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NEWSLETTER 09/2023

TALON PROJECT



TALON

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

talon-project.eu

EDITORIAL

T This newsletter presents a summary of the primary dissemination outcomes of the project, which include journal and conference publications, as well as organization of events. Specifically, two (2) deliverables were published, two (2) conference papers were successfully accepted, and TALON has been designated as a Silver Sponsor for the forthcoming “Italian Conference on Big Data and Data Science (ITADATA2023)” conference.

Stylios Trevlakis, InnoCube

DELIVERABLE PUBLISHED: “D2.1-USE CASE, KPIS, REQUIREMENTS, SPECIFICATION, SLICES & TECHNOLOGY ENABLERS DEFINITION REPORT”

Executive summary: The vision of TALON is to design and develop next-generation industrial systems in terms of performance, adaptation, explainability, trustworthiness and transparency. TALON aims at sculpturing the road towards the next industrial revolution by developing a fully automated AI architecture capable of bringing intelligence near the edge in a flexible, adaptable, explainable, energy and data efficient manner.

Deliverable D2.1 Use Case, KPIs, Requirements, Specification, Slices & Technology Enablers Definition Report, hereafter referred to simply as D2.1, details the four (4) Use Cases (UCs) which will be used in the TALON project to validate the AI Orchestrator and capabilities of the platform, while conversely indicates ways by which UCs will benefit through TALON in achieving their business goals. The process begins by presenting the TALON stakeholders and their goals, depicting UCs, requirements, and Key Performance Indicators (KPIs). Each use case is analysed based on its scope, objectives, and details, describing the “AS-IS” and “TO-BE” conditions and workflows, illustrating specific scenarios through steps, and particularizing on specific metrics. It should be noted that all four UCs in their respective chapters are aligned with the TALON key features as enumerated from the system’s functional and non-functional requirements, the technology enablers, and the state-of-the-art technologies. The present document formulates the input for all further technical design stages and serves as a reference point for all readers to understand the unique features derived from each Use Case.

You can find more information about this paper [here](#).

DELIVERABLE PUBLISHED: “D6.1 DISSEMINATION, STANDARDISATION REGULATION & BUSINESS PLAN”

Executive summary: The present deliverable provides a comprehensive account of the activities that will be carried out throughout the duration of the TALON project, encompassing dissemination, communication, exploitation, standardisation, as well as business planning and market analysis. The successful dissemination and communication of project outcomes is a crucial element in maximising the impact of innovative results and reaching the appropriate audience in both research and industry. This applies not only to the telecommunications and networks sector but also to vertical industries, especially bearing in mind the gradual transition from I4.0 to I5.0.

The value creation of TALON's envisioned solution will also cover activities relating to Standardisation, Regulation and Clustering, together forming the complete picture of the project's impact. In terms of Standardisation, consortium partners in their respective fields of responsibility will seek to track and monitor the standards that refer to the corresponding area of research and development. In that respect, four main R&D fields have been identified, namely: Networks and User Access Security, AI-fuelled Orchestration, Advanced AI Capabilities and Data Operations. For each of these areas, notable results that are derived throughout the project's lifetime, will be fed back to the corresponding Standardisation organisations / bodies. In terms of Regulation the consortium will seek to monitor relevant regulatory developments. As AI plays a central role in TALON's vision and that being a field of high regulatory activity in the EU (notably with its AI act), the main part of Regulation related work will be focusing in the direction of AI regulation. Additionally, regulation relating broadly to I5.0 applications, and local, regional and or international regulations with respect to the project's usage scenarios, will also be screened and monitored, as applicable. In terms of Clustering TALON will seek to participate in clusters of EU-funded projects with high degree of similarity. In fact, a cluster of projects funded under the same topic has already been formed on TALON's initiative, and further activities planning is currently underway.

Business Planning and Market Analysis referring to TALON's final product is planned to be carried out using a blend of well-recognised Strategy and Business Analysis methodologies and frameworks. This is to evaluate a set of aspects and variables with respect to TALON's own value proposition, as well as the broader market environment. A preliminary market data analysis indicates a market ecosystem that consists of a variety of market players, of different sizes and backgrounds aiming for a share in a market that is estimated to grow at significant rates. Even though product propositions matching the innovations envisioned by TALON, are not currently available in the market, and therefore the competitive landscape can only be roughly approximated, the existing data are consistent with a market environment that is highly competitive, and fast evolving.

You can find more information about this paper [here](#).

PAPER PUBLISHED: “HUMAN FACTORS IN THE DESIGN OF ADVANCED QUALITY INSPECTION SYSTEMS IN THE ERA OF ZERO-DEFECT MANUFACTURING”

Manufacturing companies around the world are under constant pressure to perform effectively and sustainably. Incidental processes, such as Quality Inspection (QI), are needed to achieve Zero-Defects Manufacturing (ZDM). This study aimed to identify the Human Factors and Ergonomics (HF&E) in the design of advanced automation, QI systems, and ZDM through selected papers and empirical observations. Our presented model is built around the six main dimensions, i.e., top management, manager (project owner), designers, engineers (internal and suppliers), and operators. The commitment of top management, the openness of the manager, the design-friendly nature of the technological system, and the constant updating of knowledge by engineers are important for the success of ZDM. Researchers need to be familiar with cognitive and organisational human factors to align theory with specific cases. Operators face physical and cognitive challenges, and their environment and health must be considered for their successful contribution to the design of advanced QI systems.

You can find more information about this paper [here](#).

You can refer to the preprint as: “Azamfirei Victor, Psarommatis Foivos, Lagrosen Yvonne, “Human factors in the design of advanced quality inspection systems in the era of Zero-Defect Manufacturing”, 32nd FAIM International Conference, June, 2023.”

PAPER PUBLISHED: “A READINESS LEVEL ASSESSMENT FRAMEWORK FOR ZERO DEFECT MANUFACTURING (ZDM)”

In this study, a comprehensive framework for assessing the readiness of production systems for Zero Defect Manufacturing (ZDM) has been developed and presented. The framework includes four pillars of ZDM readiness, namely Personnel, Procedures, Infrastructure, and Company Culture, to help companies understand their level of readiness and plan for successful implementation of ZDM. We argue that a manufacturing company will be better equipped to embrace ZDM if it performs well in these four areas. We propose a tool that uses yes/no questionnaires to assess a manufacturing system’s readiness for ZDM. The results of the questionnaire will objectively show the true level of cultural readiness for ZDM adoption, and the level of investment required for implementation will depend on the level of readiness. This tool can help companies gain a clear understanding of their readiness and create a plan for implementing ZDM. Overall, our framework and tool can help manufacturers improve the quality of their products and be ready for ZDM adoption.

You can find more information about this paper [here](#).

You can refer to the preprint as: “Psarommatis Foivos, May Gökan, Azamfirei Victor, Magnanini Maria Chiara, Powell Dary, “A readiness level assessment framework for Zero Defect Manufacturing (ZDM)”, 32nd FAIM International Conference, June, 2023.”

TALON'S SILVER SPONSORSHIP OF THE "ITALIAN CONFERENCE ON BIG DATA AND DATA SCIENCE (ITADATA2023)"



We are delighted to announce that TALON has been designated as a Silver Sponsor for the forthcoming ITADATA 2023 conference. The conference is scheduled to occur from the 11th to the 13th of September in the city of Naples.

Davide Dalle Carbonare, an influential member of the Steering Committee and Panel Chair, is scheduled to deliver a presentation on TALON during the "Smart Ecosystems" session on September 13th, from 11:00 to 11:15. The title of the presentation is "TALON: Bridging the Gap between Intelligence and Efficiency in Industry 4.0".

Further details about ITADATA 2023 are available in the official website: <https://www.itadata.it/>.

Info: The second edition of the Italian Conference on Big Data and Data Science (ITADATA2023) is an annual event organized by the CINI Big Data National Laboratory. Its objective is to facilitate collaboration among Italian researchers and professionals from academia, industry, government, and public administration who are engaged in the study and application of big data and data science. The conference also encompasses related areas such as security and privacy, high-performance computing, and cloud computing.

The conference will consist of a primary research track focused on big data and data science. Additionally, there will be tutorials and demonstrations showcasing industry, research center, and university-developed solutions and prototypes. Furthermore, thematic workshops will be held, addressing specific verticals within the field of big data and data science. The conference will additionally include two keynote speeches delivered by esteemed individuals, as well as several panel discussions.

Goal: The primary objective of ITADATA2023 is to engage in discourse and influence the trajectory of Big Data and Data Science in both domestic and international contexts. This endeavor takes into account the multifaceted, intricate, diverse, and data-driven landscape within which contemporary distributed systems operate. The timely management and analysis of substantial volumes of data, along with the assurance of low-latency access to the data, have become increasingly crucial prerequisites that lie at the core of contemporary business operations. In the present context, data science assumes a pivotal role as the fundamental underpinning of our contemporary data-centric society. Its primary function involves the advancement and delineation of requisite technologies that facilitate the creation of value from data across diverse fields, characterized by escalating levels of intricacy.

The scope of ITADATA2023 encompasses both theoretical and practical aspects of research and application in the field of data, ranging from data governance to data processing and analysis. Additionally, this field encompasses research and implementation in interconnected areas that heavily rely on data and data science technologies. These areas include cloud computing, edge computing, Internet of Things (IoT), intelligent computing, high-performance computing, blockchain technology, security and privacy, as well as assurance and certification. This study aims to comprehensively examine the progression of big data and data science within the European Union (EU) and at the national level. It seeks to delineate ongoing initiatives in the field of data spaces and relevant entities, such as the Big Data Value Association (BDVA). Additionally, it explores the development of policies, laws, and regulations pertaining to this domain.



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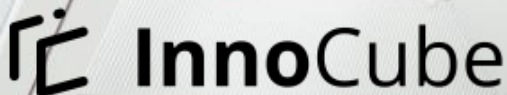
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