

Accelerating manufacturing transformation in Aerospace & Defense



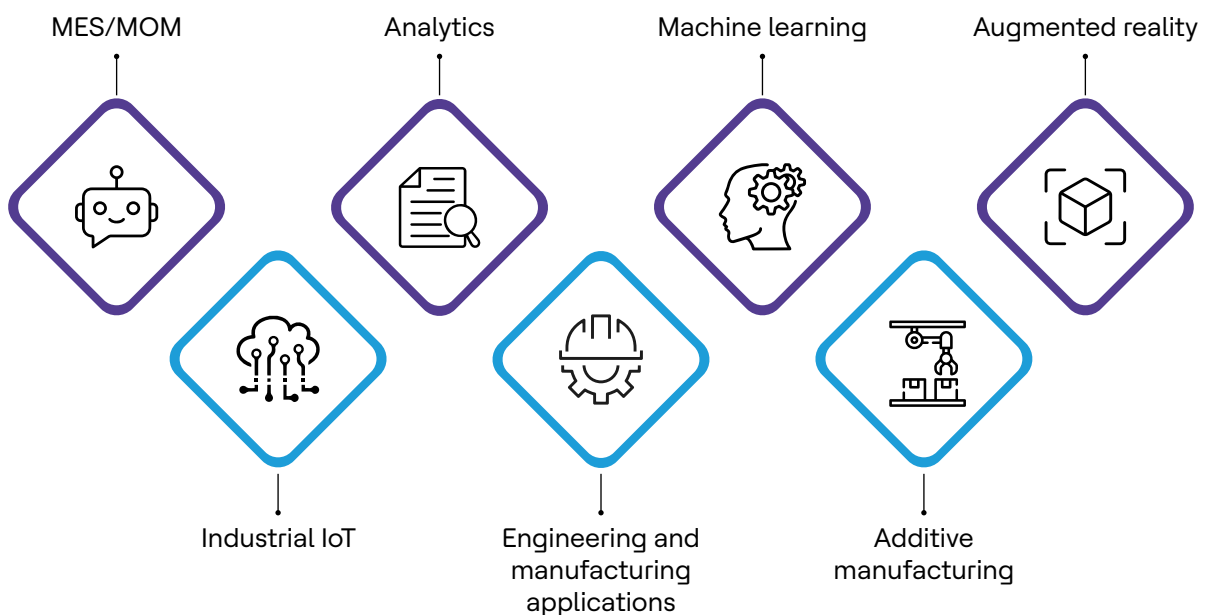
Emerging trends like Industry 4.0 and smart manufacturing are transforming the manufacturing industry at a pace never witnessed before. These trends are shaping the manufacturing landscape and have become crucial in meeting the increasing demands of enhancing customer experience, personalization and improving operational efficiency. Today, manufacturing companies need innovative and tech-driven approach to seamlessly connect internal and external supply chains while integrating real-time data and production processes.



Unlocking unprecedented innovation and manufacturing excellence in Aerospace & Defense

At HCLTech, we understand the changing landscape of the manufacturing industry. Our expertise in Digital Manufacturing and Industry 4.0 enables manufacturing organizations to understand the potential benefits and opportunities that come with adopting Industry 4.0 technologies. We help our customers accelerate their Industry 4.0 journey by aligning their business objectives to these new-age technologies effortlessly.

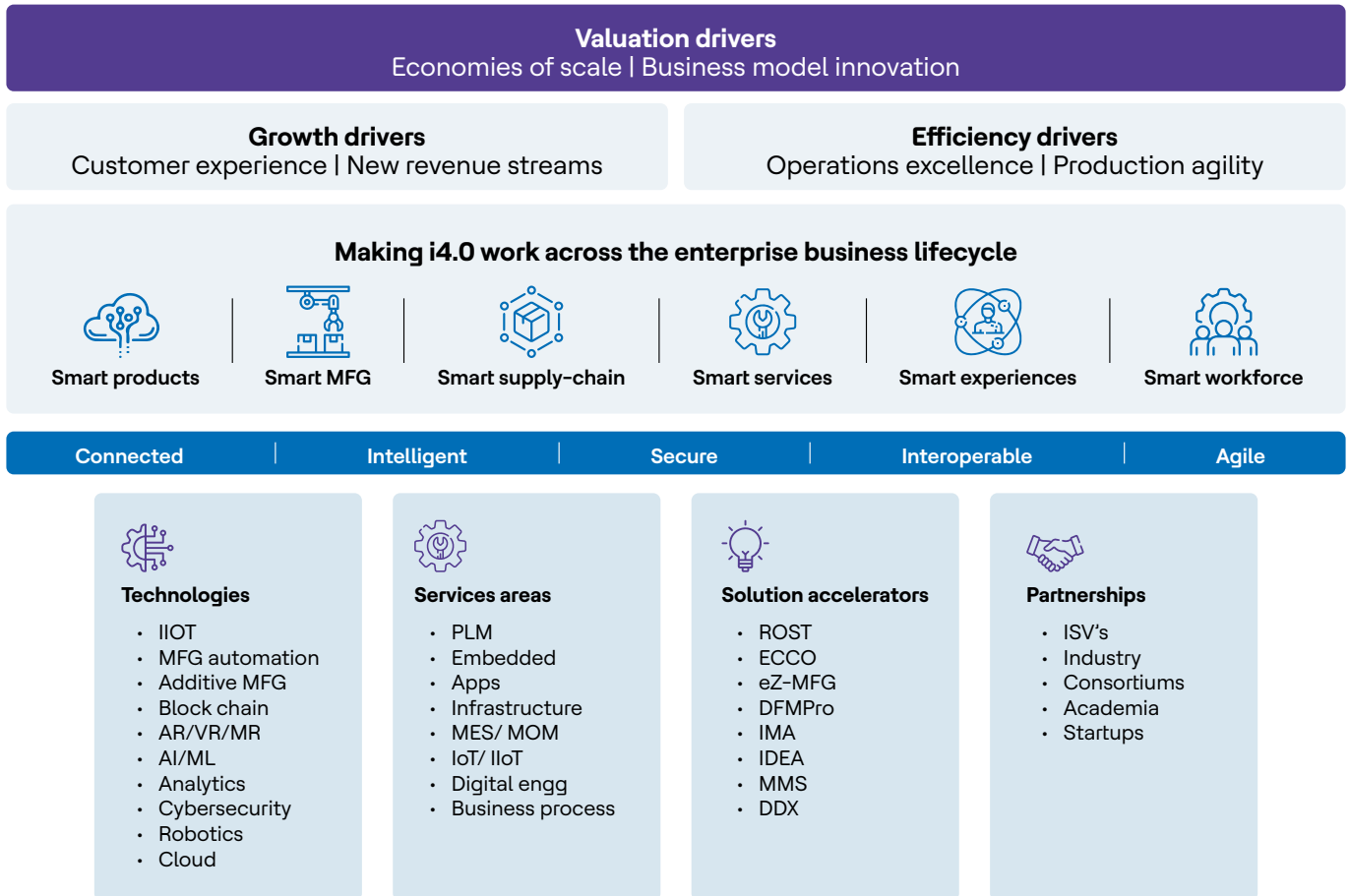
Bringing deep expertise across the foundational components of Smart Manufacturing



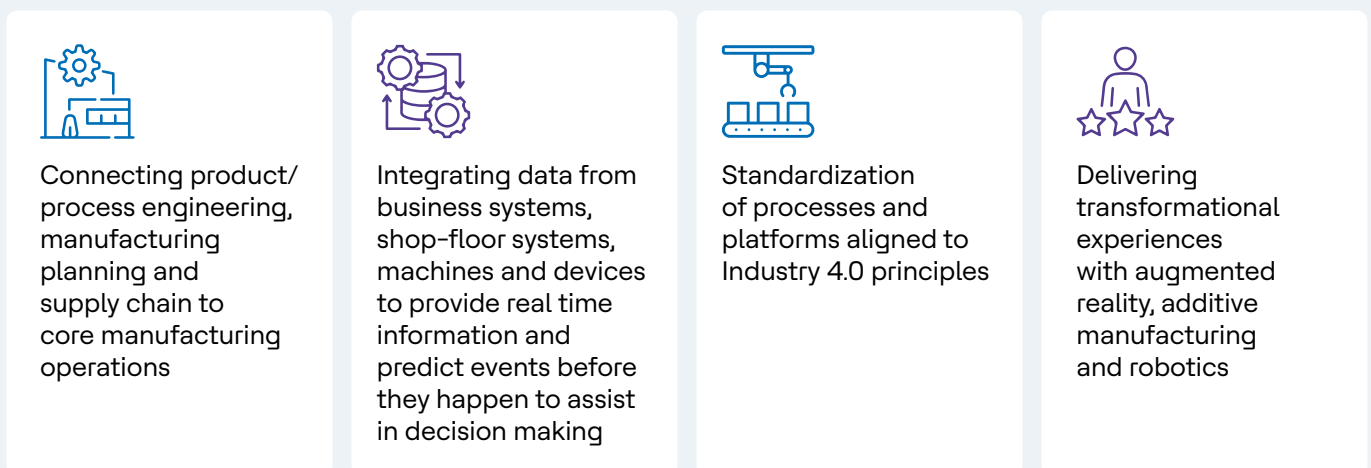
Supercharging smart manufacturing practice

Our proficiency in Industry 4.0 and smart manufacturing practices have evolved over a 20-year span, encompassing Product Lifecycle Management (PLM), Manufacturing Execution Systems (MES), and Digital Engineering. We are committed to assisting and empowering our manufacturing customers within the Aerospace and Defense (A&D) industry in their journey toward digital transformation.

Our solutions span smart products, smart manufacturing, smart supply chain, and smart experiences. Powered by state-of-the-art technologies and robust platforms, we enable companies to unlock the full potential of Industry 4.0.



Streamlining information from shop floor to top floor with Digital Thread





Comprehensive digital manufacturing solutions



Integrated manufacturing analytics

- Offering deeper insight into key manufacturing parameters, history and real-time status of the connected assets
- Delivering analytical capabilities for operations and predictive maintenance



ROST – connected supply chain

- Providing visibility into status of supplier parts in near real-time and predicting delivery date in advance
- Enabling integration with shop floor systems and mobile applications for data acquisition based on supplier capabilities



Machine maintenance scheduling

- Delivering AR capability to help with scheduled and unplanned maintenance management
- Includes custom checklist, linked documents, parts/assignments, repair requests, response time tracking, and multi-level escalation



e-pick to light using AR

- Reduces errors and defects in the production process just by scanning a bar/QR code
- Helps in optimizing parts selection in operating stations, warehouses etc., in order to sequence the right parts to the production line



eZ-Mfg – lightweight MES solution

- Built on the PTC Thingworx platform; enhances order management, kitting operation, production tracking, error proofing, and quality and reporting
- Enables rapid roll-out which helps to lower the cost of ownership (35% to 45% lower costs compared to traditional MES products) and in early ROI



Video-based equipment integration

- Connect disparate equipment/legacy equipment through video processing and eliminate manual recording of events
- Alarms and data recognized through video processing/imaging techniques to trigger alerts and control equipment
- Eliminate 100% manual effort for data collection, get true OEE metrics and KPIs



HCLTech intellectual property and technologies

eZ-MFG

Lite MES adding flexibility to your manufacturing operations for achieving production and operational goals

IDEA

IoT Device Enablement Acceleration Platform - a light-weight customizable platform for transforming relatively unintelligent machines into IoT-enabled smart devices

DFMPro

CAD integrated DFM solution for upfront manufacturing validation and avoiding downstream issues

ROST

Real-time Online Supply chain Tracking - predict delivery dates of supplier parts through real-time visibility into production status and machine learning based on historical performance

Camworks

Next generation best-in-class CNC programming solution to accelerate CNC program generation

Success stories cementing our expertise



Building a strategic and scalable roadmap for a leading **global industrial major**

Scope/Problem statement

The customer had disparate processes, operating procedures, paper and point solutions

Solution

- Conducted comprehensive assessment of existing processes and technologies across four representative plants in multiple countries
- Identified gaps against industry-leading practices, and recommended a standardized solution architecture

Business impact

Helped the client develop a business case and roadmap for phase-wise implementation of Smart Factory



Improving the predictability of outcomes for a global **manufacturer of consumer electronics products**

Scope

The customer had shortlisted a shop floor platform and was looking for a partner to scale global delivery

Solution

- Multi-site deployment of MES solution based on a global template and our "Plant in a box" philosophy with integration to other shop floor and business systems
- Cloud enablement and machine learning for KPI, visibility and comparison

Business impact

Standardization of data, process and technology across plants and enhanced predictability of outcomes



Enhancing the maintenance process for a leading **windmill OEM**

Scope/Problem statement

Lack of a standard data platform for their as-built and as-deployed windfarms, lack of a SCADA layer to remote control and diagnose error situations

Solution

- Merged 400 databases into one single platform reflecting our customer's as-built windfarms globally for ease of maintenance.
- Developed a maintenance management solution for remote service and repair, remote monitoring of vital health parameters and analyzing data collected from field-deployed controllers

Business impact

Failures predictability and improved maintenance of the systems, leading to increased productivity and reduced maintenance costs



Accelerating digitalization for a global **pharmaceutical company**

Scope/Problem statement

Legacy and vulnerable plant machinery and software systems

Solution

- Worked with the customer to create a roadmap for the modernization of their manufacturing applications and systems.

Business impact

Setup a global implementation and support team for all manufacturing applications

HCLTech | Supercharging Progress™

HCLTech is a global technology company, home to 225,900+ people across 60 countries, delivering industry-leading capabilities centered around digital, engineering and cloud, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending March 2023 totaled \$12.6 billion. To learn how we can supercharge progress for you, visit hcltech.com

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