Planet4
Practical Learning of Artificial intelligence on the Edge for industry 4.0

Project Number 621639-EPP-1-2020-1-IT-EPPKA2-KA

Author: **Grzegorz Dec**
Organization: **Rzeszów University of Technology**
Contact: **gdec@prz.edu.pl**

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Rzeszów, 21-22.10.2021

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Project Partners

- University of Pisa – Italy – **project coordinator**
- Politechnika Rzeszowska im. Ignacego Łukasiewicza – Poland
- Universitat Ramon Llull – Spain
- University of Ioannina – Greece
- ValueDo s.r.l. – Italy
- Kaunas Science and Technology Park – Lithuania
- TOI – Italy
- BOBST Bielefeld – Germany
- Elecnor – Spain
- OHS – Germany
- Exquisite – Romania

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PLANET4 Consortium

INDUSTRIAL COMPANIES
- Bobst (DE)
- Equisite (RO)

SYSTEM INTEGRATORS
- Elecnor (SP)
- OHS (DE)

RESEARCH AND ACADEMIA
- Uni Pisa (IT)
- Uni Ioannina (GR)
- Uni RamonLlull (SP)
- Uni Rzeszow (PL)

TECHNOLOGY PROVIDERS
- TOI (IT)

- Filling the gap between R&D on AI and ML and its industrial applications
- Enable knowledge transfer between academia and industry

Co-funded by the
Erasmus+ Programme
of the European Union

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Objectives of the project Planet4

- Actual needs of the companies in the area of AI and ML

- Training courses
  - Fundamentals of industrial IoT architectures and AI technologies
  - Solving industrial problems with the use of the problem taxonomy
  - Application of AI in Edge Computing environment

- System for transferring knowledge on solving I4.0 problems

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Taxonomy for formalizing problems

1. Amadio, Riccardo, Isgandarova, Anastasiya, & Mazzei, Daniele. (2021, June 22). Building a Taxonomy of Industry 4.0 Needs and Enabling Technologies. Society 5.0

technologies

	T01	T02	T03	T04
P01		L1, L3		
P02	L1, L2			
P03		L4, L5	L1, L6	
P04				L1, L7
P05	L1, L2			

problems

Taxonomy: frequent used technologies and problems

Source: paper [1]

Enabling Technologies	Number of articles	Problems	Number of articles
Time series Database	20	Smart warehouse	7
Data Visualization and Dashboarding	18	Real-time Production monitoring and analysis	6
Cloud Data Storage	18	Cost and number of parts/component reduction	6
Data Analytics	17	Smart Scheduling	5
Sensors	16	Supply chain transparency	5

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Industry 4.0 companies needs

How important are the following challenges?	Percentage of answers where the problem was assessed as important	Priority
Business analysis	82,90%	1
Relations with customers	80,00%	1
Customer service	72,90%	1
Business process monitoring	71,40%	1
Production/operations planning	71,40%	1
Obtaining data from the market (competition, customers, potential customers, ...)	70,00%	1
Forecasting	65,70%	1
Product quality	58,60%	2
Planning of the materials/products deliveries	57,10%	2

Source: PLANET4
Report R1.4: Company
needs report
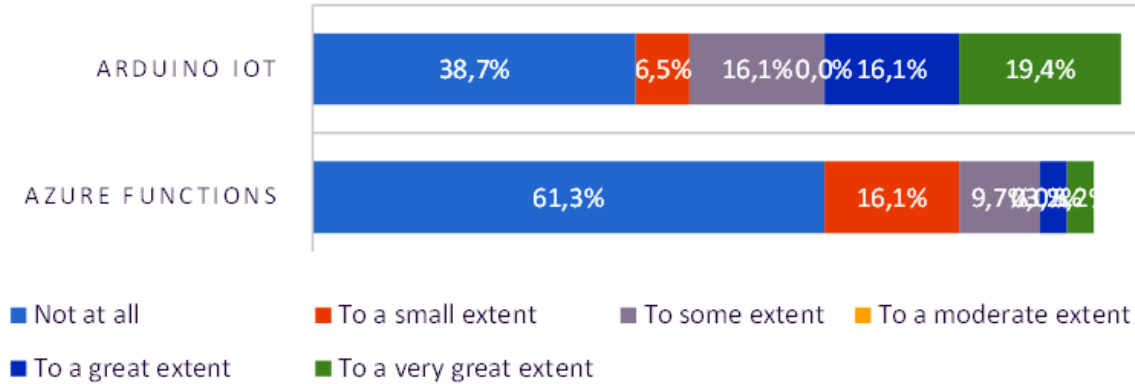
Students and academics needs

SOFTWARE/TECHNOLOGY IN IOT TEACHING

SOFTWARE/TECHNOLOGY

ARDUINO IOT	38,7%	6,5%	16,1% 0,0% 16,1%		19,4%
AZURE FUNCTIONS	61,3%		16,1%	9,7% 3,2%	3,2%

- ■ Not at all
- ■ To a small extent
- ■ To some extent
- ■ To a moderate extent
- ■ To a great extent
- ■ To a very great extent

Issue from bibliographic research	Solving technology from bibliographic research	Technology exists in training program
Product servitization	Databases	Insufficient
	Connectivity	Insufficient
Usability improvement	Data Visualization and Dashboarding	No
	Machine learning	Sufficient
	Sensors (hardware)	Sufficient

Source: PLANET4 Reports: R1.3 Students and Academic needs report; R1.5 Training Needs Assessment

Issue from bibliographic research	No. of required technologies	Taught technologies	Sufficiently taught technologies
Vertical interconnection and integration (between departments in a factory) Time and Method smart measurement Horizontal interconnection and integration (between different actors of the supply chain)	8	62,5%	25%
Smart PPE (personal protection equipment)	3	100%	33%
People counting, analysis and crowd detection	3	67%	33%

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The use of the taxonomy for solving problems
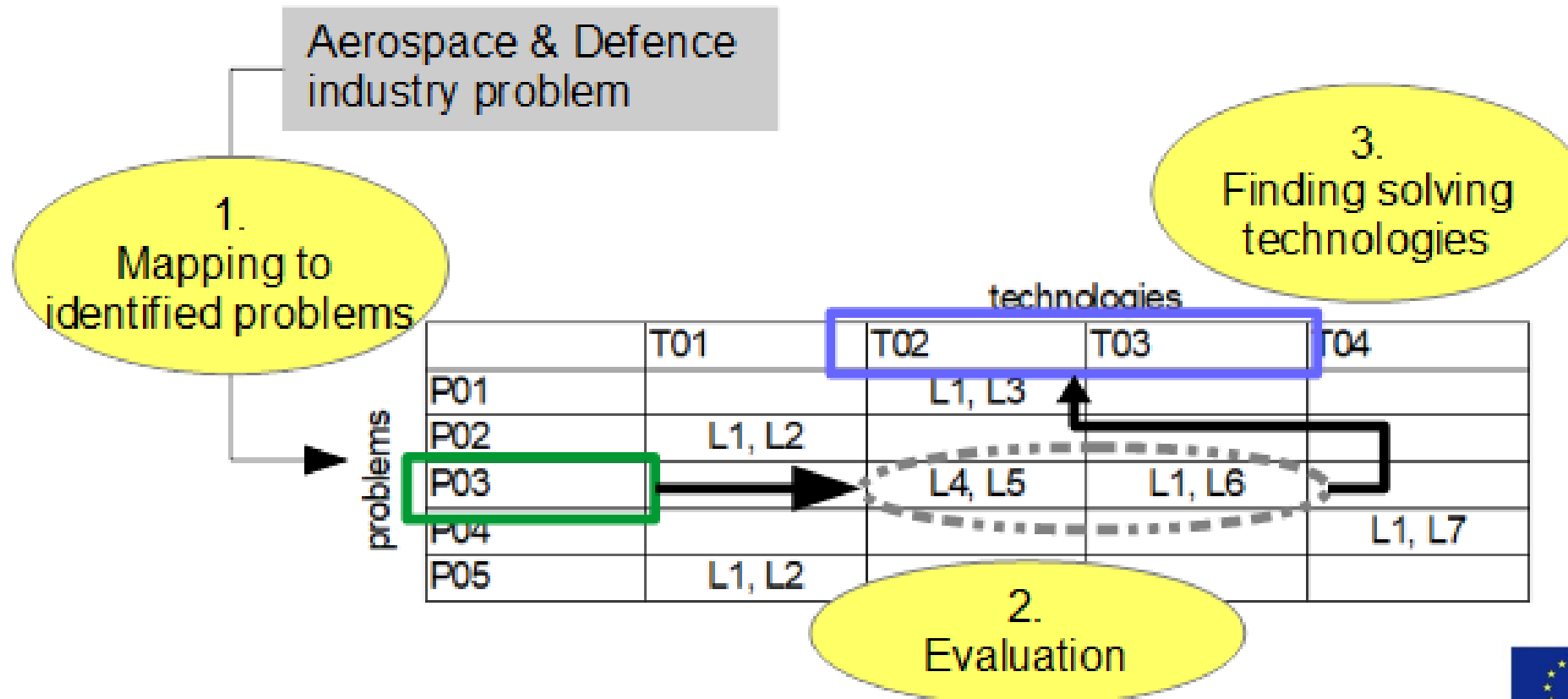
Selecting a technology – HR aspects

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Aerospace & Defence industry problem

Issue from bibliographic research	Solving technology from bibliographic research	Technology exists in training program
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Identified risky technology

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Summary

- Taxonomy for classification of problems and solutions

- Challenges for Industry 4.0

- Quality of potential employee

- System for solving I4.0 problems including HR aspects

Thank you for your attention!

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