

MID<sup>3</sup> Manufacturing Industry Data Driven Digital Twin

## **MANUFACTURING SME AND CHALLENGE**

**Digital Twin** *implementation for the* **14.0Lab** of Polytechnic of Milan.

Evolving digital profile, mirroring the real system **behaviour**, for performance prediction and optimization.





Arrowhead Framework

local cloud

Orchestration

System

**Authorization** 

System

## **SOLUTION: ARCHITECTURE AND COMPONENTS**

**ArrowHead Framework** to interface the Digital Twin Simulation with Discrete Manufacturing Machine Tools and Robots of the Industrial Shop Floor

**Industrial Shop Floor** 

#### **SMART FACTORY** Simulation MID3 Management Module Engine Configuration and simulation Plant model management GUI 3D Monitoring Temporary kinematics parameters engine store **Plant logics AH Connector** OPC-UA Service Provide

## **BENEFITS AND LESSON LEARNT**

Real to digital mirroring means being able to simulate the behavior of the real system with an *error* < 10%

# OUTLOOK

REST

**OPC to** 

Improve the Digital Twin modularity level

ServiceRegistry

System

ARROWHEAD



Real applications give **immediate perception of all** the potentialities of 14.0 technologies.

The possibility to collaborate on the extension and enhancement of open frameworks like Arrowhead and Fiware creates value for the whole ecosystem.



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