

K1 Competence Center for Excellent Technologies

# Pro<sup>2</sup>Future

MADE IN EUROPE 2026

ONLINE PITCHING

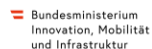
Dr. Michael Haslgrübler



Shareholders of Pro2Future GmbH:



Public funding of Pro<sup>2</sup>Future:



# COMET K1 Competence Centre Pro<sup>2</sup>Future

## Pro<sup>2</sup>Future GmbH

Founded 01.04.2017

MA: 50, 30% ♀, 14 Nations

approx. 6,4 Mio€ Volumne (2024/25)

> 40 Company Partners

> 30 Scientific Partners

Company Goal: Non-Profit Research Transfer

Locations: Linz (HQ), Graz



## Pro<sup>2</sup>Future Linz (HQ)

JKU Linz, Science Park, Upper Austria



## Vision



## Pro<sup>2</sup>Future Graz

TU Graz, Campus Inffeldgasse, Styria



# Pro<sup>2</sup>Future II: Industry-embedded AI research

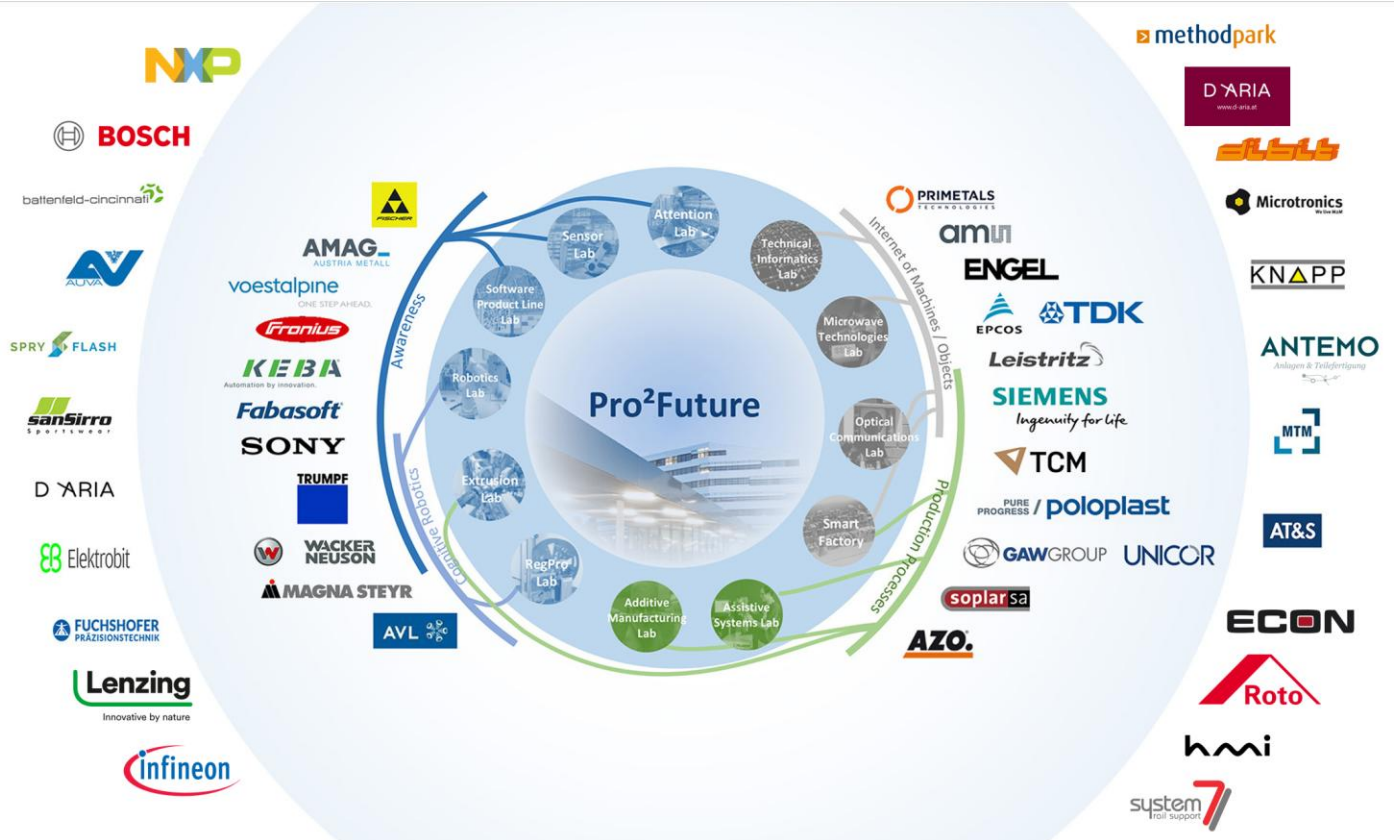
40+  
industrial partners

30+  
scientific partners

43M€  
cumulated  
project volume

50+  
delivered demonstrator  
projects

320+  
publications



# Call :: HORIZON-CL4-2027-04-DIGITAL-EMERGING-05

## Name:

- Apply AI: AI-Driven Robotics for Industry: Enabling System Integration and Adoption (IA) (Partnership in AI, Data and Robotics)

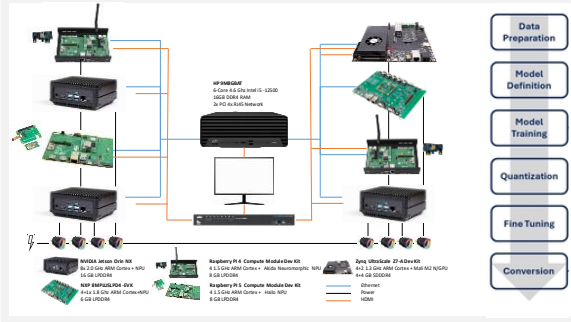
## Scope:

- Ease-of Deployment of Robotics
- Integration Framework for Adoption (Training, Testing, Evaluation, Validation)
- Intelligent Planning and Deployment of Cutting Edge AI.

## Expected Results:

- Deployable, modular integration framework
- An Integration Kit to test and run AI-enabled robotics
- Safe and realistic testing and training before deployment
- Reusable, datasets (compliant with relevant regulation and IP protection) and practical benchmark tasks,
- A clear Step-by-Step Adoption Guide
- Contributions to relevant open standards & certification

## Embedded AI Testbed [1-2]



## Approach for AI in Manufacturing [5]

Category	Level	Atomic	Micro	Meso	Macro	Mega
Sensor Placement	Positioning of sensors relative to workpieces for data collection	Stationary	movable	Mobile sensors	stationary	stationary
Sensor Types	Types of sensors used for data collection	Fixed platform sensors, 2D weight systems, stationary pick for light sensors (2D cameras)	IMU, Free-Platform Sensors, Mobile cameras, ACC, GPS, Visual sensors	Visual sensors, 3D sensors	Visual sensors, sensor fusion	Multi-modal sensors, 3D
System Mobility	Flexibility of the system or physical mobility	Low	High	Medium/Low	Low	Low
Sampling Rate	Rate of which sensor data is collected	High (100Hz - 1000Hz) up to MHz for RFCS	Medium to Medium-Low (100Hz - 1000Hz)	Low (10Hz - 100Hz) up to 100Hz	Low (10Hz - 100Hz) up to 100Hz	Variable (10Hz - 100Hz)
Duration	Time span of the experiment or observation	Short trials, Short Durations	Start to Medium-term, Medium-term to Long-term (minutes to hours)	Medium-term to Long-term (hours to days)	Medium-term to Long-term (days to weeks)	Long-term (weeks to months)
Frequency of Actions	Rate of which actions are performed	Frequent	Transient	Medium	Low	Variable
Preprocessing Techniques	Methods applied to sensor data before processing	Signal filtering, Basic feature extraction, PCA	Signal segmentation, Hierarchical processing, Feature selection, PCA	Data augmentation techniques, Feature selection, PCA	Edge detection, Image binning, Contrast enhancement	Data Fusion, ML, Fusion of multi-modal data, Spatial context
Window Size	Size of the temporal window for data processing	Not suitable or Short windows	Start to Medium-term / Long-term windows	Longer / Near-real-time windows / Long-term windows	Sequential-based windows	Long and adaptive windows
Models to Use	Types of models used for processing	Basic operators (DM, Decision Trees, Logistic, Binary classifiers)	Machine Learning, Random Forests, CNNs, LSTMs	Convolutional neural networks / Deep Systems, CNNs, RNNs	Attention models, Task-based Systems, CNNs, RNNs	Advanced Models, Anomaly detection algorithms, Ensemble models, Task-based Systems, Reinforcement learning
Feedback mechanisms	Information used to improve performance of system	Immediate	Real-time	Phase Optimization Models	Performance Analysis Dashboard	Performance Maintenance and System Updates (RNN systems, Reports)

## AI Sensors & Safety [4,7]

Type of Sensor/ Data Collected	R1-Prevention	R2-Detection	R3-Post-Incident
Phenomenon Monitoring	(14,15,16,17)	(15,17)	
Environmental Monitoring	(14,16,16,17,18,19)	(15)	
Movement and Position Monitoring	(14,15,16,18,19,20,21,22)	(17,20)	(15,21,24,25)
Priority and Location Tracking	(14,16,21,22,23)	(21,22,23)	(15,21,22)
Sensors Deployed in Environment			
Image Sensors	(14,15,17,18,19,20,21,22)	(15)	(15,17,18,19,20,21,22)
Environmental Sensors	(14,15,17,18,19,20,21,22)	(15)	(15,17,18,19,20,21,22)
Medium and Proximity Sensors	(14,15,17,18,19,20,21,22)	(15)	(15,17,18,19,20,21,22)

## Exemplified Embedded AI Deployment Use-Case [2,6]

[1] B. Azadi et al., (2026) Benchmarking Energy Efficiency and Performance of GPU-, NPUs-, and Neuromorphic Hardware for Use in Physical AI, Under Review  
 [2] B. Azadi et al., (2025), "Towards an Energy-Efficient and Sustainable IIoT using Embedded Neuromorphic AI", 15th Int. Conference on the Internet of Things (IoT 2025) <https://doi.org/10.1145/3770501.3770529>  
 [3] Aberger, J., et al. (2025). recAIcLe: An Intelligent Assistance System for Manual Waste Sorting—Validation and Scalability. Recycling, 10(6), 221. <https://doi.org/10.3390/recycling10060221>  
 [4] Huber, J. et al. (2025). Evaluating User Safety Aspects of AI-Based Systems in Industrial Occupational Safety.... Int. J. Environ. Res. Public Health, 22(5), 705. <https://doi.org/10.3390/ijerph22050705>  
 [5] Sapidis, G., et al. (2024). System Design for Sensing in Manufacturing to Apply AI through Hierarchical Abstraction Levels. Sensors, 24(14), 4508. <https://doi.org/10.3390/s24144508> [6  
 [6] Waikat, J., et al., (2024). First Measurement Campaign by a Multi-Sensor Robot for the Lifecycle Monitoring of Transformers. Energies, 17(5), 1152. <https://doi.org/10.3390/en17051152>  
 [7] Schobesberger, M. et al. (2022). Designing Proactive Safety Systems for Industrial Workers Using Intelligent Mechanisms. PETRA '22. <https://doi.org/10.1145/3529190.3534775>

# Call :: HORIZON-CL4-2027-02-DIGITAL-EMERGING-52

## Name:

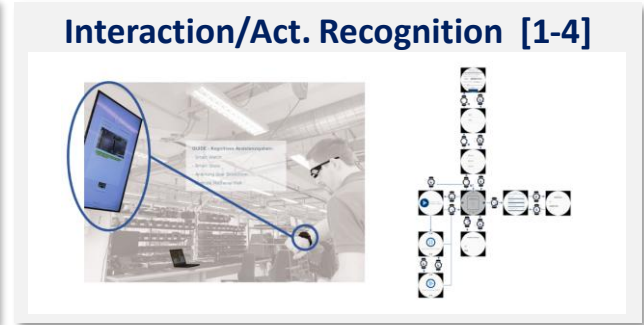
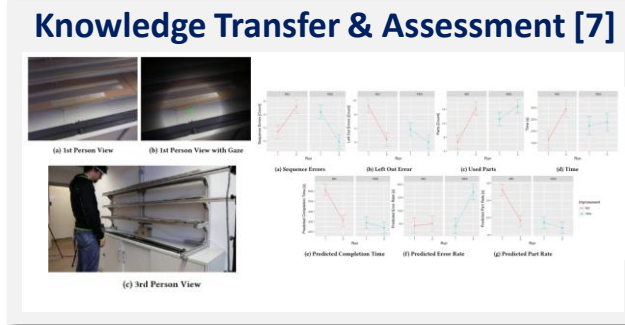
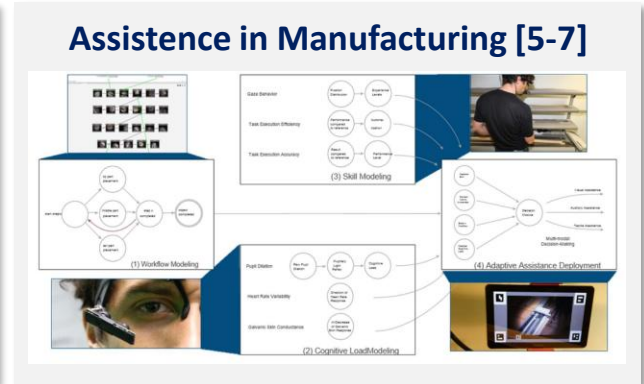
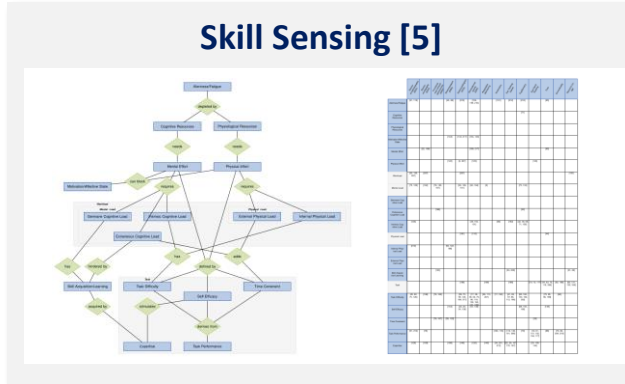
- New approaches for Human/AI collaboration for the workforce of the future (RIA) (Made in Europe and AI, Data and Robotics partnerships)

## Scope:

- Human-AI Co-Learning and knowledge capturing
- Human-AI teamwork
- Abilities and needs focused Interfaces with automation

## Expected Results:

- Jobs are transformed through AI-based human-machine interactions
- Increased competitiveness and sustainability



[1] Anzengruber-Tanase, B., Sysoykova, E., & Ferscha, A. (2025). Hybrid Decision Making for Adaptive Industrial User Interfaces. ECML [https://doi.org/10.1007/978-3-032-19099-4\\_9](https://doi.org/10.1007/978-3-032-19099-4_9)

[2] Azadi, B et al. (2024). Robust Feature Representation Using Multi-Task Learning for Human Activity Recognition. Sensors. <https://doi.org/10.3390/s24020681>

[3] Sopidis, G et al. (2023). Counting Activities Using Weakly Labeled Raw Acceleration Data: .... Sensors, <https://doi.org/10.3390/s23115057>

[4] Sopidis et al. (2022). Micro Activities Recognition and Macro Worksteps Classification for Industrial IoT Processes. IoT '21. <https://doi.org/10.1145/3494322.3494356>

[5] Haslgrübler M.: Skill Sensing in Industrial Production, 203 page(s), 2022. <https://resolver.obvsg.at/urn:nbn:at:at-ubl:1-54730>

[6] Anzengruber-Tanase, B., et al. (2022). Determining Best Hardware, Software and Data Structures for Worker Guidance during a Complex Assembly Task. PETRA <https://doi.org/10.1145/3529190.3529200>

[7] M. Haslgrübler et al.(2022) "A Cognitive Assistance Framework for Supporting Human Workers in Industrial Tasks," in IT Professional, <https://doi.org/10.1109/MIITP.2018.053891337>.

[8] Michael Haslgrübler et al.. (2018). Transferring Expert Knowledge through Video Instructions. PETRA '18. <https://doi.org/10.1145/3197768.3201571>

## Contact



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# Pro<sup>2</sup>Future

**One pitch. Many partnerships.** ➔ [Funded Research & Collaboration Opportunities – Pro<sup>2</sup>Future](#)

Shareholders of Pro2Future GmbH:



Public funding of Pro<sup>2</sup>Future:

