Sapience Manufacturing HUB

Industry 4.0

System integration
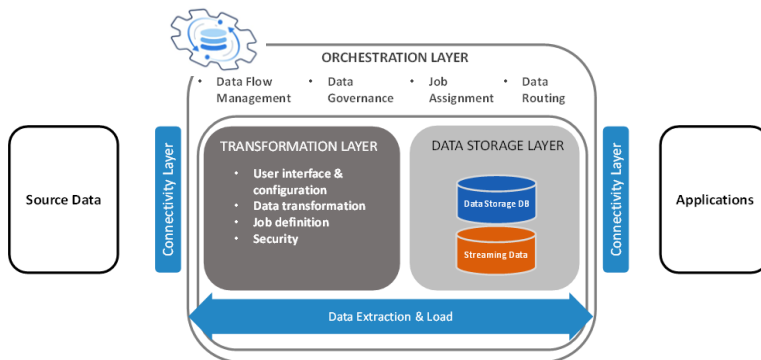
Big data

Augmented reality

Overview

Sapience Manufacturing HUB is a configurable *Enterprise Application Integration (EAI) platform* that is used to connect any data source, application, device, or tool regardless of location or operating platform through a flexible, easy-to-use no code, low code, interface to transfer data or information between manufacturing, external services, databases, and applications in real-time to enable the digital transformation of manufacturing processes, systems, and services.

The platform consists of four functional layers: 1) Connectivity layer; 2) Orchestration layer; 3) Transformation layer; 4) Data storage layer; capable of handling hundreds of Terabytes of data and millions of daily events and transactions.

Product Configurations

- **Standard** : Full EAI capabilities & small database
- **Enterprise** : Full EAI capabilities PLUS persistent big data database with transformation, aggregation, semiconductor analytics capabilities, and pre-built applications for SAP S4 HANA like product costing, yield analytics, WIP management, and Lot Genealogy.

Product Highlights

- **Universal Connectivity:** Configurable integration hub to connect any data source, application, device, or tool regardless data format or operating system (over 400 API's)

- **Critical Information Delivery**: Deliver critical information between systems, such as MES, ERP, PLM, RTD, equipment/tools, transport systems, DB, applications, & users

- **Reliable & Fail-safe:** Constantly monitor the health of the connections. Built-in configurable corrections and automatic fail-over to keep the system optimized 24×7

- **Minimal to No Coding:** Configurable use case business logic using an user interface to easily customize event handlers to deal with unique business processes with zero to minimal coding.

- **Automated Data Management Services:** Automated allocation of resources, monitoring jobs, data quality, operations, and executing disaster recovery (DR) to quickly recover (RTO/RPO) from error conditions.

Common Applications

- IIoT data source for Data lakes and Data warehouses
- Enterprise Resource Planning integration (ERP)
- Business to Business (B2B) transaction management
- Data Collection, transformation, and storage
- Factory integration (MES) data management
- Process & Equipment data collection (PDC & FDC)
- Equipment & Materials performance tracking (EPT)
- Product Lifecycle Management (PLM) integration

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Business Benefits

Combine financial and operational data for complete visibility, efficiency and performance

- Improve profitability with accurate operational cost insight, analysis, and efficiency by **1-2%**
- Improve batch traceability/lot genealogy management and efficiency for improved quality control and supply chain management by **20-40%**
- Improve product throughput, WIP management, and customer on time order delivery **3-5%**
- Manage yield loss impact on revenue & customer orders
- Dynamic real-time MES/ERP synchronization
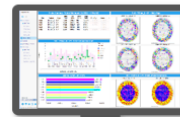- Improve supply chain security with accurate operational insights and analysis

Enterprise Capabilities

- Simplification of business processes, information systems, into a common platform
- Closed loop business processes with greater visibility across the supply chain
- A common logical model for Product / Assets supporting next generation E2E scenarios
- Extend business process, logic, and data to the manufacturing edge
- Semantic data model for standard pre-packaged content ready for consumption
- Derive business, product, and service insights from manufacturing that result in improved throughput, yield, test efficiency, asset management, factory planning, new product introduction, total time to market. Etc

Industry Solutions

1. WIP management and control
2. Operation product costing (consumption based)
3. Cost of yield analytics (impact of yield loss)
4. Lot Genealogy (order and part traceability)
5. Lot Containment (quality shield)
6. Return material authorization (RMA)
7. Sustainability

Solutions

Cost of Yield Analytics
- Improve yield ramp to reduce cost of non-quality
- Increase revenue from new products

WIP Management
- Real-time production control with integration to MES at shopfloor
- Identify bottle-neck operations and improve on-time order fulfillment

Product Costing
- Monitor actual cost at process and equipment level
- Reduce cost of non quality

Finance (SAP ERP)

Operation / Step Time

Product Costing Dashboard (SAP ERP)

Operations (PDF Solutions)

Operation / Equipment / Step Time

Consumable Variance (PDF Solutions)

AI and Analytics

Solutions that leverage factory data to provide real time insights into business and manufacturing ops that integrate with ERP GenAI LLMs.

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