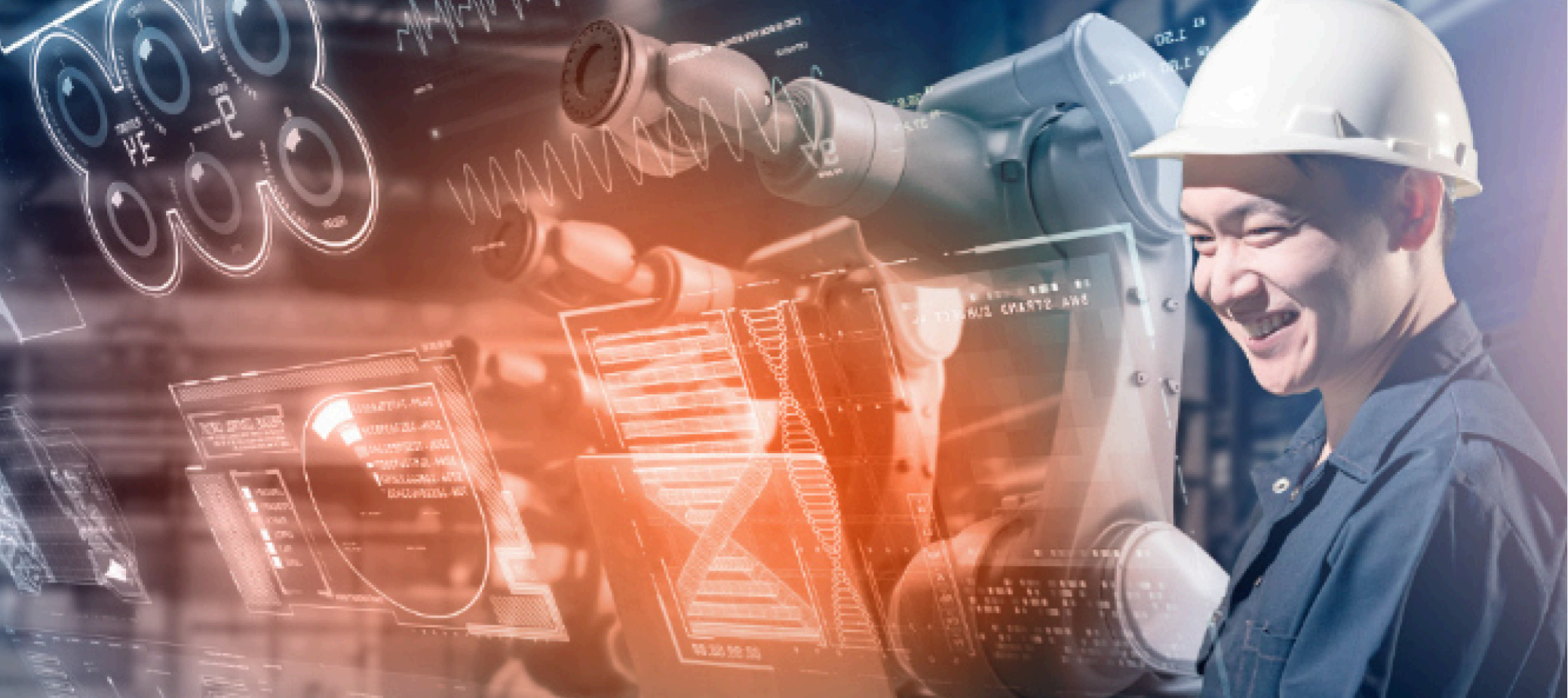# Cantier®
MES 4.0

Making Factories Smarter

Execution • IIoT • Intelligence

▶▶ World's First
Edge MES

Embedded Edge Intelligence for
Global Scalability & High Performance.

Why Cantier MES 4.0?

Reimagine Manufacturing with Cantier

Experience the future of manufacturing with Cantier, your trusted provider of the Next Generation Manufacturing Execution System (MES) - Cantier MES 4.0. We are making factories smarter and more efficient.

A Strong Foundation for Smart Manufacturing

Manufacturing Execution System (MES) is the foundation for Smart Manufacturing. In fact, a recent Industry Survey of Capgemini on Smart Manufacturing technologies revealed that MES is the technology delivering the most benefits for achieving Smart Factory ambitions. With Cantier MES 4.0, we offer the comprehensive solution that combines MES, IIOT, Manufacturing Intelligence, and AR/VR technologies.

Unlock Exceptional Efficiency with Data-Driven Decisions

Our solution delivers a comprehensive, data-driven view of your factory's performance, equipping you to make informed, data-driven decisions. Experience a range of benefits to optimize your manufacturing processes. Enjoy optimized resource planning and scheduling, real-time product tracking and genealogy, increased production efficiency, reduced waste, enhanced asset utilization, real-time downtime monitoring, quality control, predictive maintenance, and real-time performance analysis through overall equipment effectiveness (OEE).

Rapid Deployment and Seamless Integration

Roll out Cantier MES 4.0 effortlessly and deploy our industry-specific MES solution quickly and easily. We offer ready-to-use, configurable process templates designed specifically for the Electronics, Semiconductor, Automotive, and Precision Part Manufacturing industries. Seamlessly integrate our modules to combine data from different areas of your factory, enabling you to take preventive actions against defects and machine incidents.

Harness the Power of the Cloud and Edge Computing

Cantier MES 4.0 Edge revolutionizes the way you operate by providing the world's first integrated cloud platform solution. Leverage the benefits of Industrial Automation, Edge IIOT Data, MES, and Manufacturing Intelligence either on-premise or in the cloud. Benefit from a federated Cloud-Edge deployment architecture for low latency and high-volume transactions across multiple factory machines. Our scalable and flexible machine connectivity solution supports various machine categories, ensuring compatibility with your existing infrastructure.

Cantier MES 4.0

Convergent and context driven MES 4.0 platform - Execution, IIoT and Intelligence.

Cantier's Next Generation MES 4.0 overcomes the obstacles of contemporary manufacturing. Offering advanced tools to accelerate your factory into Industry 4.0, we're setting you up not just to participate, but to lead the digital revolution.

MES Product Configurator: Custom Solutions with Streamlined Efficiency

Cantier MES Product Configurator streamlines manufacturing customization. It manages attributes, components, and options for various configurations. The user-friendly interface lets customers and teams customize products interactively.

IIoT Connectivity: Embrace the Power of the Industrial Internet of Things

Unlock a new era of connectivity and data-driven decision-making. By leveraging real-time data from machines, sensors, and devices, you can optimize asset utilization, monitor performance & proactively detect issues. Stay one step ahead and transform your factory into an intelligent, responsive ecosystem.

Edge MES 4.0: Revolutionizing manufacturing with edge technology

The solution offers unparalleled connectivity, enabling seamless integration of data from various sources, including IIoT devices, to empower intelligent operations. The hybrid architecture allows for optimal performance, executing tasks at the edge or core, while reducing infrastructure requirements.

Manufacturing Intelligence: Gain Actionable Insights

Provides you with powerful analytics and reporting capabilities. Visualize critical metrics, track KPIs, and gain actionable insights into your production processes. Identify bottlenecks, spot opportunities for improvement, & make data-driven decisions

Integration Manager: Connect Your Entire Workflow

Integrate disparate systems and technologies seamlessly. By facilitating data exchange across your organization, this powerful tool enables real-time visibility and collaboration. Break down silos, enhance cross-functional communication, and drive operational efficiency at every level.

Augmented Reality: Enhancing the Way You Work

Augmented Reality (AR) technology, simplifies the way you interact with your factory floor. With AR-enabled work instructions and remote assistance, you can enhance worker productivity, reduce training time, and minimize errors.

Planning & Scheduling

Achieve Optimal Resource Allocation for Efficient Production

Material Requirements Plan (MRP) uses the latest product Bill of Materials (BOM) to convert orders and forecasts into component material needs. Adjustments consider inventory levels, purchases, suppliers' MOQ, and delivery lead time.

Capacity Requirements Plan (CRP) translates orders and forecasts into resource needs, calculating required hours for tools and machinery, factoring in the factory shift calendar, for optimal resource utilization.

Production Scheduling uses routing and the factory calendar to plan and manage resources effectively.
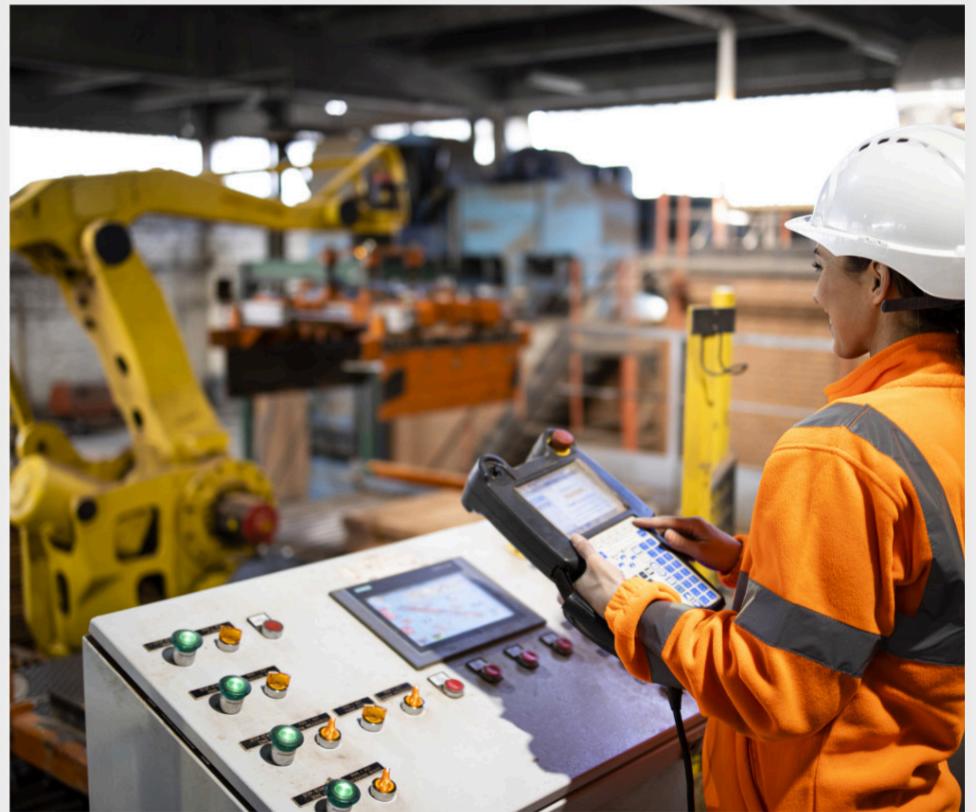

Key Features:
- Accurate scheduling via shop calendar
- Automatic/manual work order generation
- Backward scheduling from customer dates
- PO generation based on demand
- Optimal machine scheduling Solutions for equipment downtime
- Efficient planning visibility and order grouping

WIP Tracking

Enhanced Traceability for Seamless Production Control

WIP Tracking, a key feature in our solution, offers effortless tracking of products and materials throughout the production process. It stores crucial data like parts source, identification numbers, batch details, and more. This rich data lineage facilitates swift defect identification and prevention, ensuring product safety, particularly vital in critical industries.

Shop Floor Control promises efficient manufacturing, managing work orders and optimizing operations. It digitally transforms work instructions, streamlines resource allocation, and integrates with your existing ERP and Line Controller PLCs, ensuring efficient material management.

Key Features:
- Streamlined work order handling and resource allocation
- Comprehensive integration with existing ERP and PLC systems
- Optimal production processes defined based on historical performance.
- Efficient scheduling accounting for physical constraints and staff availability

QMS

Streamlined Quality Management for End-to-End Product Excellence

Boost your quality inspections with Cantier's QMS. It deftly handles Engineering Change Requests, optimizes Quality Control planning through skill mapping, and efficiently manages quality testing resources. Real-time alerts on tool changes and quality issues enhance manufacturing efficiency.

Key features :

Quality Inspection: Verify raw material quality using set criteria and checklists.

Inspection Type: Use our sample plan for automatic checks. Link plans to processes and equipment.

Data & SPC: Utilize statistical control for real-time defect management, reducing downtime.

NCM: Document and manage product, process, and equipment quality incidents.

Final Inspection: Ensure products meet customer standards. Carry out pre-shipping inspections.

Complaint Handling: Apply 8D process for structured complaint management, including validation and corrective actions.

Document Control: Set up review workflows and approvals for efficient document control.

CMMS & OEE

Elevate Equipment Performance and Productivity

Our CMMS solution takes care of equipment management and maintenance, reducing downtime and enhancing operational efficiency. It maintains maintenance schedules, monitors maintenance orders, and assures certification compliance. Our OEE module simplifies real-time data collection and offers an ideal route to lean manufacturing and waste elimination.

Key features :

Work Order Management: Efficiently manage preventive, corrective, and predictive maintenance tasks with detailed work orders.

Equipment Logs: Monitor equipment availability and activity in real-time. Gain valuable insights into performance, downtime, & maintenance requirements.

Equipment Problem Knowledge-base: Streamline repairs with a repository of common equipment problems, associated tasks, and corrective actions.

Spares Requirement Planning: Generate requirement plans for spare parts and supplies based on preventive maintenance schedules & unexpected breakdowns.

Real-Time Data Collection: Gather real-time equipment data for accurate OEE calculations and data-driven decision-making.

Downtime Monitoring: Capture and monitor downtime events to minimize disruptions & maximize productivity.

Maintenance KPIs: Monitor key performance indicators like OEE, MTBA, MTBF, and MTTR for insights and continuous improvement.

Email & SMS Alerts: Receive instant notifications for maintenance incidents and exceeded OEE thresholds.

Executive Dashboards: Visualize maintenance data on user-friendly dashboards for quick insights.

Driving Digital Transformation in Manufacturing: Real Results with Cantier MES 4.0

Case Study: Littelfuse (Semiconductor & Electronics)

Challenge:

Transform old, disconnected machines (35 - 45 years old) across various factories into smart factories without huge cost. Analyze data to find root causes for low OEE, MTBF, MTTR, MTBA and optimize processes for real time monitoring and continuous improvement.

Solution & Results

Provided MES 4.0 Solution through a bottom up approach by connecting 1000+ machines via IIoT Gateway for real-time communication. The following improvements measured in less than two years:

- MTTR improvement from 69 to 35 - 49%
- UPDT improvement from 5.6 to 3.0 - 39%
- OEE improvement from 59% to 80% - 36%
- Output from 472 to 750 - 45%

Case Study: Mega factory for precision part manufacturing

Challenge:

Establish a world class smart factory through MES and IIoT across facilities, ensuring secure and high-performance production operation with WIP Traceability, OEE, product quality, and asset maintenance.

Solution & Results

Provided a Next Gen MES 4.0 Solution unifies Execution, IIoT and Intelligence as an end-to-end integrated solution across the Mega Factory through a federated Core-Edge Architecture that ensures high performance and scalability.

- Implemented in shorter time frame - 4 Months
- No of Machines/Stations connected – 5500+
- No of users connected – 4500+
- No of fixtures & tools configured – 14,000+
- No of transactions– 3.5 million records per day

Case Study: A Leading Tyre Manufacturer

Challenge:

Accelerate Industry 4.0 transformation by utilizing existing machines and diverse control systems across various factories, with minimal capital investments.

Solution & Results

Cantier MES 4.0, implemented via IIoT Edge Computing, established real-time communications by connecting 250 machines.

- Automated WIP track and trace with error proofing
- Improved maintenance KPIs – MTTR, MTBF, MTBA
- SPC module for out of spec & control monitoring with closed loop options

Case Study: Collins Aerospace

Challenge:

To support Industry 4.0 transformation journey, real time communication should be established across factory assets. Analyze data to find root causes for low OEE, MTBF, MTTR, MTBA and optimize processes for real time monitoring and continuous improvement.

Solution & Results

Provided MES 4.0 Solution through a bottom up approach by connecting machines via IIoT Gateway for real-time communication.

- Established real-time KPI control tower dashboards
- Improved Production & Equipment Performance - OEE
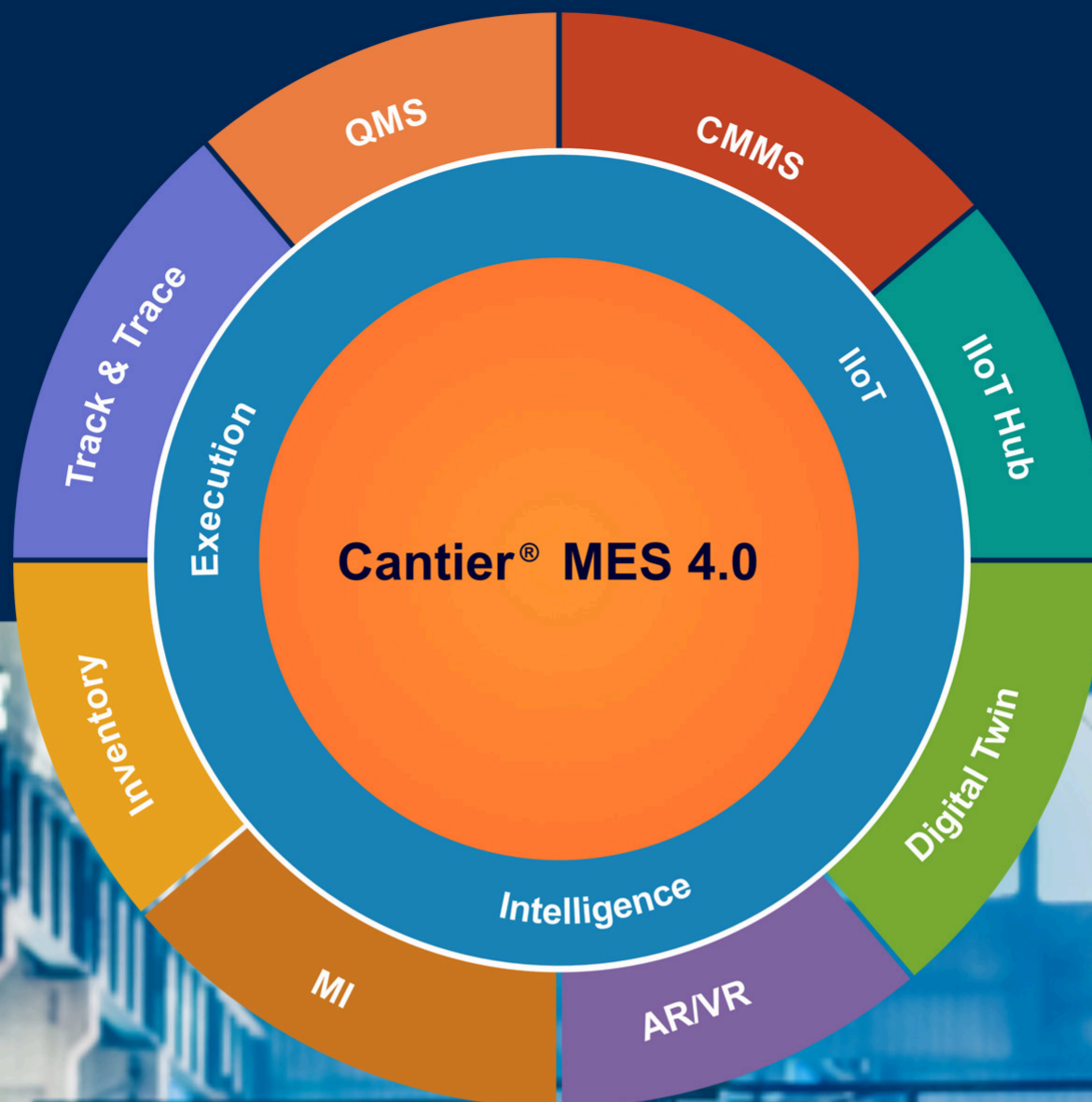- Improved maintenance KPIs – MTTR, MTBF, MTBA

OUR CUSTOMERS

TECHNOLOGY PARTNERS

Littelfuse
Expertise Applied | Answers Delivered

TATA
TATA ELECTRONICS

MRF

Collins Aerospace

AIS
ASAHI INDIA GLASS LTD.

ATC A·S·I·A·N TRANSMISSION

Allegro MicroSystems

IONICS EMS, INC.

SOHBI KOHGEI (Phils.), Inc.

asurion

ShinEtsu

Newtech

BOSCH

SAP

Microsoft

LITMUS

Ignition by inductive automation

ZEBRA

Cantier®
Making Factories Smarter

Cantier® MES 4.0

(Wheel diagram segments: QMS, CMMS, IIoT, IIoT Hub, Digital Twin, AR/VR, MI, Inventory, Track & Trace — inner ring: Execution, Intelligence)

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