

SEISMEC

 **PROSPECTS**^{5.0}

 **bridges**^{5.0}

Workshop

**Human-Centric companies: Insights
from real-world Industry 5.0
innovations**



Funded by
the European Union

Agenda:

Presentation of the SEISMEC project and its pilot companies: NS WEB and Arctur

Presentation of the BRIDGES 5.0 project and its pilot company: Comau

Presentation of the PROSPECTS 5.0 project and its pilot company: B-Braun

Wisdom of the crowd and open discussion



Laura Lomurean
Transilvania IT Cluster

PR & Communication
Manager

**Happy to be
your
moderator
today!**


SEISMEC

Supporting European Industry
Success Maximization through
Empowerment Centred development



Funded by
the European Union

**A brand-new wave of
human-centric,
tech-enabled,
collaborative
Industry 5.0 workspaces**



The project in a nutshell

The **SEISMEC** is an EU-funded initiative under the Horizon Europe programme, Grant Agreement no. 101135884

31

PARTNERS

48

MONTHS

€10M

IN FUNDING

JAN 2024

DEC 2027

About SEISMEC

SEISMEC will shape a **future of work** that is both productive and enriching, with a focus on creating **sustainable work environments** that prioritize employee well-being and fulfillment.

At its core, the project is a mosaic of **piloting experiences** that come together through the unconventional lens of social sciences and humanities.

SEISMEC will demonstrate an **empowered, human-centred** and **ethical** development of digital and industrial technologies in a wide array of industrial sectors and contexts.



17 PILOTS



14 INDUSTRY SECTORS



14 COUNTRIES

SEISMEC

SHIFT

The SEISMEC SHIFT advocates for a brand-new **Industry 5.0 framework** that strikes the right balance between **disruptive technology** and **human-centricity** and operates on the premise that **workers' empowerment** and **industrial competitiveness** are complementary forces.

THE EXPECTED IMPACT OF HUMAN-CENTRIC DESIGN

- ▲ **10-15%**
WORKER
AUTONOMY
- ▲ **30%**
TECHNOLOGY
ACCEPTANCE
- ▲ **10%**
PRODUCTIVITY
- ▼ **40%**
TESTING &
ERROR CORRECTION

Understand

The delicate **balance** at play **between workers, organisations and how they engage** with advanced technology in a multi-faceted industrial ecosystem

Test

Custom-fit **methods and tools** that can nurture and **enhance human-technology synergies** and skills development in Industry 5.0 workplaces, tested in **17 pilots** from 17 countries and **14 industries**

OUR ambition

Show

How human-centric solutions can **empower** a highly-skilled, value-driven and **increasingly creative industrial workforce in Europe**

Influence

New **evidence-based recommendations** that seamlessly connect workers, industry, policymakers and like-minded initiatives in the EU sphere



Dr. Srdjan Vukmirovic

NS WEB

Professor at the Faculty of
technical sciences, University
of Novi Sad, Serbia



Vesna Kobal

Arctur

Lead technology
development, Tourism 4.0



Dejan Iskra

Arctur

Head of the Destination
Management Organization
(DMO) Green Karst

ARCTUR & RDA GREEN KARST

ARCTUR



 www.arctur.si

 www.rra-zk.si/en

Company Profile

ARCTUR

For more than 30 years Arctur has been pioneering by merging of research, science, art and business. The interdisciplinary spirit is the cradle of innovation in which concepts, solutions and products come to life.

RDA GREEN KARST

The RDA Green Karst was established in 2000 by six municipalities (Pivka, Postojna, Cerknica, Loška Dolina, Bloke and Logatec) and five other local, regional and national support and development institutions. We focus on destination management for Green Karst destination.

▶ **SME**

▶ **ARCTUR 50 +
RDA GREEN KARST
15**

▶ **Slovenia**

▶ **Tourism and IT**

Role in the project

FLOWS GREEN KARST



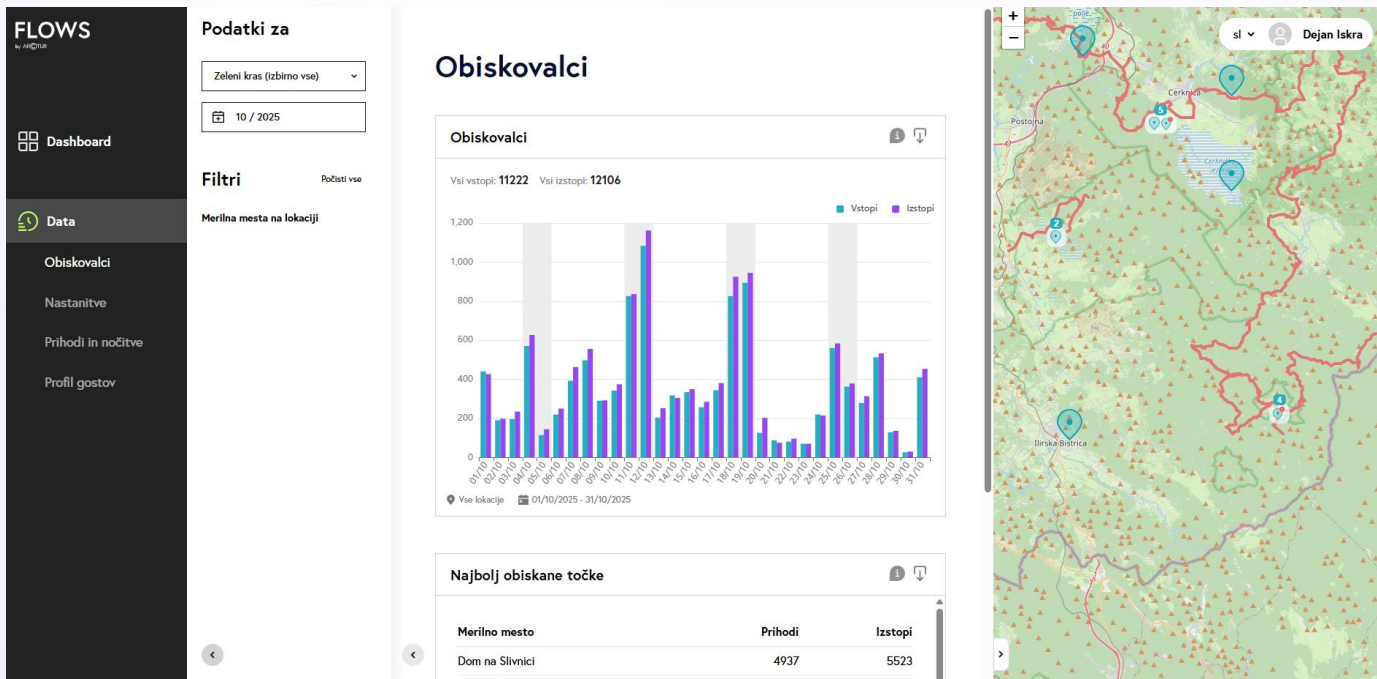
Why: Your main goal and motivation for participating



Role in the project

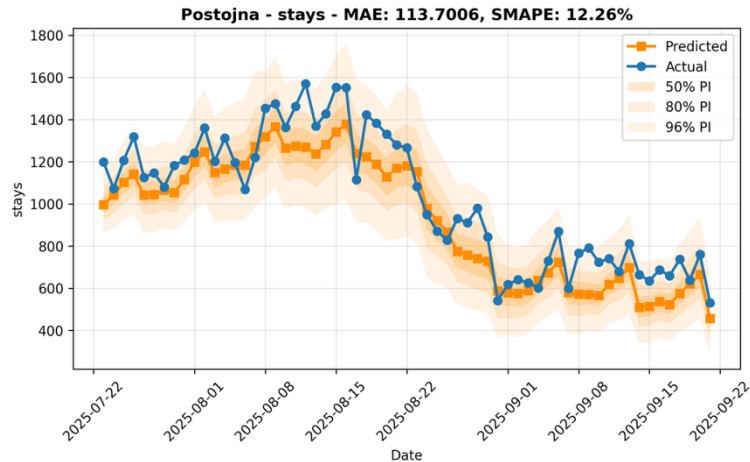
FLAWS GREEN KARST

Why: Your main goal and motivation for participating



Progress & implementation

Activities implemented so far



Technologies or organisational changes introduced

- ▶ **IoT**
- ▶ **UX**
- ▶ **Predicable AI**
- ▶ **Add text here**

Human-Centric Approach

Add your text here

How workers were involved in technology design and implementation, e.g.:

- Employee workshops
- Focus groups
- Interviews
- Co-creation labs
- Participatory design sessions

Alignment with human-centric values (well-being, skills, empowerment, inclusion, autonomy, productivity, safety, job security, working life quality improvement, etc.)

LEGISLATIVE BARRIERS

**WORKER
INVOLVEMENT**

CHALLENGES

**DATA COLLECTION &
AVAILABILITY**

EXPLAINABLE AI

Preparation of MoU

Communicational
activities with users

SOLUTIONS

Setting up internal datasets

Working together with
SEISMEC partners
(CERTH)



Q & A

Clarifying questions
from participants

NS WEB DEVELOPMENT

NSWD_

 nswebdevelopment.com

 bridges^{5.0}

 PROSPECTS^{5.0}

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NS WEB DEVELOPMENT

NS Web Development creates non-violent educational games and animated content designed to support learning, curiosity and positive social impact.

- ▶ **Company size - Small**
- ▶ **Number of employees - 22**
- ▶ **Location – Novi Sad, Serbia**
- ▶ **Sector Creative Industry**

Role in the project

Which project you are part of

- SEISMEC
- Pilot

Why: Your main goal and motivation for participating

As AI tools become common in animation, modelling and game design, creative teams face a real dilemma. AI can speed up production and improve technical execution, but it can also affect creative ownership, professional identity and job satisfaction.

Progress & implementation

Activities implemented so far

- Monthly questionnaires
- Bottom-up approach for choosing new AI tools
- Employee workshops for structural feedback
- Co-creation labs

Technologies or organisational changes introduced

▶ **AI Tools for better work place**

▶ **Questionnaires**

▶ **Structural feedback**



Human-Centric Approach

workers were involved in technology design and implementation

- Employee workshops
- Interviews
- Co-creation labs
- Participatory design sessions

Alignment with human-centric values

- well-being,
- skills,
- empowerment,
- autonomy,
- productivity,
- working life quality
- improvement

Structuring feedback

How to measure worker
satisfaction

CHALLENGES

How to follow
everchanging landscape

Time to use new tools
and get feedback

Solutions adopted to
address human,
organisational or
technological barriers

Measure feedback
through questionnaire

SOLUTIONS

Structural research of
new AI Tools

Participatory design
sessions for new AI Tools



Q & A

Clarifying questions
from participants



Progress Towards Industry 5-0: a Smart Study on
Analysis and Identification Of Practices, Drivers,
Success Factors and Obstacles of Transitions
Towards Industry 5.0.



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the European Union



Anna Zmiievskva
Technology Partners

Project Director. EU Grants
& Innovation Strategist



Laura Aldrovandi, PhD
B-Braun

R&D Innovation Health
Project Manager



PROJECT OVERVIEW

PROGRESS TOWARDS INDUSTRY 5-0: A SMART STUDY ON ANALYSIS AND IDENTIFICATION OF PRACTICES, DRIVERS, SUCCESS FACTORS AND OBSTACLES OF TRANSITIONS TOWARDS INDUSTRY 5.0



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This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101135948

HORIZON EUROPE COLLABORATIVE PROJECT

HORIZON-CL4-2023-HUMAN-01-52:
Drivers and success factors for
progress towards Industry 5.0



01 January 2024 – 31 December 2026



30 partners from 17 countries



€ 3 999 335,00



14 use cases



6 industry sectors



Objective 1:

Creating an open and resilient ecosystem to perform additive knowledge build-up



Objective 2:

Developing an Industry 5.0 Assessment Framework based on a multi-sectorial and multi-stakeholders' engagement and co-creation processes



Objective 3:

Conducting an evidence-based analysis on implementation practices, drivers, success factors, bottlenecks and obstacles regarding the adoption of Industry 5.0 principles



Objective 4:

Providing measurement and adaptation tools for industry leaders and policy-makers at national and European level to increase the uptake of the Industry 5.0 principles



Objective 5:

Accelerating the adoption of results by transferring them to relevant actors



14 use cases

6 sectors

Different maturity level

Different size

ADVANCED MANUFACTURING

- ❑ **AMF (PT)** – smart safety footwear production
- ❑ **B. Braun (IT)** – assembly of biomedical devices with cobots
- ❑ **CAMELEO (PL)** – exoskeleton-assisted decorative coatings production
- ❑ **ELMI (LV)** – laboratory equipment manufacturing

AVIATION

- ❑ **STRATECFAT (FR)** – AI-based welding system for sustainable hybrid fuselage

AUTOMOTIVE

- ❑ **TEKNOROT (TR)** – smart vehicle suspension systems for general monitoring systems for crane

CLEAN ENERGY TECHNOLOGIES

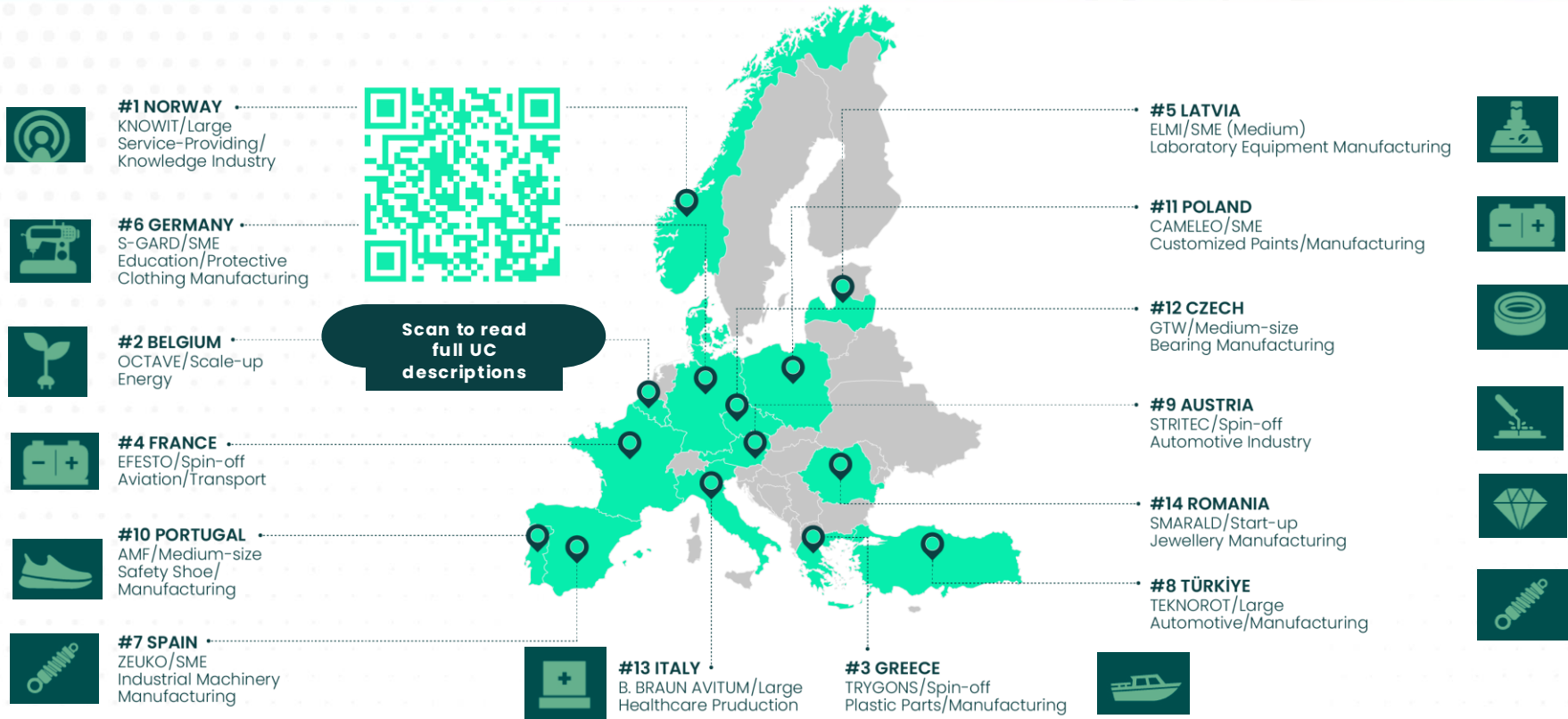
- ❑ **OCTAVE (BE)** – energy storage using second-life EV

IT SERVICES & DIGITAL TRANSFORMATION

- ❑ **KNOWIT (NO)** – digital transformation and cloud/AI

EDUCATION & SKILLS

- ❑ **S-GARD (DE)** – digital sewing machines for training and knowledge preservation

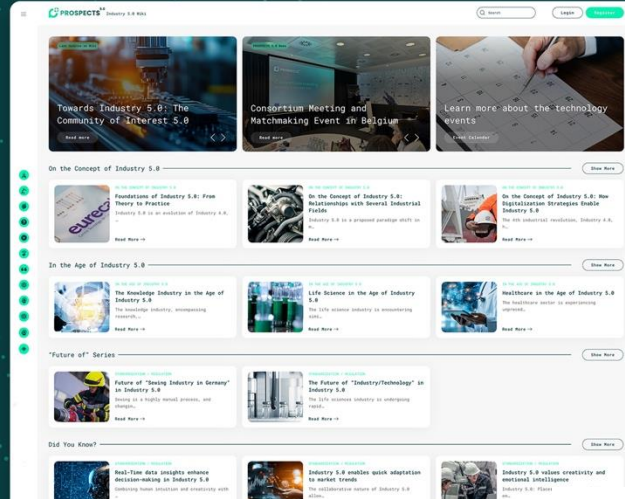




The Industry 5.0 Wiki

A Comprehensive Knowledge Hub for Industry 5.0

Visit Our Website [WIKI.PROSPECT5-0.EU](https://wiki.prospect5-0.eu)



WHY JOIN?

Access cutting-edge knowledge, tools, and professional growth opportunities. Collaborate with experts and shape the Industry 5.0 movement.



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Assess your Industry 5.0 maturity level

Members contribute directly to the definition of an Industry 5.0 assessment framework and gain early access to tools such as the self-assessment app to measure their organisation's Industry 5.0 maturity level.



Access contents and contribute to Wiki 5.0

Community members can access and co-create content within the Wiki 5.0 repository, a collaborative knowledge hub where real-world use cases, lessons learned, and best practices are shared and explored.



Be inspired by success cases

The Community offers inspiration from Industry 5.0 practices across different industrial sectors, helping organisations turn ideas into concrete actions.



Share your experience

According to the community member profile and expertise, she/he may be invited to take part in online workshops and feedback surveys, playing an active role in shaping a common European framework for Industry 5.0.



Co-design the next steps with us

Through 14 real-world use cases across six key sectors as manufacturing, IT services, education, energy, aviation, and automotive, the Community of Interest offers a unique opportunity to co-design practical tools, frameworks, and recommendations that will guide Industry 5.0 adoption across Europe.

By becoming a member of the Community of Interest, you join a diverse ecosystem of EU actors and organisations with different backgrounds and real-world experience





10 KPIs – Human Centricity

HUMAN EMPOWERMENT
SAFETY AND WELL-BEING
TECHNOLOGY ADOPTION FOR WORKER SUPPORT
INCLUSIVITY AND DIVERSITY

11 KPIs – Environmental Sustainability

CARBON FOOTPRINT AND GHG EMISSIONS INTENSITY
ENERGY AND WATER USAGE EFFICIENCY
CIRCULARITY AND PRODUCT TRACEABILITY
INNOVATION IN SUSTAINABLE TECHNOLOGIES
REGULATORY COMPLIANCE

7 KPIs – Industrial Resilience

RISK MANAGEMENT
SUPPLY CHAIN ALTERNATIVES
BUSINESS CONTINUITY PLANNING EFFECTIVENESS
INNOVATION AND CONTINUOUS IMPROVEMENT
CYBERSECURITY



There are two KPI categories to meet specific needs (sector and size):

- **Core KPIs**, which provide a standardized baseline applicable across all organizations. They focus on **strategic alignment** (policy level).
- **Scenario-related KPIs**, tailored to company-specific variables (e.g., size, sector) and more focused on **operational outcomes** (outcome level).

Explore the Report

<https://doi.org/10.5281/zenodo.17897608>



THANK YOU



PROSPECTS5-0



PROSPECTS5-0



PROSPECTS5_0



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B-Braun Italy

B | BRAUN
SHARING EXPERTISE



www.bbraun.it/

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Company Profile

B. Braun is a global medical technology company founded in 1839, committed to protecting and improving people's health. Guided by the principle Sharing Expertise, it develops innovative and sustainable solutions in close collaboration with healthcare professionals.

- ▶ **64.000 +
Worldwide**
- ▶ **60+ countries**
- ▶ **Revenue 9.4 Billion**
- ▶ **Healthcare /
Medical
Technology**

Role in the project

Which project you are part of

Prospect 5.0

Why: Your main goal and motivation for participating

We approached this project by leveraging our expertise in Cobots and Industry 5.0. Starting from this foundation, we expanded the scope by focusing on:

Sustainability: designing to minimize environmental impact throughout development.

Human-centricity: prioritizing people to enhance well-being, skills, safety, and empowerment.

Resilience: improving the organization's capacity to handle disruptions while maintaining continuity and value.

The Engineering group contributed by defining KPIs, ensuring they were measurable and aligned with project objectives.

Progress & implementation

Activities implemented so far

- The co-bot project has been implemented only up to the design phase .The implementation phase will be planned ed 26
- Internal workshops were conducted to define KPIs and collect data regarding **Sustainability, Human-centricity, Resilience**

Technologies or organisational changes introduced

- ▶ The Engineering department function has been strengthened by adding new resources dedicated to project management. This reinforcement was aimed at improving the coordination, planning, and execution of engineering activities, as well as ensuring better control over project timelines, priorities, and deliverables.

Human-Centric Approach

Add your text here

How workers were involved in technology design and implementation, e.g.:

- Workers were involved during the **design phase** through **internal workshops**
- Continuous **feedback** during the project lifetime

Cultural Change and acceptance

Initial resistance to change toward human-machine collaborative solutions and new ways of working

KPI definition and data availability

Difficulty in defining truly measurable KPIs for “soft” aspects such as well-being, human-centricity, and resilience.

CHALLENGES

Integration complexity

Integration of new technologies (cobots, Industry 5.0 approach) with existing processes and infrastructures

Skill gaps and training needs

Need to develop new technical and digital skills to design and manage Industry 5.0 solutions.

Cultural Change and Acceptance

Clear communication and involvement of workers from the beginning

KPI Definition and Data Availability

Use simple and existing data (HR data, surveys, operational data).

SOLUTIONS

Integration Complexity

Gradual implementation starting from small pilot projects.

Skill Gaps and Training Needs

Basic training sessions and on-the-job learning.



Q & A

Clarifying questions
from participants



**Bridging Risks to an Inclusive Digital
and Green future by Enhancing
workforce Skills for industry 5.0**



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Peter Oeij

TNO

Senior Research Scientist and
consultant affiliated with
Netherlands Organisation for
Applied Scientific Research (TNO)
Innovation for Life



Massimo Ippolito

Comau

Predictive Maintenance
Services Manager

Bridges 5.0

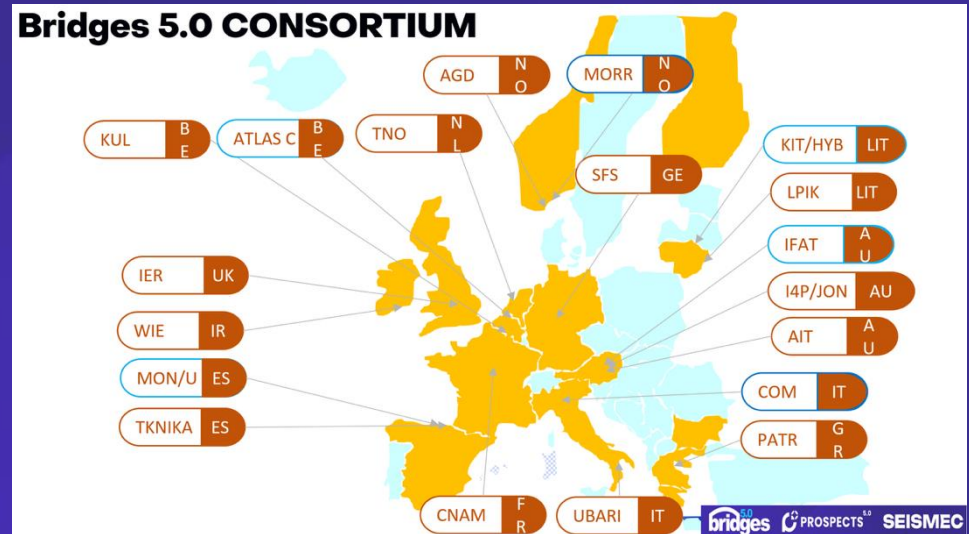
**Towards a Human-Centred,
Sustainable and Resilient
Economy.**



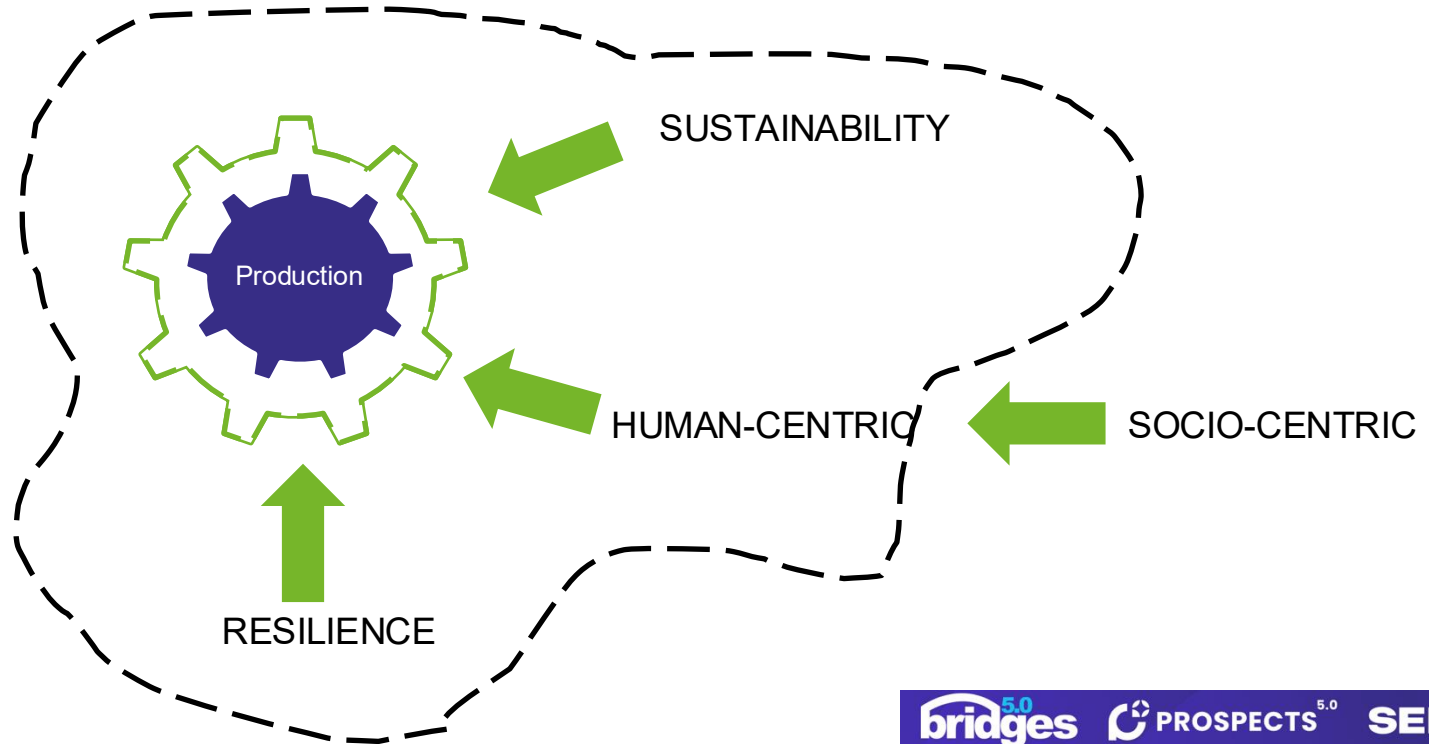
<https://bridges5-0.eu/>

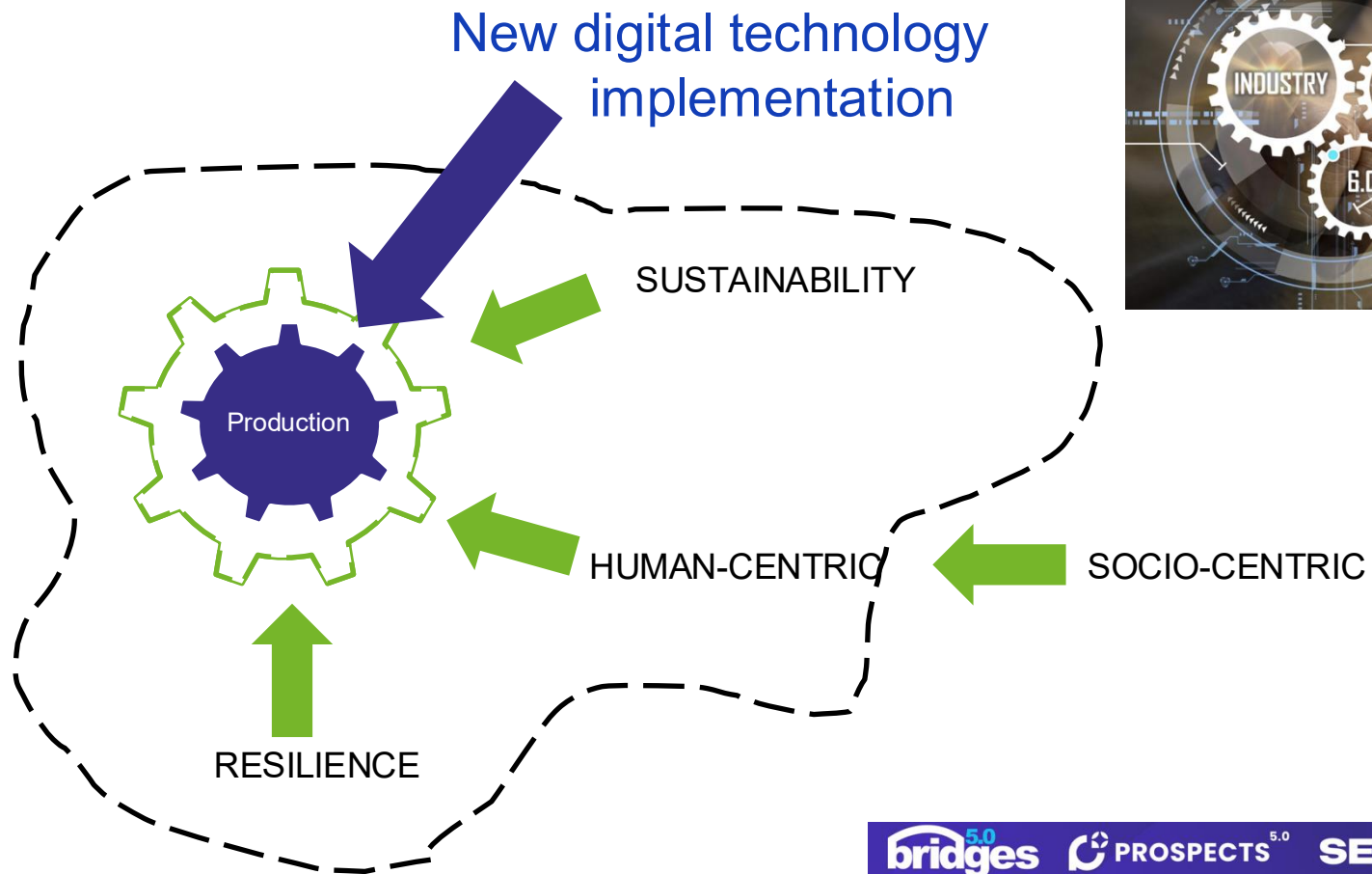
Horizon-Europe BRIDGES5.0

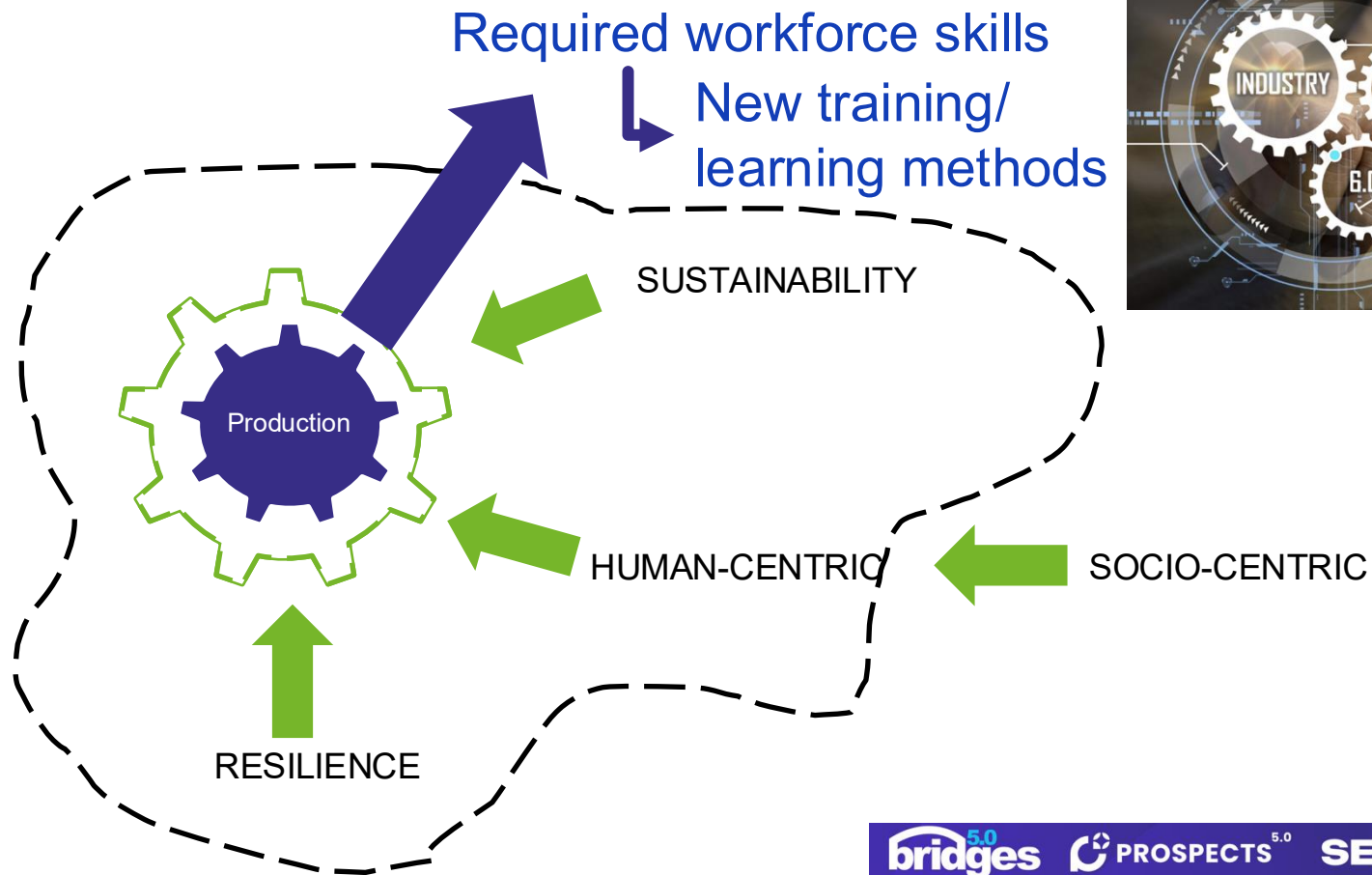
- BRIDGING RISKS TO AN INCLUSIVE DIGITAL AND GREEN FUTURE BY ENHANCING WORKFORCE SKILLS FOR INDUSTRY 5.0



1. Mapping of transition to new green and digital jobs; meet Industry 5.0 requirements;
2. Map Industry 5.0 skills and skill gaps; and enable monitoring of skill gaps using skills taxonomies/standards;
3. Set up learning trajectories and training pathways for four target groups, i.e. managers, employed, job-seekers and students;
4. Engage a range of large companies and stakeholders (policymakers, SMEs, social partners, Vocational Educational Training (VET) providers) at regional, national and EU levels: create **Industry 5.0 Platform**.







General approach

Technology → Skills → Teaching - Learning



Teaching Factory

A dynamic exchange where industry practitioners teach students, and students and faculty teach practitioners. This collaboration occurs online over an extended period, featuring regular sessions and continuous interaction between industry and academia.

IN-COMPANY

[5 organisations]

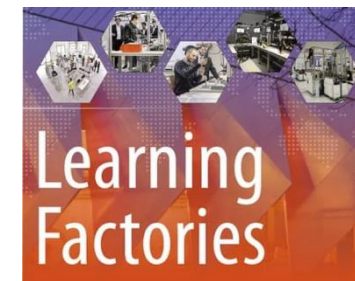
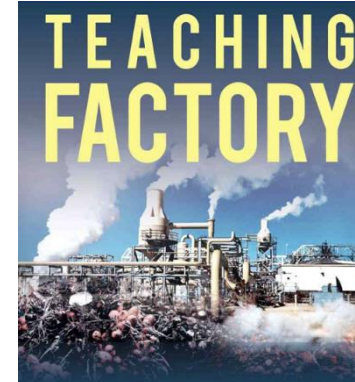


Learning Factory

A concept where university facilities replicate manufacturing environments, enabling collaboration between academia and industry in specific courses aimed at imparting manufacturing concepts, trends, and knowledge in an academic setting. It resembles a hands-on workshop.

LIVING LAB

[5 networks]



Overview of Teaching and Learning Factories

Teaching Factories Role

Teaching Factories serve as real industrial pilots focusing on human-centricity, resilience, and sustainability in live contexts.

Learning Factories Purpose

Learning Factories combine education with industrial challenges to develop advanced skills through hands-on training.

Industry 5.0 Integration

BRIDGES 5.0 integrates both factory types to enable Industry 5.0 transition with technology and human-centric strategies.

Teaching Factories and Learning Factories overview

FACTORY TYPE	1	2	3	4	5
Teaching Factories	Mondragon	Infineon	Kitron	Comau	TKSE
Learning Factories	DEGV– Tknika	FH Joanneum / PI4.0	Smart Maker Academy	UIA / Eyde Cluster	LPK

Innovative Education

Teaching Factories

Case	Type	Purpose
Mondragon	Two TF's in two different companies with managers and engineers	To see the level of digitalization adoption and how it can help human centric manufacturing
INFINEON	One TF (following classes) with engineers and managers	To transfer decision making to a new fully automated unit
Kitron	One LF (with classes)	To build a human centric training system and strengthen workforce engagement
Comau	One LF emulation with engineers One LF with operators (welders) One TF with engineers and	To adopt human centric technology through automation of welding.
TKSE	One TF-like following internal transitions	To characterise internal transitions to hydrogen and digitalization

Learning Factories

Case	Type	Purpose
DEGV- Tknika Ecosystem: Miguel Altuna VET centre, Tknika Engneers cluster Mondragon University	Learning Factory (VET Specialisation)	To adapt vocational education (Smart Manufacturing course) to Industry 5.0 by embedding human-centricity, resilience, and sustainability into the curriculum
FH Joanneum and Platform Industry 4.0 Austria	Learning Factory (Lab Transformation)	To transform an existing Industry 4.0 Lab into an Industry 5.0 environment and develop practical guides to support companies in this transition
Sharehouse-TNO	Evaluation (Logistics Field Lab)	To modernise logistics education by integrating sustainability and carbon footprint calculations into the training of future logistics professionals,.
Smart Maker Academy •Innovatiecluster Noordoostpolder (IGNOP) •Spark Circular Construction •Battery Technology in Helmond	Learning Factory (Regional SME Ecosystem)	To address technical skill shortages in SMEs through a modular "metro line" learning concept that embeds IS.0 values into upskilling.
UIA-University of Agder – Eyde Cluster	Learning activities	To prepare industry leaders and employees for the transition to IS.0 through a modular programme on transformation management,.
LPK	Learning Factory (Digital Training Adaptation)	To adapt existing Digital Transformation Training (AI, Cyber Security) to explicitly include IS.0 requirements for SMEs in industry and agrifood,.

Comau



 www.comau.com/en/

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COMAU

Comau is a worldwide leader in delivering advanced industrial automation and digital solutions for diverse industries. Together with Automha, a fully owned company specializing in global intralogistics and warehousing automation, we enhance our ability to support seamless, end-to-end automation that spans both production and intralogistics environments.

- ▶ **Large Company**
- ▶ **3,900 employees**
- ▶ **12 countries HQ Italy**
- ▶ **Industrial Automation**



Role in the project

Which project you are part of

Why: Your main goal and motivation for participating



Improve Comau Academy training system with Introduction of Industry 5.0 in Training activities:

- Human centricity/ human inclusion: Human machine collaboration and Human Autonomy with respect to machine
- Resilience: Human ability to react to machine downtime
- Sustainability: Balancing between Financial KPI and Social KPI
- Target groups: Mechanical Engineers, Controls Engineers, Project Managers, Sales, Maintenance, Operators

Progress & implementation

Activities implemented so far

Teaching Factories

- Embracing Industry 5.0 – Trainer TF
- Industry 5.0 in Action – End User TF
- Improving the Collaborative Welding – Designer & Trainer TF

Technologies and organisational changes introduced

- ▶ **Mobile & Collaborative Robotics, AI**
- ▶ **Digital Twin**
- ▶ **The Evolution of the Welder's Role**
- ▶ **Safety and Well-being**

Human-Centric Approach

Skilled workers are no longer merely manual laborers, they are now **□Robotic Systems Operators.□** This has required a massive reskilling program managed through the Comau Academy and the client's in-house digital labs.

Workers and trainers were involved in technology design and implementation:

- Workshops
- Focus groups
- Co-creation labs
- Participatory design sessions

Alignment with human-centric values (well-being, skills, empowerment, inclusion, autonomy, productivity, safety, job security, working life quality improvement, etc.)

An 'Unstructured' Working Environment

Unlike car assembly lines, where everything is precise to the millimetre and static, a shipyard is a hostile environment for mobile robotics

Human-Machine Collaboration

Implement sensors that can instantly distinguish between an inanimate obstacle and a human colleague, ensuring immediate stoppage or a change of course in accordance with stringent ISO safety standards

CHALLENGES

Technological Acceptance

Overcoming the natural resistance of long-serving workers towards machines that are initially perceived as a threat to their jobs.

Skills Gap

Transforming an experienced welder into a robotic systems supervisor required the creation of new training protocols, as the skills required shift from manual work to software management and diagnostics.

AR simulators

Instead of training workers directly on site (which is risky and costly), the e.DO/Soldamatic programme has been introduced. These are Augmented Reality (AR) simulators that allow welders to learn how to programme the robot in a safe virtual environment.

'Fence-Free' architecture

The physical barrier has been replaced by a 'digital' barrier. Thanks to certified proximity sensors, people and machinery can work in the same space without the need for cages, ensuring a smooth flow of movement on the construction site.

SOLUTIONS

Robotics Certificate

Upon completion of the training, employees receive an official certificate. This shifts the perception of robots from being 'competitors' to 'tools for professional development', thereby enhancing the employee's employability in the job market.

Wearable Robotics (Exoskeletons):

Exoskeletons have been introduced for tasks that still require manual labour



Q & A

Clarifying questions
from participants

Let's hear from you and your organisations

Let us know your thoughts on the shift to industry 5.0



menti.com
Code: 1310 0657

Open discussion

SEISMEC

Thank you!

 PROSPECTS^{5.0}

 bridges^{5.0}

<https://seismec.eu/>

<https://prospects5-0.eu/>

<https://bridges5-0.eu/>

Keep in touch!



@seismec.bsky.social

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