

4 Data Challenges To Address First Before Capitalizing On The Digital Twin In Your Factory



A **Digital Twin** of your smart factory can give you a real-time representation of its physical attributes, systems, and processes — based on enterprise and site-specific transactions, historical data, manufacturing execution, and real-time streaming data — so plant managers and decision makers have the context they need to understand product models, can simulate the impact of variation in key assets and stages in your production process, and can implement realistic mitigation routines to address intrinsic system unpredictability.

Having a Digital Twin of your smart factory sounds promising; however, you cannot create a Digital Twin without solving these 4 data challenges.

CHALLENGE 01

Data Processing

A Digital Twin relies entirely on digitized data. If data processing remains inefficient, then it is difficult to have a Digital Twin.

Efficient data processing can be accomplished by using artificial intelligence and predictive models to sort through noise and resolve conflicts between records. **The traditional process analytics, AI can:**



Uncover hidden meaning



Accelerate execution for time-sensitive applications



Prioritize data quality over quantity

Data Acquisition, Cleansing, Integration, and Contextualization

Missing data or values due to faulty sampling or restrictions can lead to poor decision making. Conflicting data or even redundant data creates bias in the analysis results.

CHALLENGE 02

Manufacturers need to ensure that they have the following processes locked down:



Data acquisition

Gathering the data from multiple systems



Data cleansing

Ensuring the data is clear of errors, inaccuracies, and redundancies



Data integration

Merging the data from various and often disparate sources



Data contextualization

Getting the right data sets to the right users for the right problem at the right time

CHALLENGE 03

Data Storage

Choosing the right data storage option is crucial since a fully connected smart factory generates an **enormous amount of data**.

In order to create a Digital Twin of your smart factory, you must find out which storage option is right for your needs:



A database designed for managing complex transactions and heavy data analysis



A database designed for managing huge sets of varied and often-updated data in distributed systems



A hybrid database or combination of both

Data Processing Time

Data processing takes time and can be one of the most critical elements in creating your smart factory's digital twin.

CHALLENGE 04

The following carry a strict latency requirement:



Real-time monitoring



Prediction



Real-time control

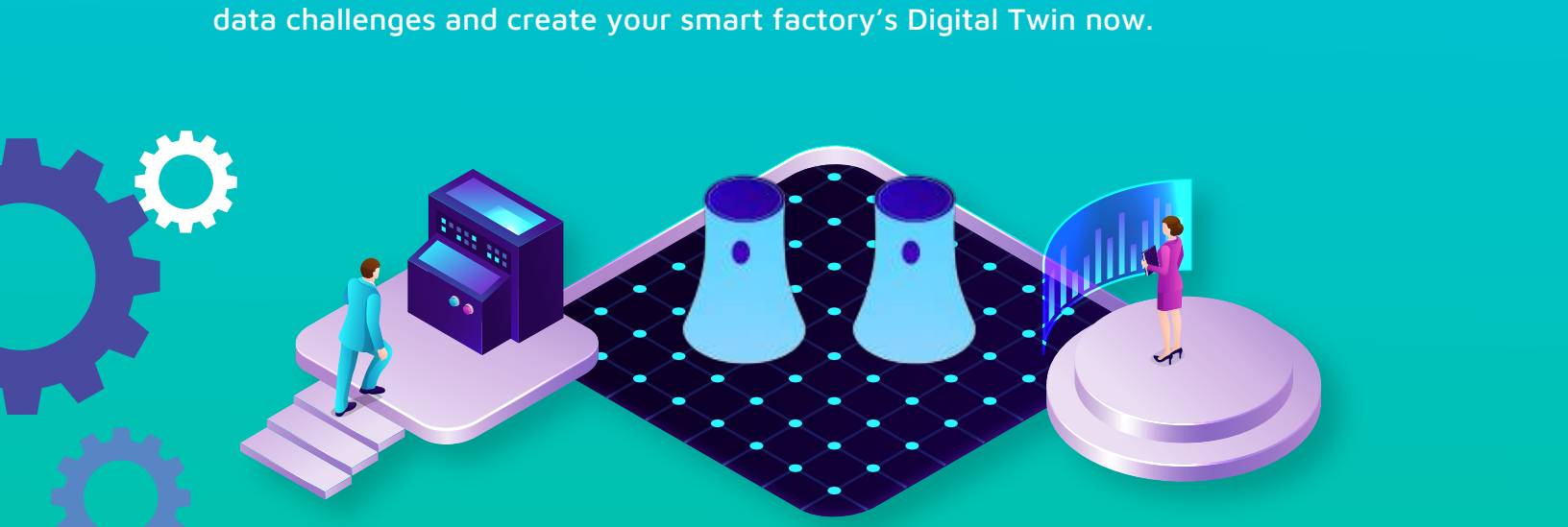
Create Your Smart Factory's Digital Twin

Mareana's Manufacturing Data Hub (MDH) uses a schema-independent Artificial Intelligence (AI) and Machine Learning (ML) core to solve these 4 data challenges.

MDH enables you to:

- ✓ Plug-and-play data from different systems and vendors, and of varying levels of structure
- ✓ Minimize upskilling and maximize effectiveness by giving your operational users pre-configured dashboards
- ✓ Empower your data scientists to test, tweak, and develop in real-time using Python libraries and the built-in Jupyter Notebook
- ✓ Give ALL permissioned users access to the right data, in the right place, all the time.

Contact one of our data experts to learn how MDH can help you solve your data challenges and create your smart factory's Digital Twin now.



About Mareana

Mareana is a leader in AI and data science with enterprise software generating insights for manufacturing, supply chain, and sustainability. Our core artificial intelligence rewrites the rules for connecting AI and delivers superior outcomes because we effortlessly harness all data and its full potential. We drastically improve visibility and control in your organization so you can proactively sense and respond to dynamic changes in real-time.

We have delivered over \$1 billion in economic value to global leaders in life science, consumer goods, chemical, food & beverage, and general manufacturing industries.

Our commitment to continuous innovation has been recognized by Gartner, who named us a "Cool Vendor in AI" and we have been featured as a thought leader in Silicon Review and Manufacturing Insights magazine.