



Manufacturing Quality Control Via Remote Operator

OBJECTIVE

To increase the flexibility of quality control on manufacturing lines.

VALUE

Introduces digital twins into the legacy manufacturing process, to bring it into alignment with post-Covid remote personnel requirements.

THE SOLUTION

This showcase replicates a real manufacturing line and its components, in the following sequence:

- An Enterprise Resource Planning (ERP) system which sends the order to a Manufacturing Execution System (MES). The MES launches the manufacturing process, including a conveyer that moves parts and a remote-controlled robot.
- A remote operator decides if the part is valid, viewing a live camera image over 5G, and the robot finishes the manufacturing process.
- A Data Acquisition Module communicates with the elements of the manufacturing line to store relevant traceability and process data at a High-Performance Computer (HPC).
- This data feeds an Assets Administration Shell (AAS) based digital representation of the line elements that are the input for the twin. The twin, including the dashboard, is deployed in a virtual environment viewed by AR goggles.

DIGITAL TWIN ROLE

- Provides a digital replica of the manufacturing cell, enabling manipulation and quality control inspection of manufacturing cells using Virtual Reality.
- Tracks energy efficiency, performance metrics, and maintainability of the manufacturing line.

Solution Description

Virtual Reality Inspection

A digital twin of the manufacturing cell is created using Oculus VR and deployed in a virtual environment, enabling real-time quality control.

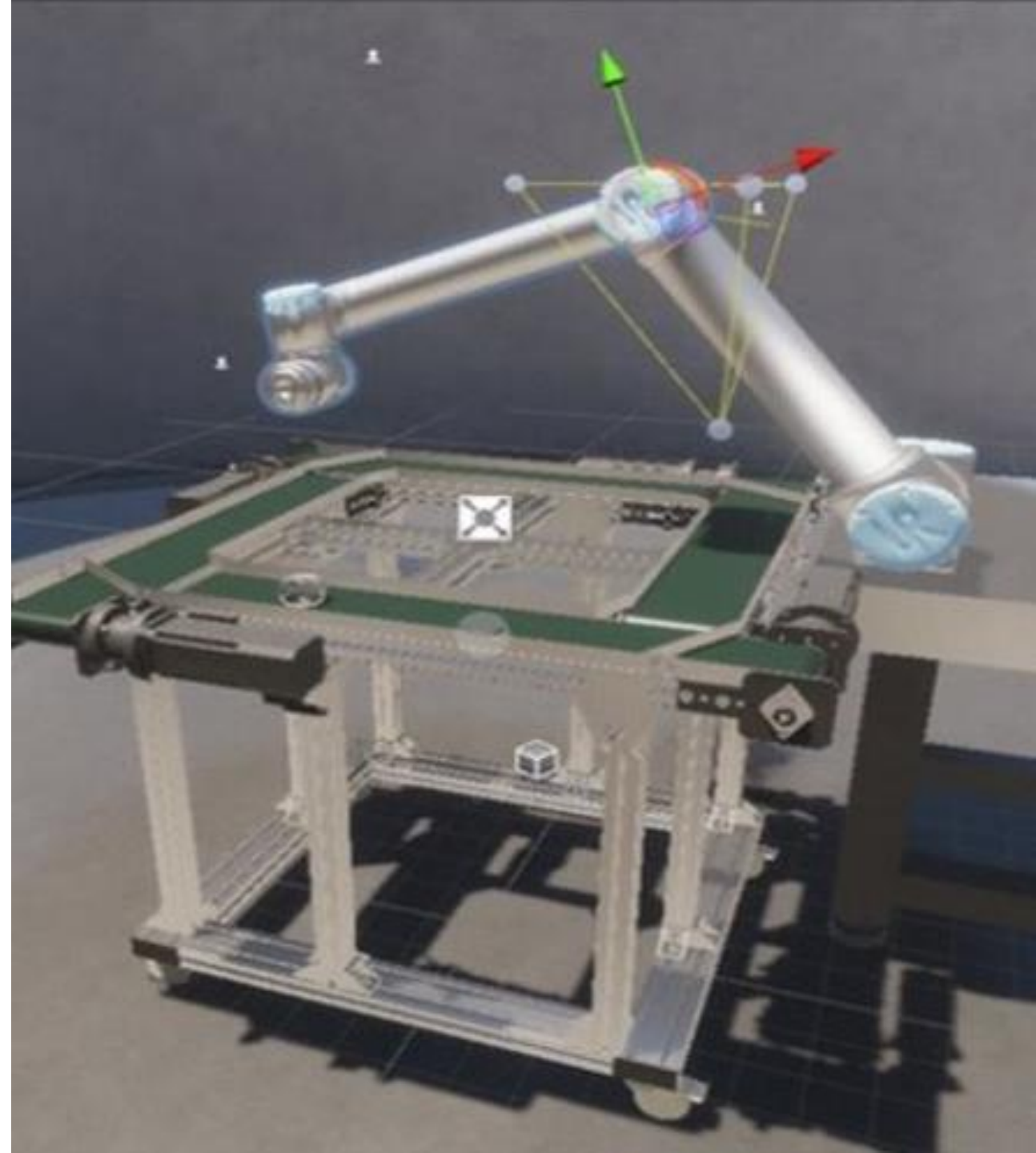
Machine Learning Analysis

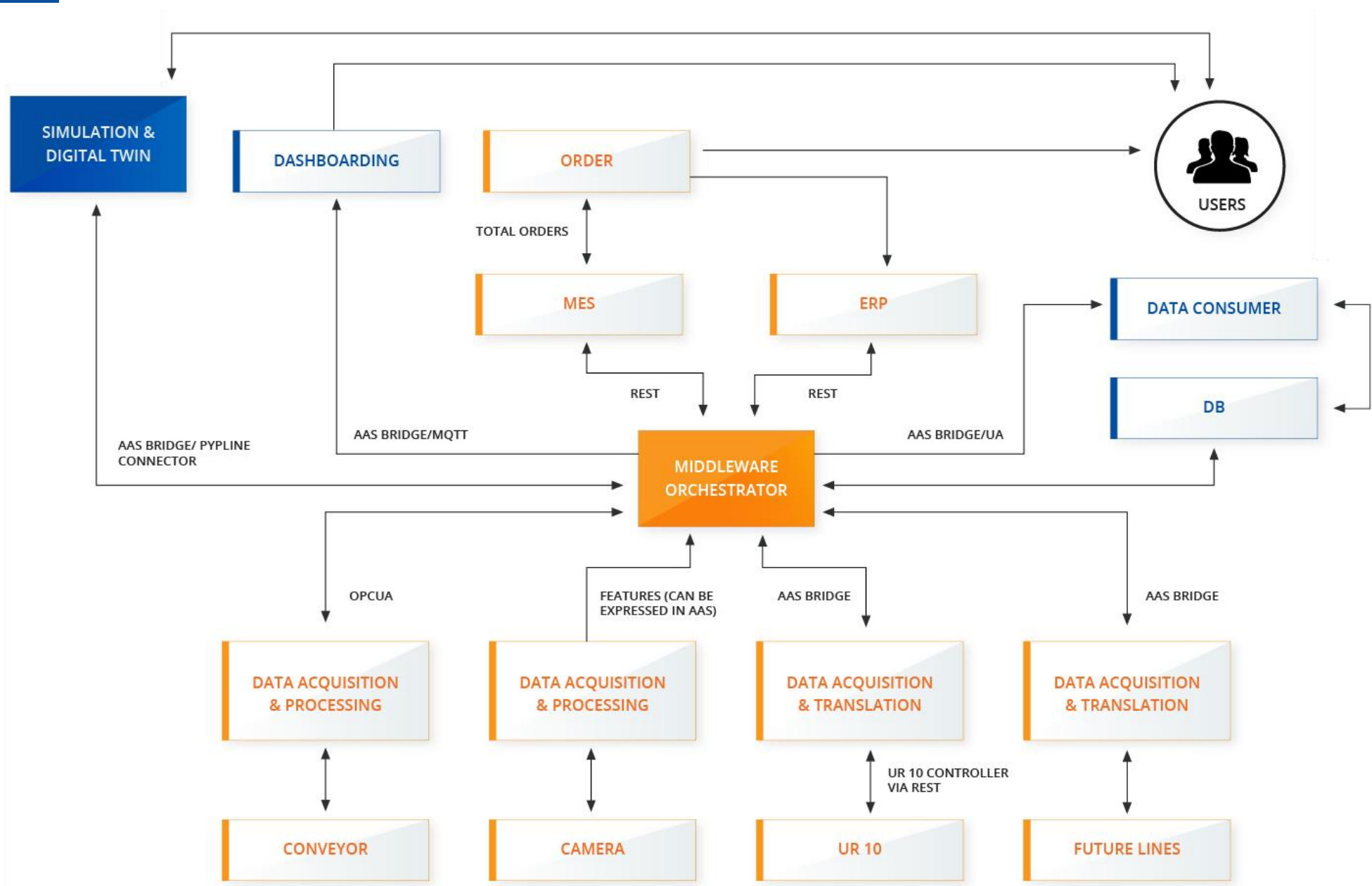
Process elements are measured and examined via the digital twin and passed onto machine learning technologies to provide actionable insights.

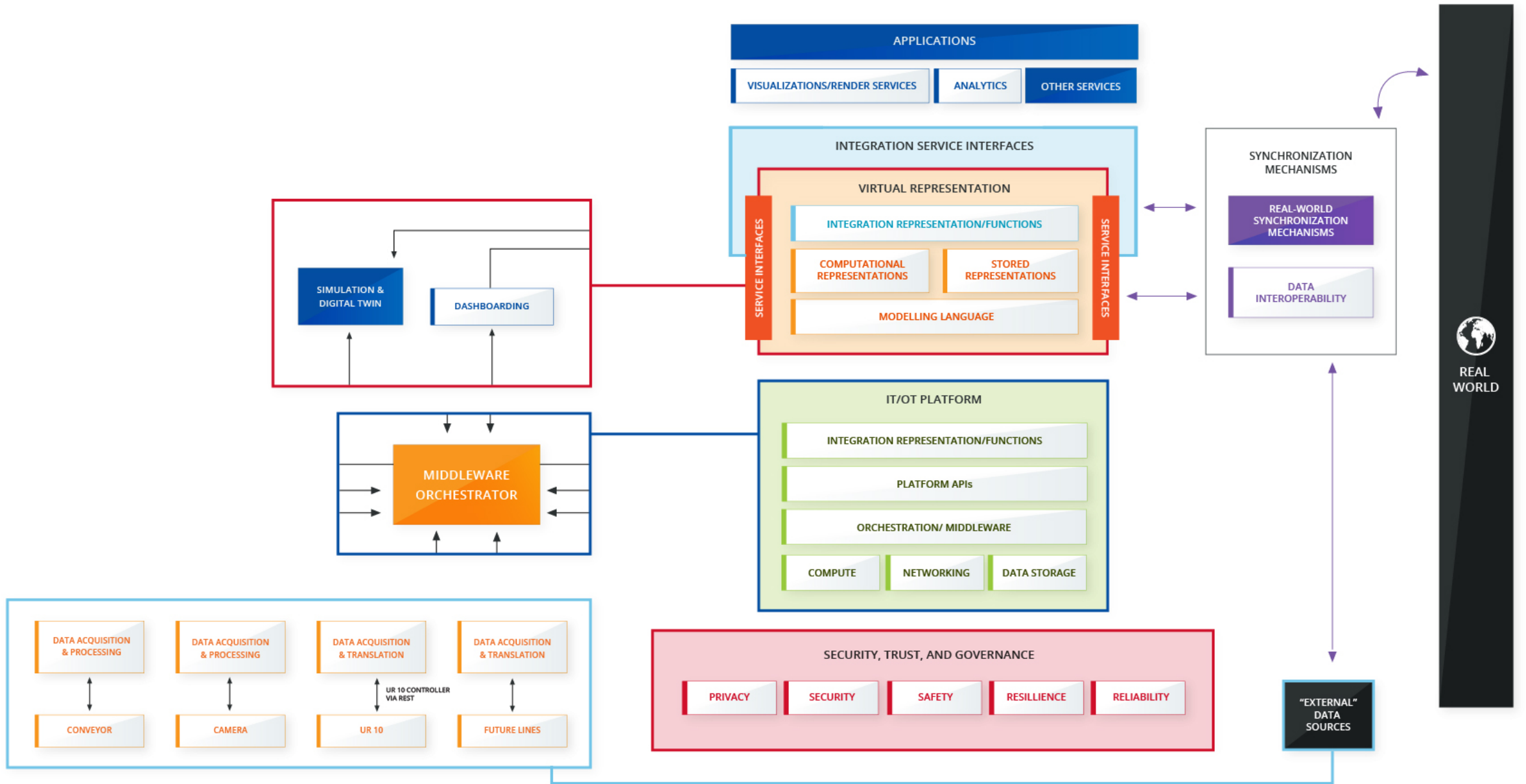
Benefits & Results

The outcomes of the showcase are:

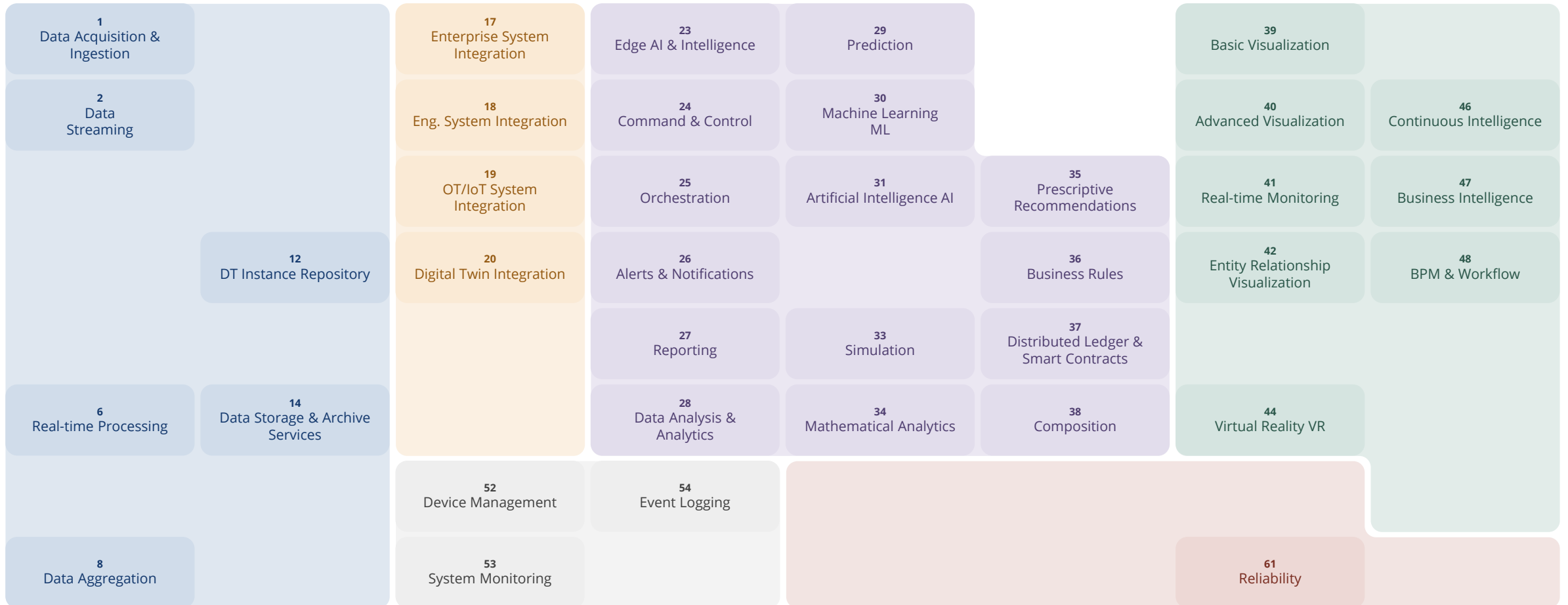
- A digital twin of the manufacturing cell that can be manipulated and inspected.
- A realistic demonstrator that includes real-time remote operators.
- Improvements required in the post-Covid manufacturing world, notably operator location flexibility.







Capabilities Periodic Table



● Data Services
 ● Integration
 ● Intelligence
 ● UX
 ● Management
 ● Trustworthiness