MODAPTO [101091996]:
Modular Manufacturing and Distributed Control via Interoperable Digital Twins

Press Release

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MODAPTO Project Celebrates Major Milestones in Its First Year

Working towards a more flexible and adaptable industrial environment that can respond effectively to dynamic production requirements or changing market conditions.

The MODAPTO Horizon Project is proud to announce significant accomplishments in its first year, creating **modular industrial systems** to cover demanding needs, product modifications, or market circumstances. In accordance with the six principles of Reconfigurable Manufacturing Systems (RMS), MODAPTO project integrates smart and connected Digital Twins (Interoperable DTs) revolutionizes the way components are optimized and modified.

Key First-Year Achievements

1. **Project Plan & Risk Management**

The project has advanced its management structure, quality assurance processes, risk management strategies, and communication protocols to ensure efficient monitoring and progress.

2. **Project Management and Data Ethics**

The project has advanced its European Commission framework, including research ethics and data management plans, ensuring adherence to FAIR Principles throughout implementation.

3. **Efficient Dissemination and Communication Strategy**

MODAPTO's strategy outlines a comprehensive framework for effectively disseminating and communicating achievements. It defines target audiences, appropriate channels, activity timelines, and raising awareness of modular manufacturing.

4. **Use Case Scenarios for MODAPTO**

The MODAPTO project requirements and KPIs are based on three industrial pilots involving four manufacturers. Pilot 1 relates to a manufacturer of industrial equipment (FFT) focusing

on designing new production modules using robotic systems with enhanced sustainability and optimization. Pilot 2 addresses transition of gearmotor manufacturer (SEW) from monolithic to modular production for high customization manufacturing, thus enabling the optimization and predictive maintenance. Pilot 3 involves collaborative automation between a modular kit-holder SME (ILTAR-Italbox) and a large car manufacturer (CRF) to optimize production, warehousing and collaboration between the two supply chain partners.

5. **Specifications and Architecture Framework**

The project aims to revolutionize modular manufacturing using interoperable digital twins to enhance efficiency and adaptability. The framework outlines system architecture, integration strategies, and future development for advanced manufacturing solutions.

6. **Final Architecture Framework**

MODAPTO Architecture focuses on the layers and the structural elements to ensure seamless integration and interoperability, ensuring that the project remains a pioneer in the modular manufacturing sector.

Looking Ahead

Building on these achievements, MODAPTO will continue to drive innovation in modular manufacturing. By integrating interoperable digital twins, modular production framework, Toolkit, and enhancing production efficiency with a plethora of additional distributed intelligence functionalities, such as optimization, simulation, self-awareness, sustainability analytics etc., the project is transforming manufacturing processes across Europe.

The MODAPTO team is eager to collaborate further with industry leaders, stakeholders, and especially SMEs to create a more interoperable, efficient, and sustainable manufacturing ecosystem.

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