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NEWSLETTER 7/2025

TALON PROJECT



TALON

Autonomous and self-organised artificial intelligent
orchestrator for a greener industry 5.0

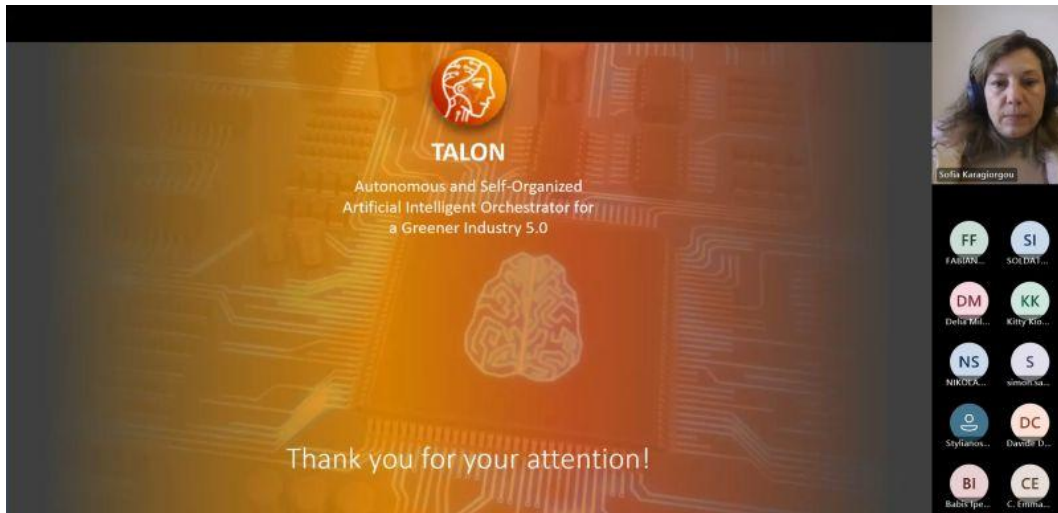
talon-project.eu

EDITORIAL

This newsletter presents a summary of the primary dissemination outcomes of the project, which include organization of events and technological developments. Specifically, two (2) white paper publications, one (1) organization of a webinar, and one (1) post highlighting insights by TALON partners.

Stylianos Trevlakis, InnoCube

BUILDING AI YOU CAN TRUST: KEY INSIGHTS FROM RECENT RESEARCH



As AI becomes more sophisticated, the question isn't just "Can we build it?" but "Should we trust it?" A recent webinar by the **TALON project** revealed crucial distinctions that every AI practitioner should understand.

Key Takeaways:

- ✓ Trust - Trustworthiness - Trust is subjective (user perception), but trustworthiness is objective and verifiable. Explainable AI can boost trust without improving actual reliability.
- ✓ Human-AI Teaming - We're moving beyond AI as a tool toward genuine collaboration where agency shifts between humans and AI based on context.
- ✓ Standards Are Critical - Harmonized, dynamic standards are essential for quality, compliance, and sustainable AI deployment across industries.
- ✓ Holistic Risk Management - Trustworthiness requires considering social, psychological, and ethical threats—not just technical vulnerabilities.

Innovation Spotlight:

SACS Framework: Situation-aware explainability for business processes

TALON Project: AI orchestration with blockchain security and digital twins

FAITH Initiative: Comprehensive risk management based on ISO 27005

The path forward requires multidisciplinary collaboration, continuous assessment, and robust frameworks that go beyond technical metrics.

What's your experience with trustworthy AI implementation? How do you balance innovation with reliability in your projects?

“TALON'S PATENTABILITY ASSESSMENT” WHITE PAPER



Autonomous and Self-organized Artificial Intelligent
Orchestrator for a Greener Industry 4.0

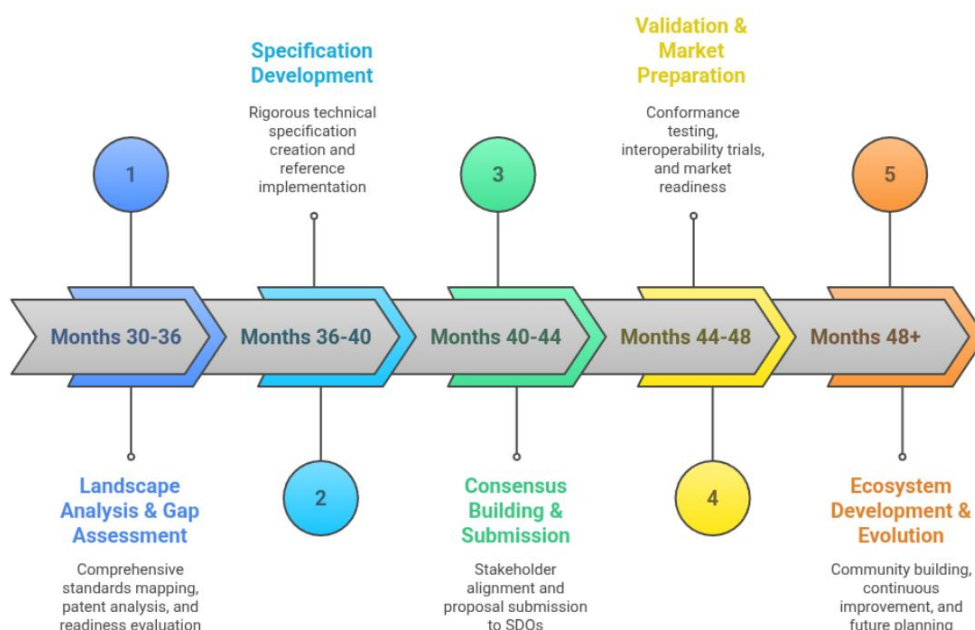
White Paper

TALON's Patentability Assessment

TALON introduces an AI orchestrator that envisions transforming the I5.0 into an automated intelligent platform by exploiting advances in edge networks and bringing intelligence near sensors in embedded systems with limited computational, storage, and communication resources, as well as the integration of advanced and adaptive sensors and perception. As a result of the innovative approaches produced as part of the project, this may give rise to a portfolio of assets that can be worth patenting. The present paper's objective is to present the relevant efforts that project partners have undertaken so as to explore the patentability potential of a select number of concepts produced. As such the methodologies, rationale, assessment mechanisms are presented in sufficient detail, along with a description of the work that remains to be done before the patentability evaluation is fully completed, with a timeline extending to the end of the project.

Sarkissian, S., Trevlakis, S. E., & Lagkas, T. (2025). TALON's Patentability Assessment. Zenodo. <https://doi.org/10.5281/zenodo.15687441>

“TALON'S STANDARDISATION ACTIVITIES” WHITE PAPER

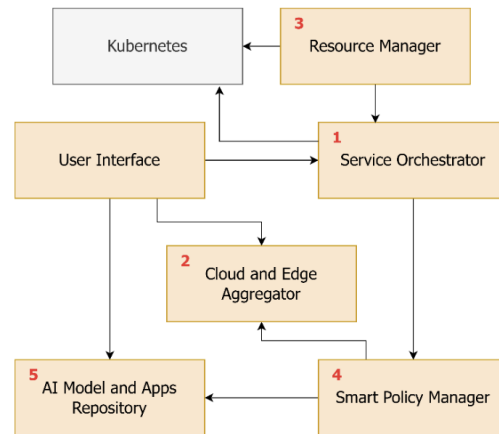


This white paper outlines the standardization prospects in connection with project TALON—Autonomous and Self-organized Artificial Intelligent Orchestrator for a Greener Industry 4.0—under Horizon Europe. As a core component of Work Package 6 (WP6), these efforts aim to ensure that TALON's key technological outcomes are aligned with and contribute to the evolving landscape of international standards. The document provides a comprehensive overview of the project's relevant innovations in Explainable AI (XAI), immersive AR/VR systems, Edge-to-Cloud (E2C) AI orchestration, and blockchain-based AI model governance. It further details the multi-phase strategy adopted to translate these outcomes into actionable contributions to standards development organizations such as IEEE, ISO/IEC, and CEN-CENELEC.

The standardization pathway includes strategic alignment with technical committees, structured engagement methodologies, risk mitigation approaches, and an emphasis on openness, transparency, and sustainability. Result-specific strategies are mapped to existing and emerging standards, ensuring technical compatibility and fostering future interoperability across industrial systems. Ultimately, this white paper aims to serve both as a technical reference and a roadmap to support TALON's broader vision of contributing to the foundations of a sustainable and intelligent Industry 5.0.

Sarkissian, S., & Trevlakakis, S. E. (2025). *TALON's Standardisation Activities*. Zenodo. <https://doi.org/10.5281/zenodo.15687685>

NEW EDGE-TO-CLOUD ORCHESTRATOR FOR INTELLIGENT TASK ALLOCATION AND EFFICIENCY OPTIMISATION



Modern industrial systems face several challenges in resource allocation, operational efficiency, and scalability, driven by the need for real-time data processing, and sustainable automation. The integration of advanced technologies, including edge-to-cloud (E2C) Artificial Intelligence (AI), digital twins, and blockchain, has created opportunities for innovation while increasing the complexity of orchestration and task distribution. This paper presents a novel E2C orchestrator that optimises task distribution across hybrid infrastructures, addressing the limitations of existing solutions such as static resource allocation and energy inefficiency. By leveraging AI-driven dynamic policies, the orchestrator increases efficiency, reduces latency and ensures robust data protection, in line with Industry 5.0's paradigm which emphasises human-centric and sustainable industrial ecosystems. Key outcomes include improved scalability, adaptability to dynamic workloads, and integration of advanced technologies for real-time responsiveness and operational visibility. This paper presents a new E2C orchestrator, designed to address the abovementioned challenges by facilitating intelligent task allocation and optimising resource management. The proposed solution has been designed for dynamic industrial environments with the aim of guaranteeing efficiency, scalability and security while supporting the transition to more sustainable and human-centred industrial practices. Moreover, this work aims to enable smarter, more adaptive and trustworthy operations, aligning innovation with the broader goals of sustainability and ethical responsibility.

Sergio, C., Delia, M., Susanna, B., Ons, A., & Salvatore, C. (2025, June 24). New Edge-to-Cloud Orchestrator for Intelligent Task Allocation and Efficiency Optimisation. IEEE 31st International Conference on Engineering, Technology, and Innovation (ICE IEEE/ITMC 2025 (IEEE), Valencia. <https://doi.org/10.5281/zenodo.15729923>



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