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Project Nr. 101104819

February 2025, place : IMT, presenter : Xavier Boucher

5.0 ORGANIZATIONS

CODEMO

www.codemo-project.eu

«How to catalyze 5.0 innovation?»

Coordination IMT_07

MINES Saint-Étienne | Institut Mines-Télécom

Chapter 1 : The CoDEMO project & context for 5.0 organizations

CoDEMO 5.0: Co-Creative Decision-Makers for 5.0 Organizations

The objectives of the project

European Project (2024-2026) coordinated by Mines Saint Etienne

14 Partners + 3 Associates

Budget : 1,9M€ - Funding : 1,5M€

Overall objective: Contribute to the development of shared collective capabilities for 5.0 value co-creation.

1. Implement national innovation networks in six EU countries, dedicated to piloting 5.0 innovation projects, with socio-economic collaborations.
2. Ensure the development of new innovative skills for decision-makers in 5.0 organizations in three key business sectors.

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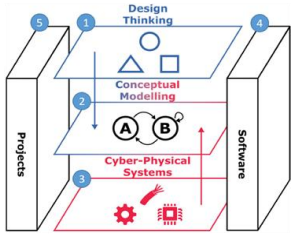
The organization of the CoDEMO project

Decision-makers in organizational innovation, at the heart of value creation 5.0

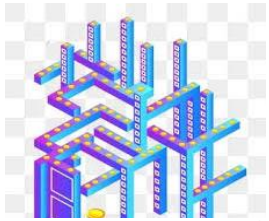
Network : 5.0
Value Co-Creation LABoratories (6 VCC-LAB)



Cross-Sectorial Approach

INDUSTRY 5.0 ⟷ HEALTH 5.0

AGRI-TECHNOLOGY 5.0



Learning approach : contradiction-based blended learning

Learning-oriented Outputs

Certification for Organization Decision-Makers

Decision-Making Skills for 5.0 Oriented Organizations

OUTPUTS

Platform-based sharing
Community of Knowledge and practices

Domain-oriented national innovation networks

Open Repository of re-usable value co-creation Case Studies

Network-oriented Outputs

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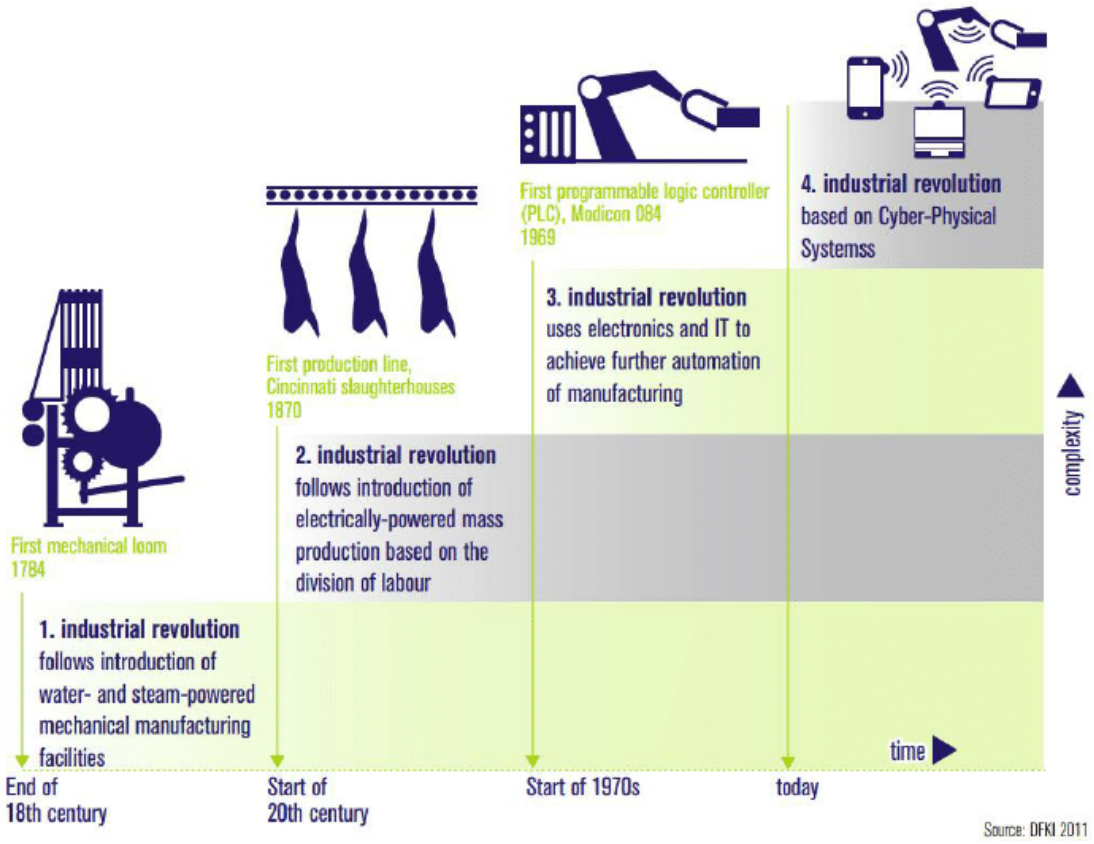
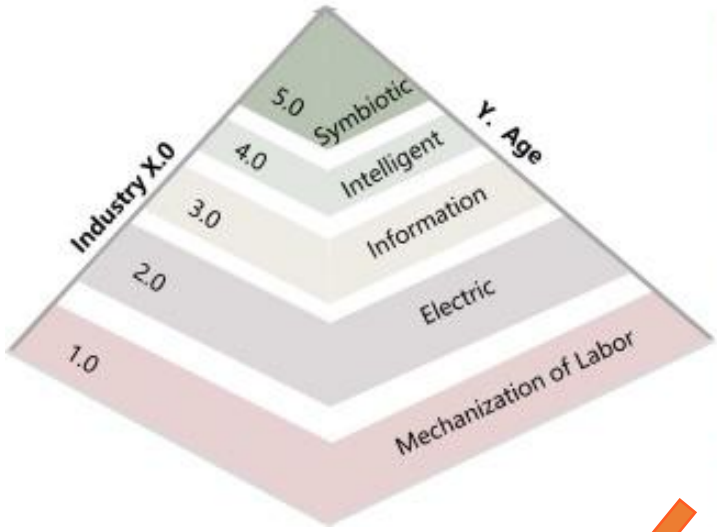
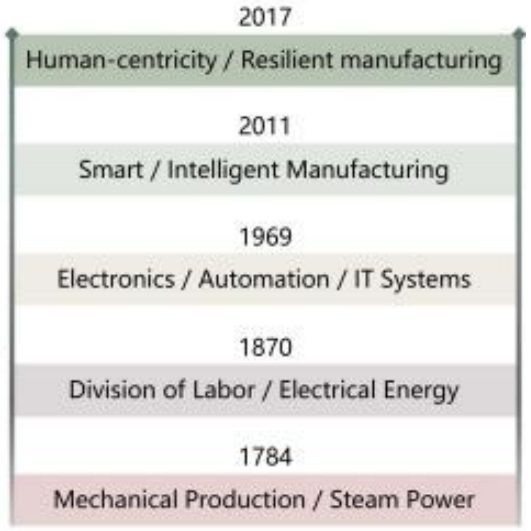
The industrial revolutions



The four stages of industrial revolutions (translation proposed by Kohler C&C. source DFKI, 2011 taken from the website of the Deutsches Forschungszentrum für Künstliche Intelligenz)





Source : Leng et al., 2022

The transition to 5.0 proposes moving from a technocentric approach to an anthropocentric approach, from a technological vision to a vision oriented towards humans and society.

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3 dimensions of Industry 5.0

❑ Human-centered:

- ✓ Industry 5.0 would enable a reconciliation between humans and machines (Akundi et al., 2022).
- ✓ Machines become partners with humans, not competitors (Nahavandi, 2019).
- ✓ Industry 5.0 would be an anthropocentric approach to digital technologies (Compan et al., 2023).

❑ Resilience:

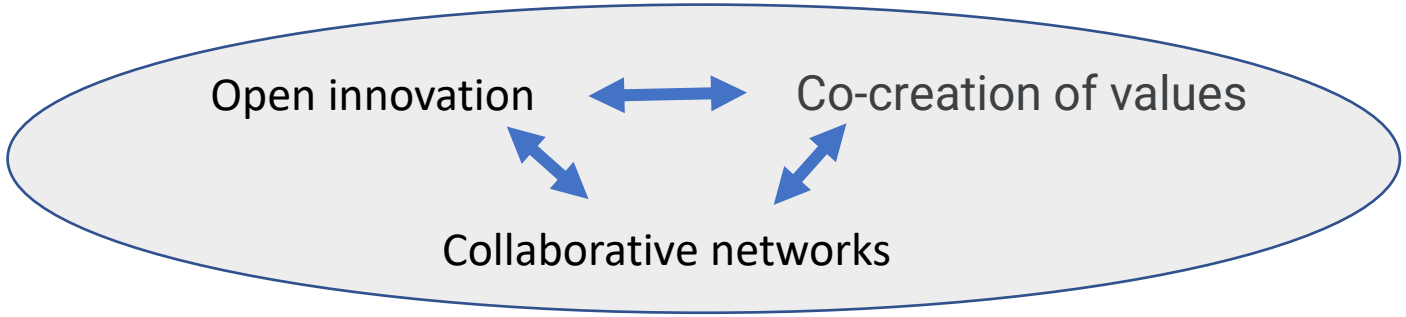
- ✓ Industry 5.0 must be able to adapt to changes, whether geopolitical or due to natural emergencies (such as the Covid-19 pandemic) (Breque et al., 2021).
- ✓ Industry 5.0 must be agile; this means adapting its strategy, processes, and culture to meet customer needs. Agility is an essential element of a resilient organization (Lima et al., 2023).

❑ Sustainability:

- ✓ Industry 5.0 must be able to offer circular processes to better manage its resources (Breque et al., 2021).
- ✓ The principle of responsibility requires that technologies take nature into account to preserve future generations (Jonas & Vaillancourt, 2007).
- ✓ Industry 5.0 must offer sustainable solutions by mobilizing renewable energy sources (Leng et al., 2020).

The need for collaborative networks

- To develop Society 5.0, industry, academia and society are becoming important stakeholders at the same level, all playing an active role in innovation and transformation.
- Society 5.0 enables industry, academia, and other stakeholders to become fully co-responsible for innovation, thus strengthening their cooperation and co-creation by breaking down organizational barriers and promoting open innovation.
- Society 5.0 considers social capital as its core asset and promotes globally targeted open innovation with human-centered priorities. In this context, the direct participation of citizens should play an active role in the innovation process.



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Value co-creation laboratories: VCC LABs, with 6 national networks

Socio-economic innovation BOOSTER

VCC labs support collaborative innovation activities for the co-creation of 5.0 value.

- ❑ Collaborative platform (multiple stakeholders, national node, part of the international OMILAB network)
- ❑ External communication of the lab offering for 5.0 innovation initiatives (website, etc.)
- ❑ Implementation of case studies of collaborative 5.0 value co-creation projects
- ❑ Active involvement in national dissemination (webinars, events, etc.)

Student innovation CATALYSER

VCC labs catalyze the deployment of 5.0 innovation projects for academic and professional students

- ❑ Include the use of VCC labs in academic and professional training programs
- ❑ Make educational materials on the transition to 5.0 accessible for blended learning (via the CoDEMO online platform)
- ❑ Catalyze and promote the International Student Prize

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Skills development 5.0→ EU open badge certification

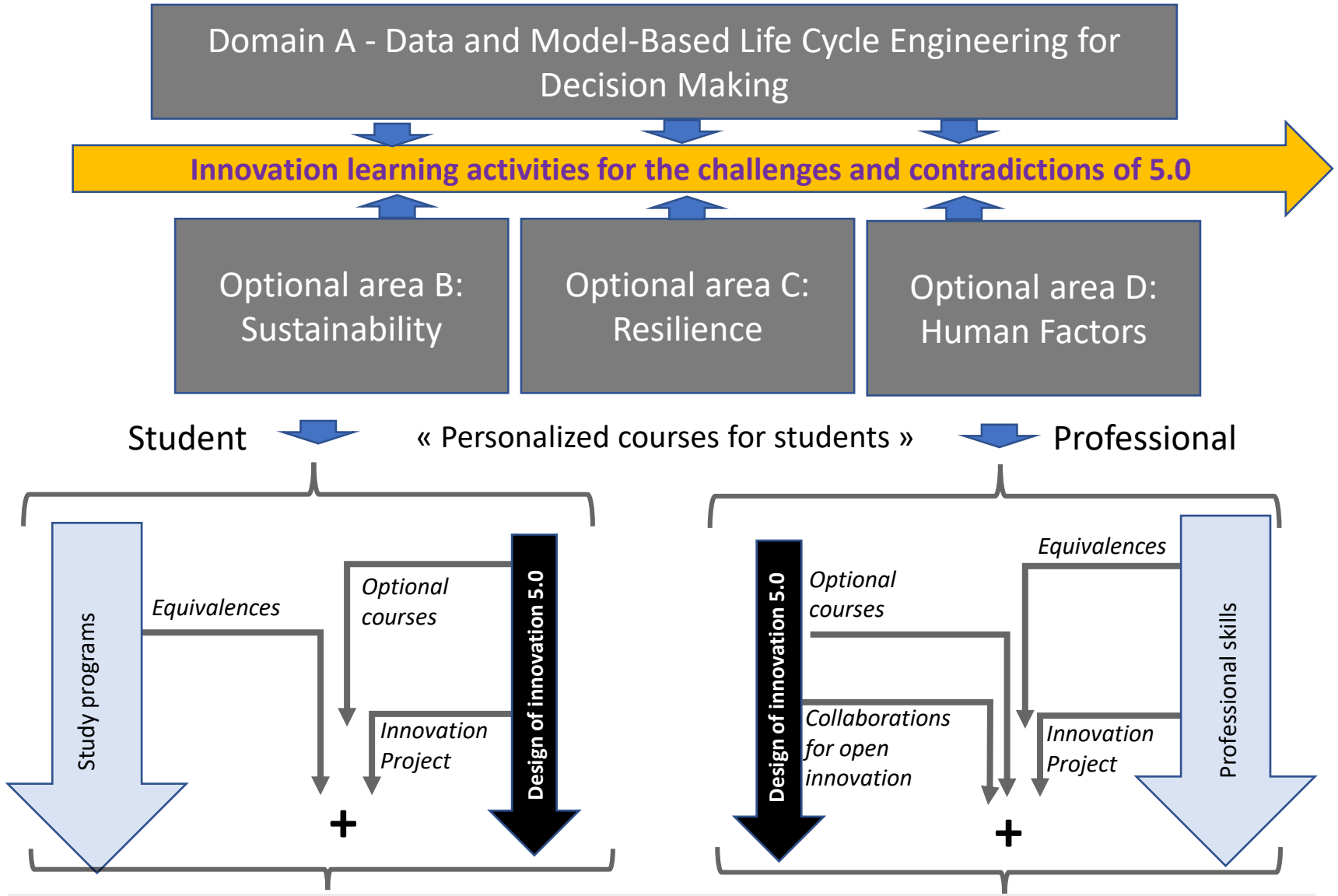
Decision-makers in organizational innovation 5.0

1 certification

Differents types of students

+

Several areas of application



Students: 11 study programs, 300 certifications

Professionals: 8 study programs, 180 certifications

Next steps

2023 – 2024

- Creation of the certification
- Launch of the innovation network

2024 – 2025

- Deployment of certification for 180 professionals and 300 academics
- Deployment of 10 innovation case studies

2025 – 2026

- Deployment of 15 additional case studies
- Deployment of open innovation communities

To follow the CoDEMO project: www.codemo-project.eu

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Chapter 2 – Basic elements for taking 5.0 into account in an innovation project

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Levers of deployment: Human-centered organization

Human Dimension	
EU Description	A human-centric approach in economic organizations puts core human needs and interests at the heart of the production process. Rather than asking what we can do with new technology, we ask what the technology can do for us.
Levers	▪ Changing managers' vision: a new look at the role of humans! ▪ Actively include stakeholders in innovation, including citizens. ▪ Include human well-being: work environment, QWL, organizational methods, and business management methods. ▪ Measure and reduce the negative impacts of hypertechnology: factors of physical fatigue, workload, and mental stress. Design a fulfilling professional activity. ▪ Increase human-machine collaboration wisely: including in cognitive activities and the processing of administrative tasks, enriching the role and added value of humans. ▪ Measure the societal impacts of product/service innovations.

Levers of deployment: Sustainable organization

Environmental and Sustainable Dimension	
EU Description	Sustainability includes reducing energy consumption and greenhouse emissions, to avoid depletion and degradation of natural resources, to ensure the needs of today's generations without jeopardizing the needs of future generations.
Levers	▪ Strategies for a green economy: Circular economy, Digital servitization strategies (pooling and consumption by use) ▪ Deploying sustainable development assessments: Reducing environmental impacts, Low-carbon economy, Corporate social responsibility ▪ Integrating sustainable development into innovation and design: Eco-design of products, devices, and services ▪ Rethinking and transforming processes: Ecology of production, distribution, and consumption processes ▪ Controlling and reducing energy consumption in the economy, Alternative energies.

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Levers of deployment: Resilient organization

Resilience Dimension	
EU Description	Resilience refers to the need to develop a higher degree of robustness in industrial production, arming it better against disruptions and making sure it can provide and support critical infrastructure in times of crisis.
Levers	▪ Global Organizational Resilience: Developing the agility and responsiveness of industrial, economic, and service processes in the face of profoundly unforeseen crisis situations. ▪ Resilience = Multidimensional ➢ Human dimension primarily: stress, adaptability, change management ➢ Technological dimension: interoperability, modularity, information/process coupling, reconfigurability ➢ Economic dimension: economic dependence, diversity of business models, capturing value ▪ Resilience = Innovation ➢ Develop collaborative and open innovation capabilities within each organization based on both internal innovation and external collaboration. ➢ Continuously include new technologies in innovation processes, targeting their effective added value. ▪ Resilience = Decision-makers' ability to measure and anticipate ➢ Measure and anticipate the economic, technical, and human resilience of innovations and new products/services developed for clients. ➢ Ensure critical skills and infrastructure to operate in times of crisis.

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The levers of deployment: collaborative innovation driving 5.0

MAKING THE COMPANY INNOVATIVE AND AGILE

MAKING THE COMPANY LEARNING

Open and Collaborative Innovation

Moving from continuous improvement (Driver = poor quality)…
To continuous innovation (Driver = monitoring practices and technologies)

Engage internal stakeholders in collaboration

- Develop inclusive innovation capacity within the company (include stakeholders and stakeholders), based on the managerial capabilities of decision-makers at different levels
- ➢ Train managers
- ➢ Mechanisms for listening to innovation proposals
- ➢ Deploy design thinking
- ➢ Analyze usage

…

Innovate with external stakeholders

- Develop collaborative innovation networks within the economy, based on the collaboration between socio-economic stakeholders, training stakeholders, and academic and continuing education stakeholders.
- ➢ Develop networks
- ➢ Collaborate with research and training
- ➢ Monitoring systems
- ➢ Manage the sharing of generated value

…

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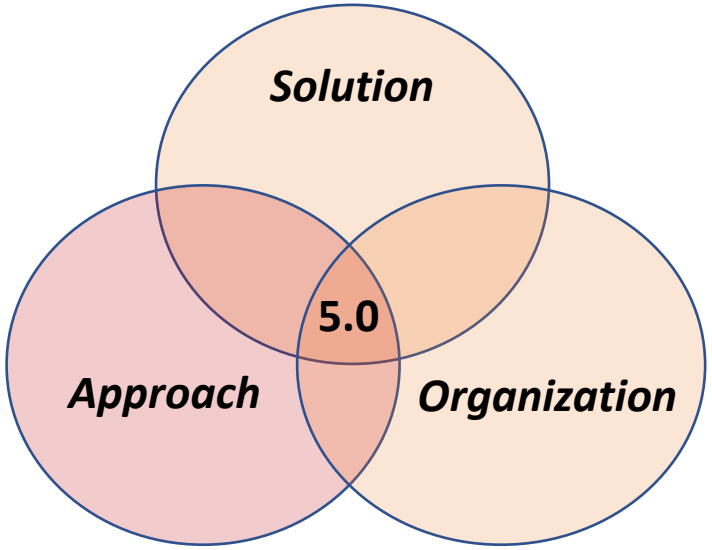
Project deployment methods: the 3 pillars of the approach

Does your innovation project meet the needs of 5.0?

Does the innovative solution developed meet the needs of 5.0?

Does the way you manage your innovation process catalyze 5.0?



Do the impacts of the innovation carried out help increase the 5.0 maturity of your organization?

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THANK YOU FOR YOUR ATTENTION!

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