Horizon 2020 STAR – New Adventure on Trusted AI in Manufacturing!

Artificial intelligence (AI) systems in the manufacturing sector are increasingly replacing human tasks improving the automation of production. AI systems need to be safe, trusted and secure, even when operating in dynamic, unstructured and unpredictable environments to be able to react to different situations and security threats. Ensuring the safety and reliability of these systems is a key prerequisite for deploying them at scale and for fully leveraging the benefits of AI in manufacturing.

Representing a powerful consortium of 15 AI and digital manufacturing stakeholders in Europe, the Horizon 2020 project STAR will take up the challenge by designing new technologies to enable the implementation of standard-based, secure, safe, reliable and trusted human-centric AI systems in manufacturing environments.

STAR operates on a budget of approximately EUR 6 million and will run for 3 years starting 1 January 2021. To achieve its aims, STAR brings together partners from Belgium, France, Netherlands, Romania, Portugal, Italy, Germany, Slovenia, Switzerland, and Greece.

STAR will research, develop, validate, and make available to the community leading edge AI technologies with wide applicability in manufacturing environments, including:

- **Explainable AI** - *"Why did you do this?"*

    Explain to Factory Workers the rules and principles of the AI systems operation- Increasing Transparency and Trust on AI Systems

- **Active Learning** - *"Robot-to-Human: Is this piece defective"?*

    AI Queries humans when not sure what to do next to accelerate Knowledge Acquisition

- **Simulated Reality**

    Shorten Reinforcement Learning (RL) Cycles by simulating the next actions of RL than expecting lengthy convergence

- **Human Centric Digital Twins** - *"What-if-Analysis with Human in Loop"*

    Simulation of Safety Issues - Optimal Deployment of Mobile Robots - Safety Zones Detection

- **Cyber Security Solutions for AI Systems**

    Protection against Adversarial Attacks

These technologies will be validated in challenging scenarios in manufacturing lines in the areas of quality management, human robot collaboration and AI-based agile manufacturing.

The results will be fully integrated into existing EU-wide initiatives (such as EFFRA, AI4EU), as a means of enabling researchers and the European industry to deploy and leverage advanced AI solutions in production lines.

Moreover, STAR will act as a catalyst for ethical AI deployments in production lines, given that the project's results are fully aligned to the recently published ethical guidelines of EU's High-Level Expert Group on AI. Specifically, STAR will produce technical solutions that boost the safety, robustness, and trustworthiness of systems AI in dynamic, real-life settings, while at the same exploring the legal implications of a safe and secure AI in prominent manufacturing scenarios.

For more information, visit our website: www.star-ai.eu

PROJECT KEY FACTS	
Full Name:	STAR: Safe and Trusted Human Centric Artificial Intelligence in Future Manufacturing Lines
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Project duration:	1 January 2021 – 31 December 2023, 36 Months
EU Contribution	Approx. EUR 6 million
Website:	www.star-ai.eu
Coordinator:	INTRASOFT International (BE)

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