„Digitalization and Education. Can universities keep up with Industry 4.0?”

University, an important factor in the process of digital transformation of industry

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UNICA Network of Universities from the Capitals of Europe

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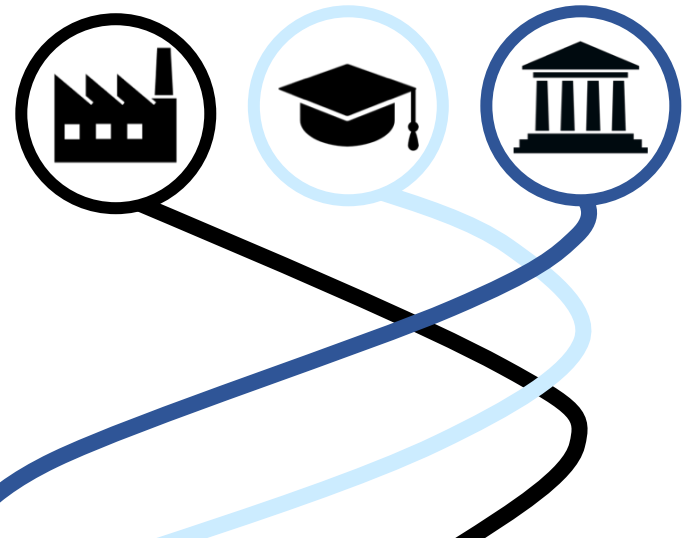


Which technologies did Industry 4.0 introduce to the industry?

Merging the Real World and the Virtual World

- Computing Everywhere
- The Internet of Things
- 3D Printing

Intelligence Everywhere

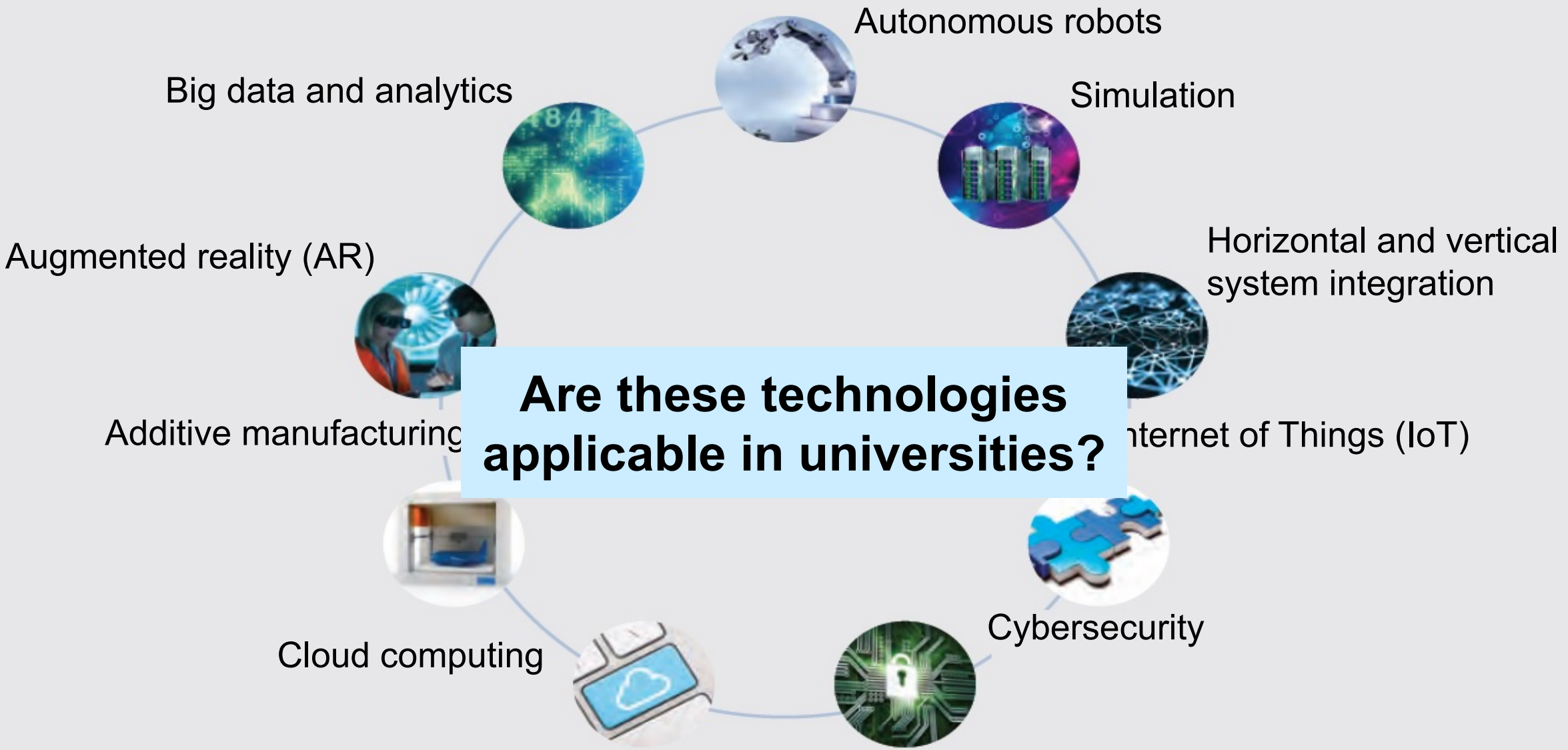
- Advanced Analytics
- Context-Rich Systems
- Smart Machines

New IT Reality

- Cloud/Client Computing
- Software-Defined Applications
- Web-Scale IT
- Risk-Based Security and Self-Protection

Source: Gartner, 2015

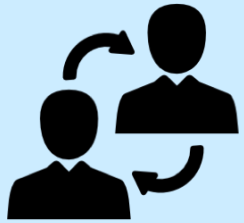
Which technologies drive Industry 4.0?



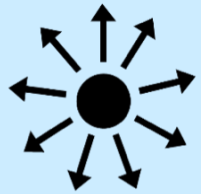
Source: BCG-Industry 4.0

Future work skills

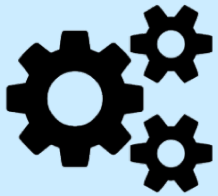
Critical Thinking and Decision Making



Social intelligence



Interdisciplinarity and adaptability



Coordination with others

Analytical thinking

Creativity

Virtual collaboration

Service orientation

Process thinking

Cognitive load management

Source: WEF-a, 2017

FSB – initiator of digitalization of Croatian industry

Initiators

The Ministry of Economy and the Ministry of Entrepreneurship and Crafts in mid-2016 formed a workgroup responsible for digitalization of the Croatian industry.

The Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, was responsible for project.

REPUBLIKA HRVATSKA
MINISTARSTVO GOSPODARSTVA, PODUZETNIŠTVA I OBRTA

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Goal of workgroup

Creation of recommendations and framework guidelines for improving Croatian industry competitiveness by implementing the concept of Industry 4.0

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Workgroup

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1.	**Nedeljko Štefanić**	Science and education
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3.	Ivica Veža	Science and education
4.	Bojan Jerbić	Science and education
5.	Mario Kovač	Science and education
6.	Tihomir Domazet	Science and education
7.	Robert Blažinović	Public administration
8.	Maša Popović	Public administration
9.	Monika Mikac	Real sector-Industry
10.	Željko Čebetarević	Real sector-Industry
11.	Pero Vuković	Real sector-Architecture
12.	Mario Antonić	Public administration
13.	Slavko Vidović	Real sector-ICT

Logistics group

	Name, Surname	Field
1.	**Hrvoje Cajner**	Science and education
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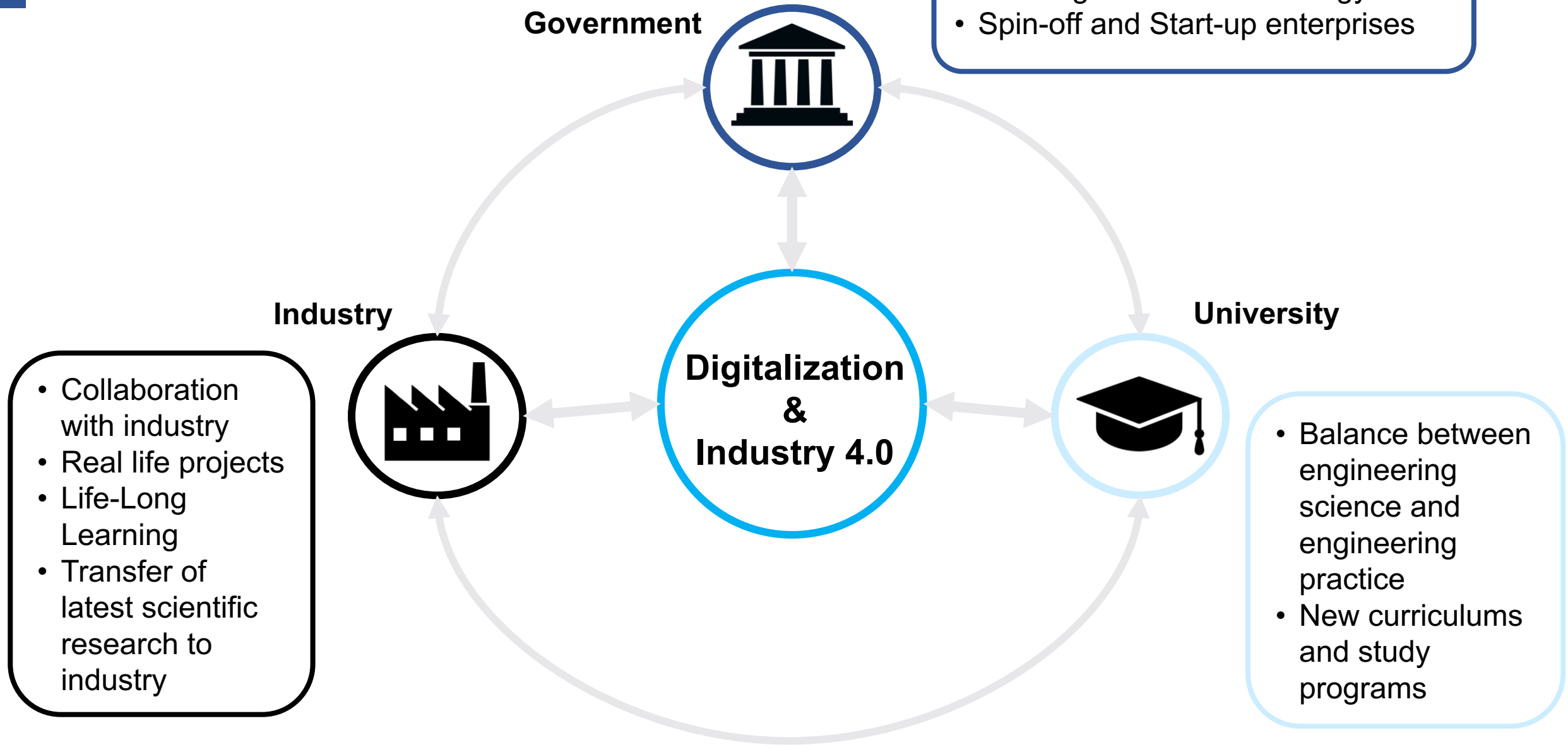
3.	Anja Štefanić	Real sector-Consulting
4.	Miro Hegedić	Science and education

Triple Helix model



- Identification of industrial needs
- Defining of industrial strategy
- Spin-off and Start-up enterprises

- Collaboration with industry
- Real life projects
- Life-Long Learning
- Transfer of latest scientific research to industry

- Balance between engineering science and engineering practice
- New curriculums and study programs

Based on: Veža et al, 2015

Workgroup results

1

Created brochure with foundations of National Platform of the Republic of Croatian

2

Participation in the workgroups of the European Commission

3

Inclusion of the FSB in the initiative "Digital Innovation Hubs"

4

Expert material produced by the workgroup

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The goal of the National Platform for digitalization of the Croatian industry

To create smart companies and digitize business and manufacturing processes to maximize quality, flexibility and efficiency, and reduce overall production costs.

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Seven main activities for digitalization of the Croatian industry

Digitalization is a great opportunity for the development of Croatian industry.

Responsibility for the main activities should be taken by public administration, industry and academy.

Key questions for Universities in the digtal age ?

Q1 **What types of changes are needed?**

Q2 **What are the strengths of the university?**

Q3 **Are there any frameworks for the digital transformation of the University?**

Q1: The student becomes the center of everything

Organizational changes

Digitalization of administrative and business processes.

Curriculum changes

Adoption and implementation of the new curriculum - aligned with the needs of the digital age.

Students

Value creation focused on students

Digital communication with students

The teacher becomes a mentor. In-class time is used for discussion.

Application of new technologies in teaching

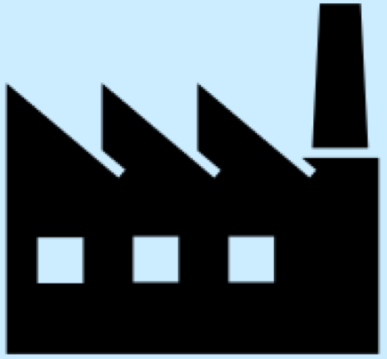
Usage of all available platforms for teaching activities.

Q2: Universities have access to the most important resources

Students

Teaching and research staff

Cooperation with industry



Q3: Transformation framework

Q1 **What types of changes are needed?**

Q2 **What are the strengths of the university?**

Q3 **Are there any frameworks for the digital transformation of the University?**

Q3: CULIS Platform for the University 4.0

Lean

- Value stream mapping 
- 5S and visual management 
- Standardization 
- Kaizen 

- Quality 

Digital

- Smart and connected services 
- Digitisation of organizational and administrative processes 
- Optimal use of resources 
- Digital knowledge and skills 
- Robotisation and automatisation 
- Standardization and legal regulation 
- Cyber security 

Green

- Renewable energy sources 
- Circular economy 
- Nature and Human Synergy 

IMPROVE Card for University 4.0

IoT, AI, Big Data, Robotics, Augmented Reality, Blockchain, Smart Factory, Smart University, Smart Energy, Smart Health, Smart City

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