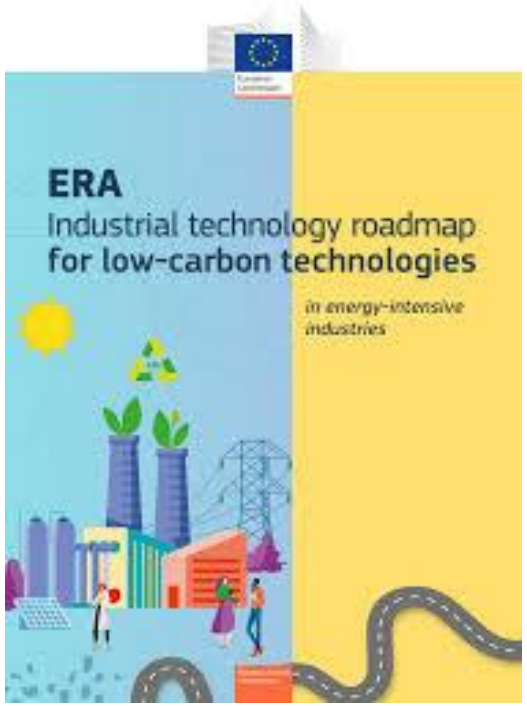
ERA industrial technologies roadmap on human-centric R&I for the manufacturing sector

Examples of policy recommendations:

- Broadening and **upgrade of human-centric design concepts and practices** are needed to include more purpose-driven and systemic design considerations.
- More active role of policy-makers in **advancing the development of technologies with human-centric approaches** and promoting human-centricity at the organisational level.
- Anticipating the **needed key skills for the future of manufacturing**, **facilitate knowledge exchange** and dissemination between ecosystem enablers and actors. Facilitate **open innovation and collaborative approaches** between industry, research, education and social sectors
- Bringing together **diverse actors of different backgrounds** to integrate expertise and knowledge for developing technologies that address the needs and challenges of diverse stakeholders. Supporting **technology foresight** to identify opportunities in this fast developing emerging field.
- **Integrating HC in certifications and standards for business** to design and develop human centric technologies and practices. Provide guidance for organisations for integrating HC in their practices, especially in the design and technology development.



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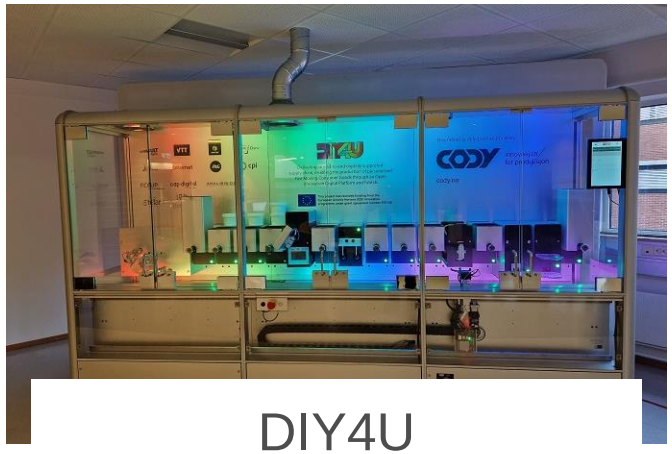
Horizon Europe – examples of projects (technology & production design)

Examples of Industry 5.0 relevant projects on Human-Centric Manufacturing

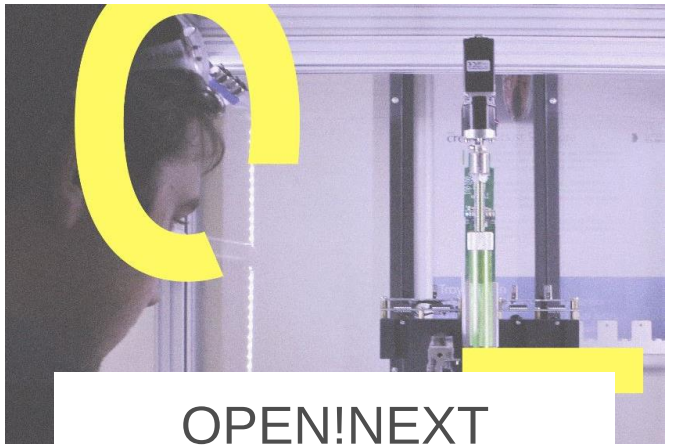


DIY4U

Open Innovation Digital Platform and Fablabs for Collaborative Design and Production of personalised/customised FMCG (fast-moving consumer goods)

iPRODUCE

A Social Manufacturing Framework for Streamlined Multi-stakeholder Open Innovation Missions in Consumer Goods Sectors



OPEN!NEXT

Company-Community Collaboration for Open Source Development of products and services

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Horizon Europe – examples of projects (SME transformation)

- **Prospects 5.0:** to promote the adoption of Industry 5.0 principles, and facilitate the transition to Industry 5.0 for SMEs, start-ups, and scale-ups in various industries.
- **Bridges 5.0**: to build workforce skills for Industry 5.0
- **SEISMEC**: to empower skilled workforces with human-centric solutions, address challenges tied to advanced workplace technologies and foster innovation through evidence-based recommendations.
- **AI Redgio 5.0**: to implement a competitive AI-at-the-Edge Digital Transformation of Industry 5.0 Manufacturing Small and Medium Enterprises.
- **SURE 5.0**: to support European SMEs, advance in their digital transformation process while becoming more human-centric, sustainable and resilient.

CoP 5.0 – connecting the dots

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*CoP 5.0 brings together **170+ European innovation ecosystem stakeholders** to **share good practices**, **co-create actions to accelerate implementation of Industry 5.0** and provide a platform for members to network and establish new collaborations. It facilitates an opportunity for stakeholders to share ideas, foster synergies, and receive support in transforming traditional organisational models into more impactful ones.*

Timeline:
16 November 2023: CoP 5.0 official launch
Dec 2023 – May 2024: CoP 5.0 piloting phase
16 October 2024: CoP 5.0 Plenary Session in Brussels
January 2025 onwards: full-fledged CoP 5.0

Joining CoP 5.0:
https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/industry-50_en

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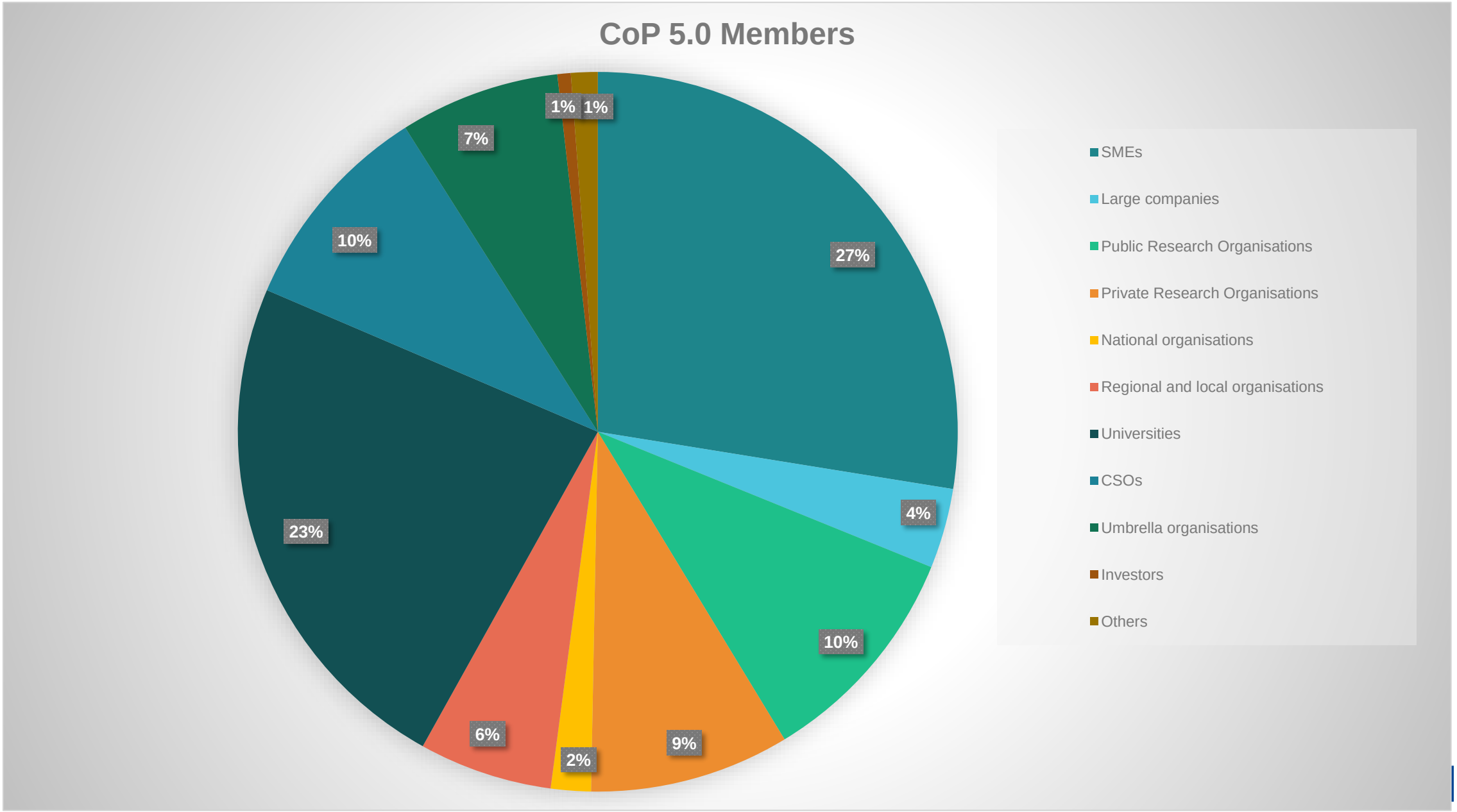
CoP 5.0 Members
27%
4%
10%
9%
2%
6%
23%
10%
7%
1%
1%
SMEs
Large companies
Public Research Organisations
Private Research Organisations
National organisations
Regional and local organisations
Universities
CSOs
Umbrella organisations
Investors
Others

CoP 5.0 pilot – deliverables

Deliverable: an **in-depth analysis** elaborating on Industry 5.0 as a **Transformative industrial R&I policy agenda** fostering place-based experimentation based on complexity approaches and system thinking.

Deliverable: a **prototype Industry 5.0 learning and assessment tool** aiming at helping companies and organizations to better understand and evaluate their Industry 5.0 performance based on three critical pillars: human-centricity, resilience, and sustainability.

Industry 5.0 as a **Transformative industrial R&I policy agenda** (1)

A. Investing in the emergence of Industry 5.0 innovations & skills

Promoting responsible design practices & skills for research, technology development & innovation processes contributing to Industry 5.0

- Eco-design, Bio-inspired design
- Human-centric & systemic design
- Resilience

Prototyping and adopting new enterprise and production models

- Learning organisations
- New business models
- Industrial commons, open source digital fabrication, company-community collaborations etc,

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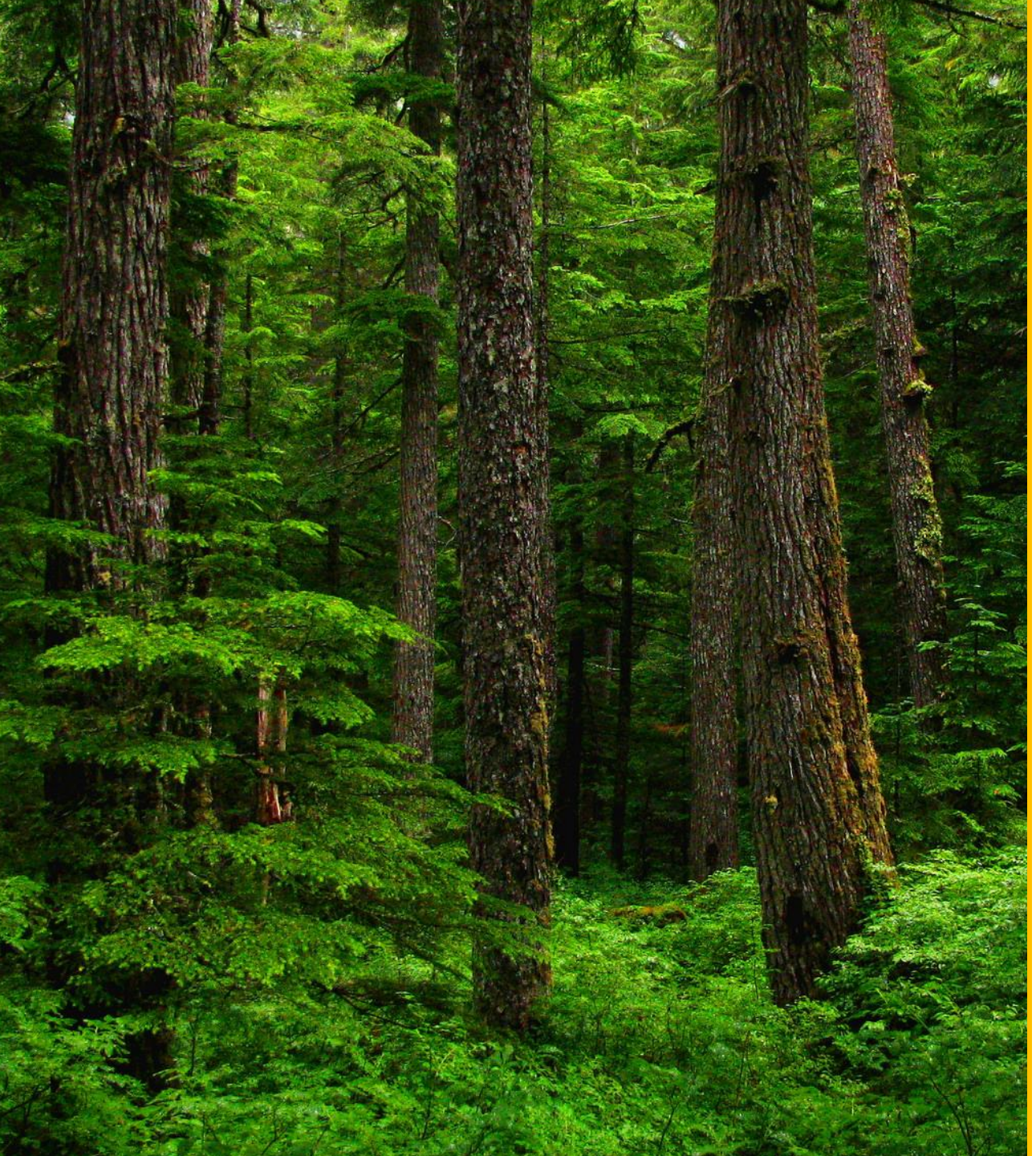

Industry 5.0 as a **Transformative industrial R&I policy agenda** (2)

B. Scaling up I5.0 innovations into industrial ecosystems

Hubs 5.0 as place-based Systemic Innovation orchestrators

- Transformation towards learning organisations and learning ecosystems
- Open social innovation & new business model
- Improved digital infrastructures as industry commons and dynamic capturing of industry intelligence for Industry 5.0 goals
- Demonstration of new incentives for paradigm change towards Industry 5.0, together with industry, academia, social partners and policy-makers

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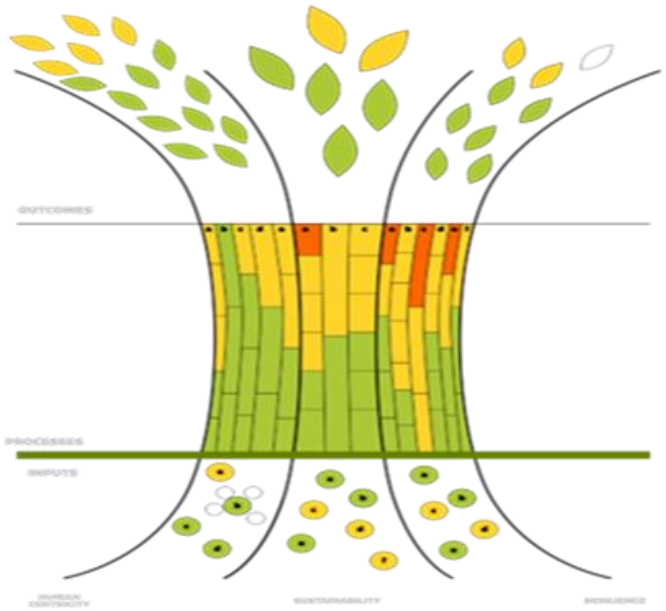
Prototype Industry 5.0 learning and assessment tool (company level)

- Encourage companies/organisations to **check their performance against human-centricity, sustainability and resilience** at different stages of the production process;
- Inspire organisations (in particular start-ups) to **design impact-driven organisational models** aligned with green, digital and social transformation;
- Provide an **overview of company's impact-driven performance for policy-makers and investors**.



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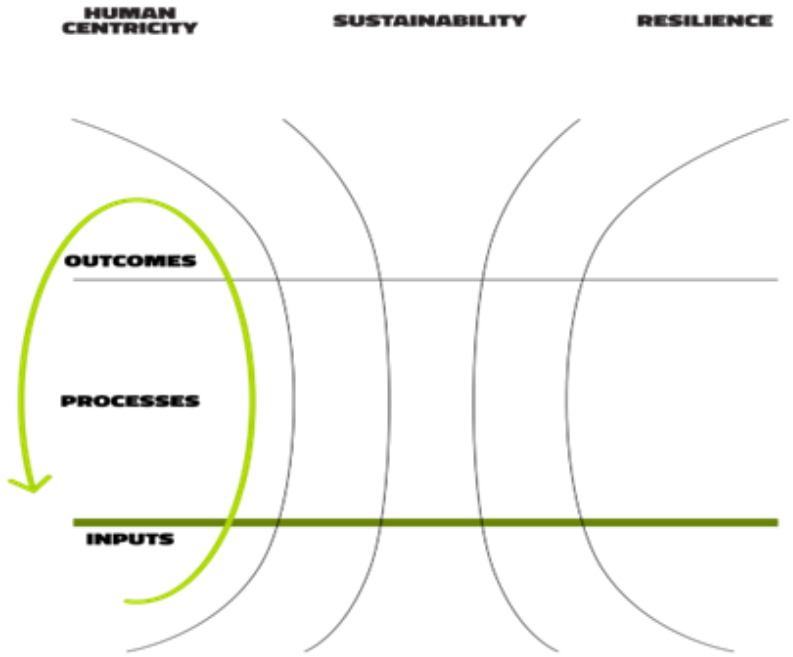
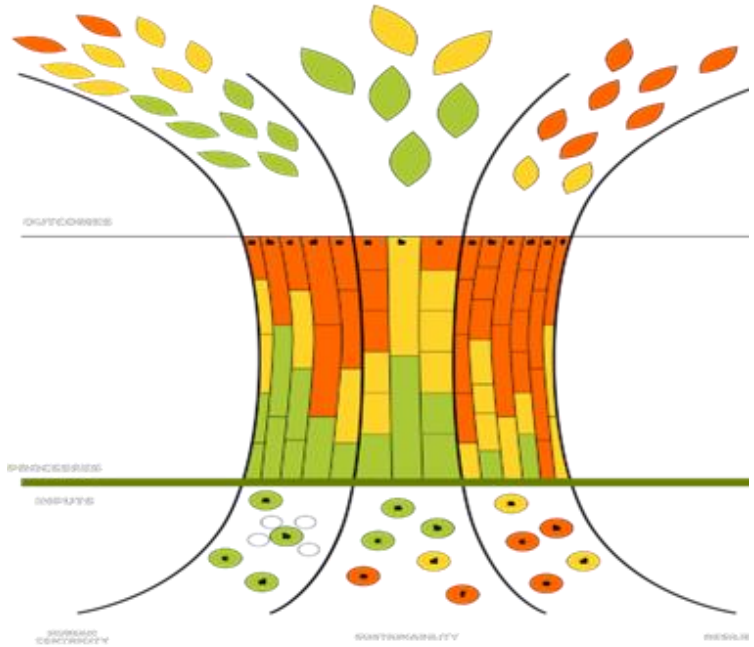
Prototype Industry 5.0 learning and assessment tool

- Two parts: **qualitative (“learning”) and visual (“assessment”).** The qualitative part zooms-in on individual pillars of Industry 5.0 (human-centricity, sustainability and resilience) and their key dimensions. It is structured in a matrix combining the three Industry 5.0 pillars with individual phases of production process;

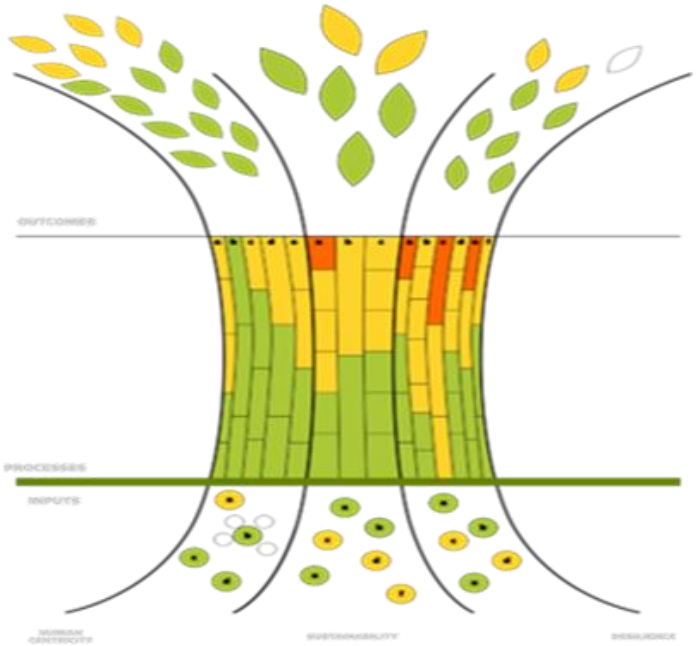
- The system of color-coded standardised answers to customised questions in the qualitative part allows transformation of the answers into the visual “regenerative tree”.



Outcome of the testing exercise – “regenerative tree” examples



Company A



Company B

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Industry 5.0 beyond 2024….

- COM 2024-2029 **new political priorities** (New plan for Europe's sustainable prosperity and competitiveness);
- **CoP 5.0**
- **Implementing Industry 5.0 related actions from Horizon Europe Strategic Plan 2025-2027** in **HE WP 2025-2027** (Cluster 4 Digital, Industry and Space)

Find out more

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https://ec.europa.eu/info/research-and-innovation/research-area/industrial-research-and-innovation/industry-50_en

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From shareholder to stakeholder value

INDUSTRY 5.0

human-centric, sustainable and resilient

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