



# FlureeSense for Manufacturing



## FlureeSense addresses the data cleaning and linkage challenges that can impede full realization of a digital transformation initiative

### The Problem

Manufacturing is going through a digital transformation where connected devices, Smart Factory technologies and data analytics offer an opportunity for manufacturers to dramatically increase their efficiency, productivity and accuracy. Digitization can optimize how products are designed, produced, used and maintained as well as transform the operations, processes and energy footprint of factories and supply chains. However, the ineffective collection, integration and linkage of data can often be a barrier in fully realizing those benefits.

Manufacturers produce reams of data throughout the product design and production workflow and receive it in every form possible, including simulation data, operating machine data, and quality measurement data. These datasets are helpful in isolation to enable their respective processes, but it is often extremely challenging, if not impossible, to connect them all into holistic insights across the product lifecycle. This results in siloes between technical functions and supply chains, limiting the positive transformational benefits possible via digitization.

We see this manifested in the following common symptoms:

- 1. Unable to generate a standard Bill of Materials:** Functions develop their own conventions for describing the raw-materials, sub-components, and parts required to assemble into products, and may each have their own distinct methods for describing their characteristics or features. This is further exacerbated when collecting and integrating standard reference material data from suppliers who have their own SKUs and methods for defining their components.

In many cases, this detail may be trapped in Engineering or technical specification documents, requiring armies of Operations people to copy and paste the data into tables for reusability.

- 2. Unable to integrate ERP data from multiple instances:** Multiple technical functions or business units in larger firms each run their own Enterprise Resource Planning (ERP) systems for creating and capturing the data outputs of manufacturing processes. Each implementation is often highly customized for its specialized function and it is very difficult to communicate or share data across functions. This is true whether integrating two different ERP systems, or even two different instances of the same ERP system.
- 3. Unable to converge IT/OT data at scale:** The operational data resulting from the plant pumps, machinery and devices is not easily connected to the digital data from the business and logistics management systems. This is illustrated below in Figure 1.

The typical approach to address these issues is to build large Data Operations teams to either manually extract data from systems and copy-paste them from one into another, or build programs or code using extract-transform-load (ETL) tools, Python scripts or even Microsoft Excel spreadsheets. However, these approaches are not sustainable and cannot scale to keep up with the volumes of data being created as digitization expands.

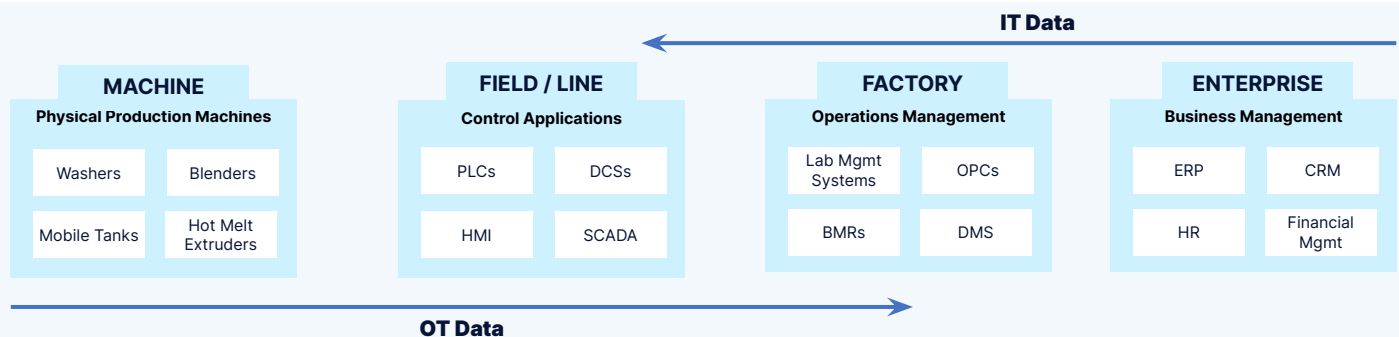


Figure 1. Visual representation of IT/OT data created in a Smart Factory implementation. Not being able to link the operational data from machines and field/line control applications with the digital business management data prevents the full Smart Factory potential.





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## Introducing FlureeSense for Manufacturing

FlureeSense is a full-suite data collection, integration and cleansing solution that is purpose-built to enable Manufacturers to link together their data. We accomplish this by using smart AI/machine learning models to automate many of the required data cleansing and transformations routines required to link data from across specialized siloes. It is an Expert Knowledge System, meaning that it is designed to learn from feedback from Data Operations professionals and domain subject matter experts, as opposed to being built for Developers, Programmers or Data Scientists. FlureeSense enables:

- **Development of Standard Bill of Materials:** Automated reference data creation and management systems that scan structured and semi-structured Bill of Materials data from multiple source systems in order to conform them to one standard.
- **ERP integration:** Connections to common ERP platforms like SAP or Dynamics 365, and enable machine assisted detection of the transformation and data normalization logic required to integrate data from one ERP to another.
- **IT/OT Convergence:** Connectors to edge devices to capture operational data in real-time, with the capabilities to link and master the OT data with IT data from ERP, CRM and other business and logistics management systems.

FlureeSense can run on your hosted Data Lake or analytics platform on the Cloud or on-prem. Or, we can run it as a hosted and managed service.

**Single solution for collecting, matching, merging, cleaning and linking product, sensor and customer data**

**Fast time to market – data cleansed in ready in weeks (versus months using traditional programming approaches)**

**Low-cost: Does not require an army to run and maintain**

**Runs on your premises or behind your firewalls. No need to ship data outside.**

**Can come as part of a managed service or as Software running in your infrastructure**

