Cantier®
MAKING FACTORIES SMARTER

Cantier MES X.0

NextGen MES for your Factory of the Future

Execution ● **AIoT** ● **Digital Twin**

Vision

Transforming factories into smarter and more intelligent operations with innovative and scalable MES (Manufacturing Execution System) solutions.

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Locations: Established in **Singapore** with branches in USA, India, Philippines, Malaysia, Taiwan & Canada.

Offering: Next Generation Manufacturing Execution System, **Cantier MES X.0** with **Future Factory** Global Competency Centre (**GCC**)

Industries: Semiconductor, Electronics, Automotive, Metal Precision, Aerospace and Process Industries
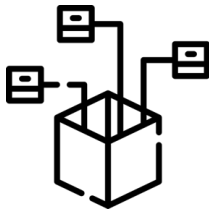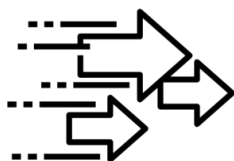
KPI Improvements

OEE	Productivity
15-35%	**10-40%**
MTTR	MTBF
15-45%	**15-40%**

Deployment

2 - 4 months

Transaction Speed

<200 millisec

Machines

20k+ connected

Key Industry Trends

Deloitte.
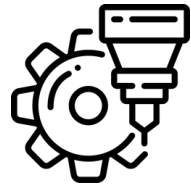
Key trends
2025 Manufacturing Industry Outlook

1 Talent
Despite loosening labor markets, manufacturers should continue to focus on a long-term talent strategy, including leveraging technology, to address the ongoing applicant gap and skills gap and improve retention.

2 AI and generative AI
To improve operational efficiency, manufacturers can continue to invest in strengthening their data foundation and targeted, high-ROI use cases for AI and generative AI.

3 Supply chain
With supply chains likely to face ongoing elevated costs and disruptions in 2025, manufacturers can leverage technology solutions such as AI and supply chain planning tools to improve efficiency while maintaining resilience.

4 Smart operations
Manufacturers are likely to continue to invest in their digital foundation for smart operations and target high-ROI use cases for advanced technologies to address elevated costs, the ongoing skills gap, and the need for efficiency gains across the organization.

5 Clean technology manufacturing
Investment in the development and production of clean technology products is likely to continue in 2025, with manufacturers prioritizing targeted high-ROI products that will help customers meet their company-set emissions goals.

- **Deloitte's Digital Maturity Index 2023** survey found that **98% of manufacturers** have begun their digital transformation, driven by cost optimization, operational efficiency, product innovation, and customer experience improvements.

- Focus on building a strong **digital core** and **data foundation** to enable high-ROI technologies like **AI**, **generative AI**, and **XR.**

- Investments are planned in **Manufacturing Operations Management (MOM)**, **MES**, **5G and Unified Name Space technologies** for smarter manufacturing.

Key Industry Trends

Most Prominent Business Drivers for MES/MOM Implementations
Percentage of respondents

Driver	Top three	First choice
Improving asset utilization/performance	82%	45%
Reducing cycle times/lead times	45%	18%
Improving visibility across sites	36%	9%
Supply chain collaboration	18%	9%
Reducing direct labor costs	18%	0%
Regulatory compliance and traceability	18%	0%
Improving quality	18%	0%
Improving employee decision making and competency	18%	0%
Enforcing standard procedures	9%	9%
Sustainability	9%	0%
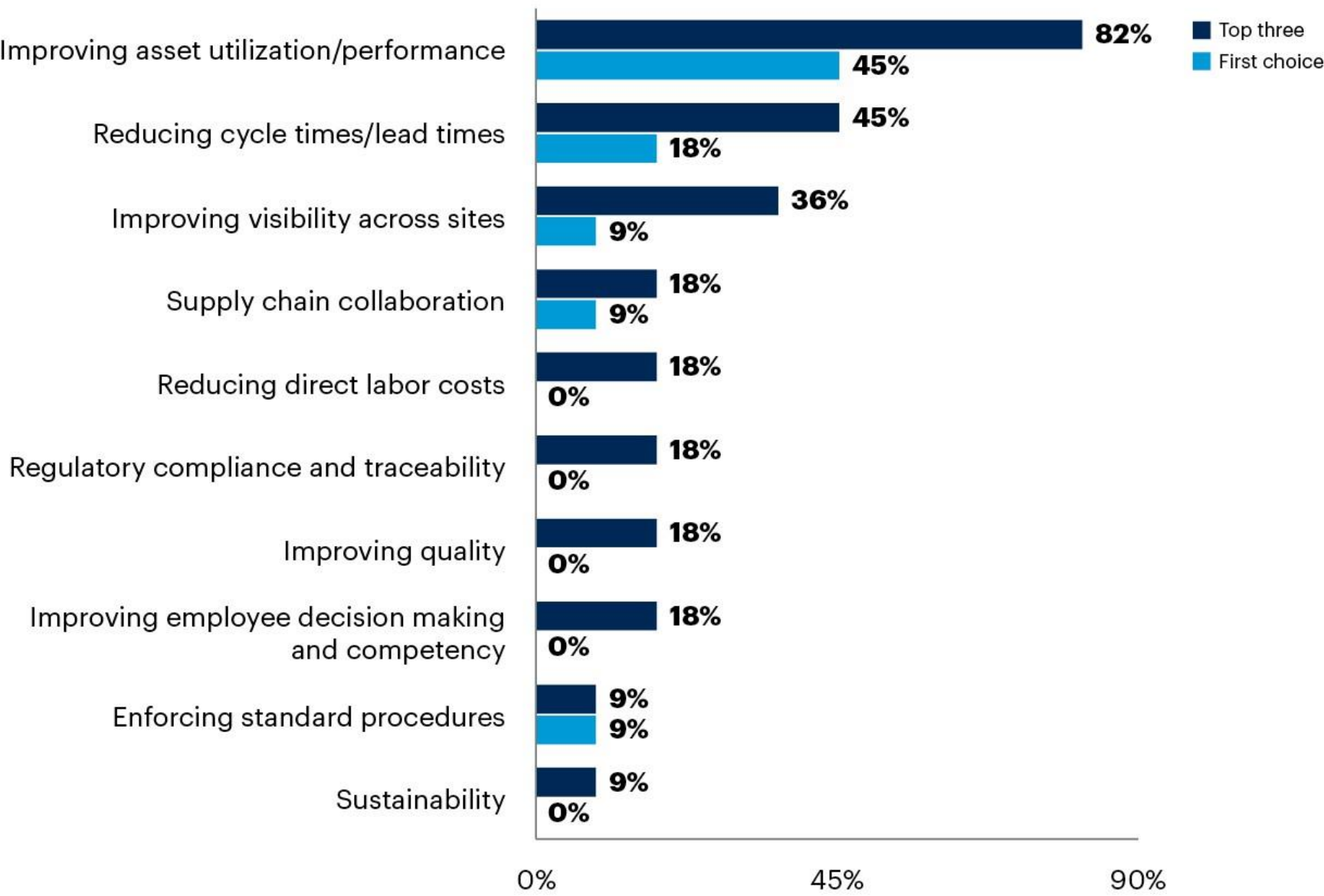
Source: Market Guide for MES/MOM Implementation Providers survey
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Top Technologies Implemented With MES/MOM
Percentage of respondents

| Technology	Top three	First choice
Manufacturing analytics	73%	64%
Industrial internet of things (IIoT)	55%	18%
Cloud/edge computing	45%	0%
AI/machine learning	36%	9%
Autonomous things (robots, AMR)	36%	9%
Cybersecurity	27%	0%
Master data management (MDM)	27%	0%
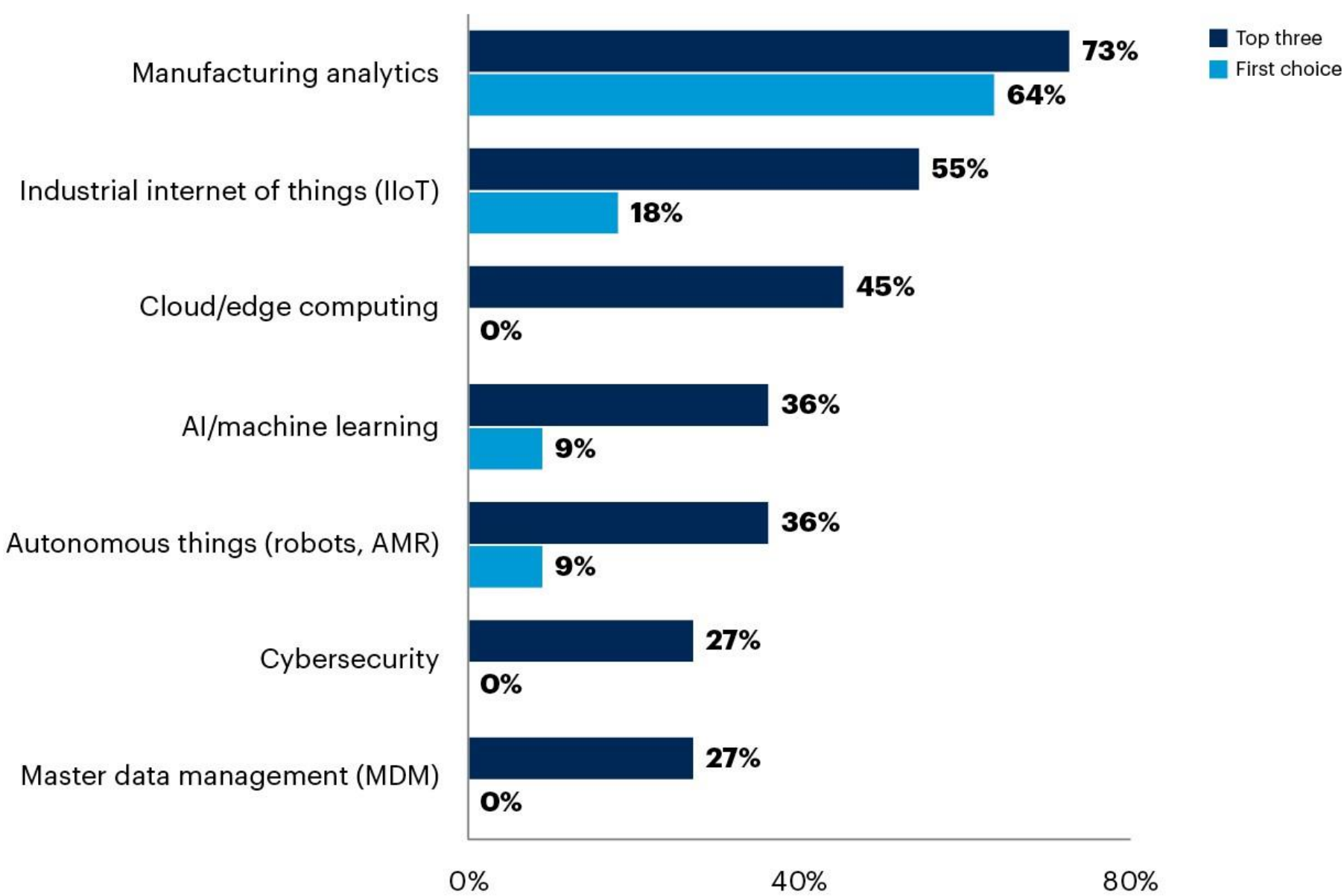
Source: Market Guide for MES/MOM Implementation Providers survey
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Cantier MES X.0

Intelligently Ahead, Next Gen Manufacturing
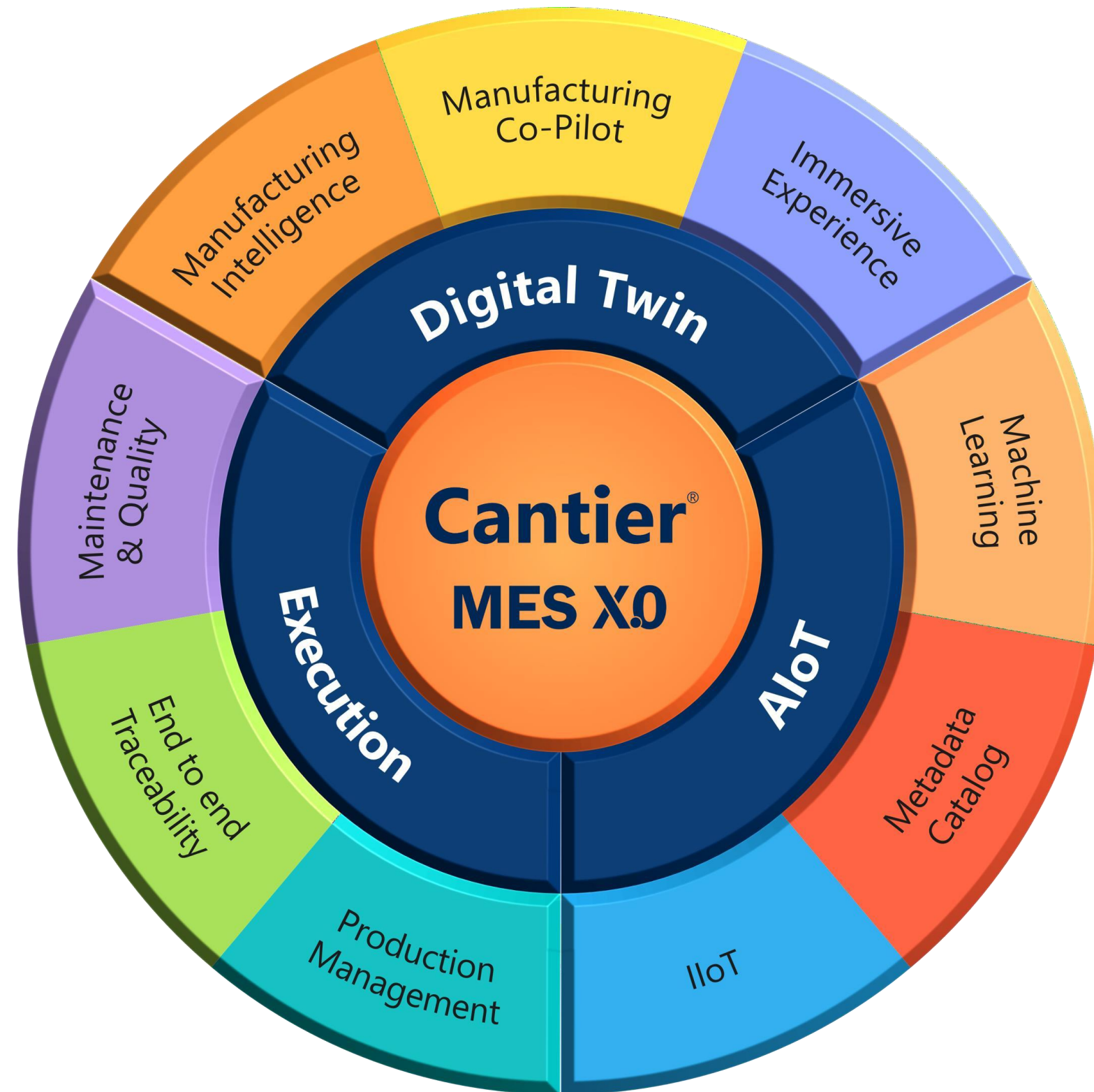
Cantier MES X.0 is a Next Generation Manufacturing Execution System that integrates **Execution, AIoT, and Digital Twin** capabilities, transforming factories into smarter and more intelligent operations.

Execution manages end-to-end shop floor operations, enabling real-time decision making and control across **Production Planning, WIP Traceability, Quality and Maintenance.**

AIoT integrates diverse data sources, including transactional and time-series data, into a **unified metadata catalog** designed for **AI/ML** optimization & Reports.

Digital Twin offers a centralized **Control Tower** as analytics hub, featuring **intelligent dashboards**, **co-pilots (Gen AI)**, and **immersive computing** capabilities through AR and XR technologies..
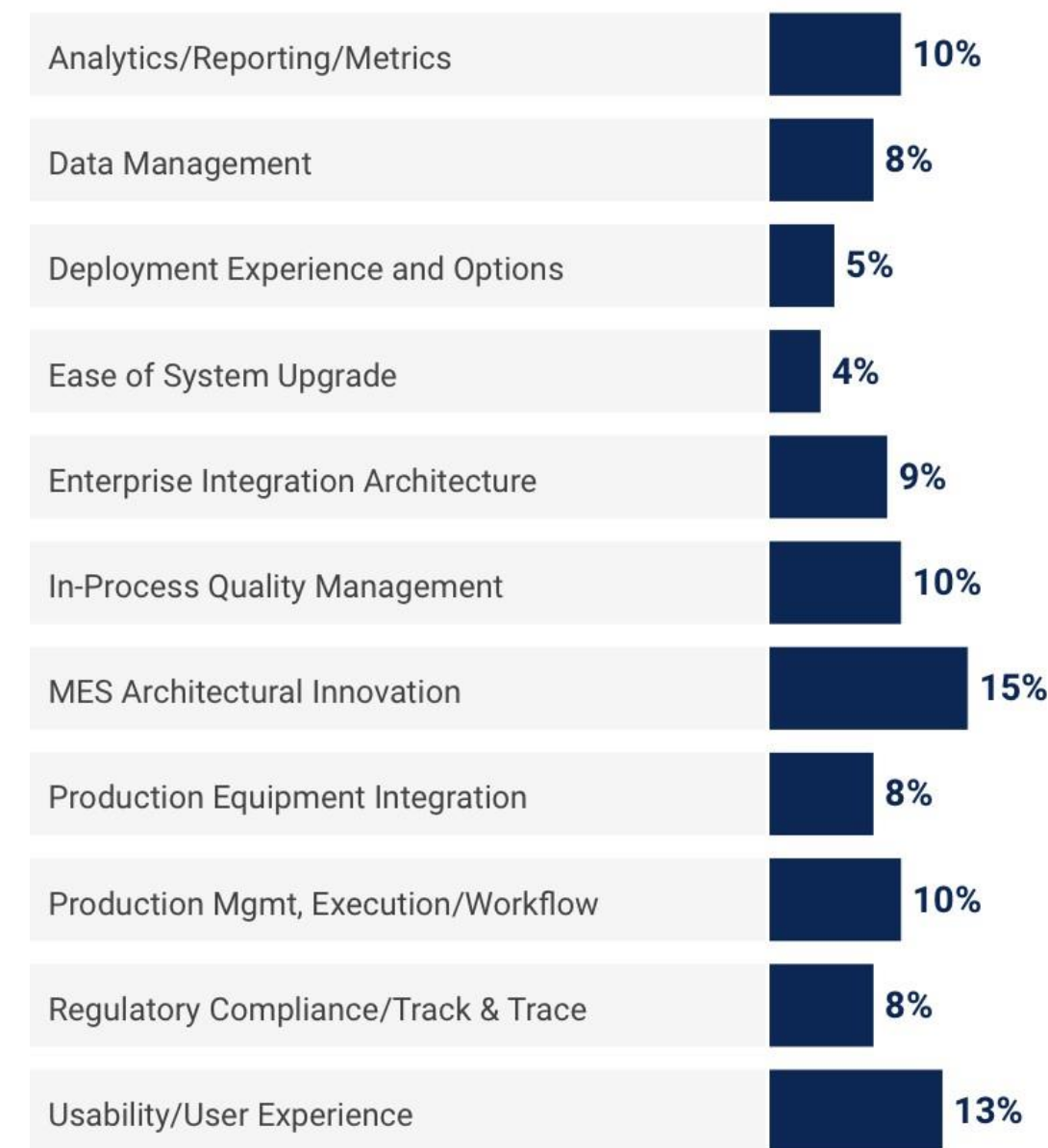
Gartner

Critical MES Capabilities

Batch/Repetitive Flow Manufacturing

As of 9 June 2023

These manufacturing processes are batch-oriented, such as making end products or component parts and materials for end products to meet a forecast or specific customer orders.

Capabilities and Weightings   CUSTOMIZE

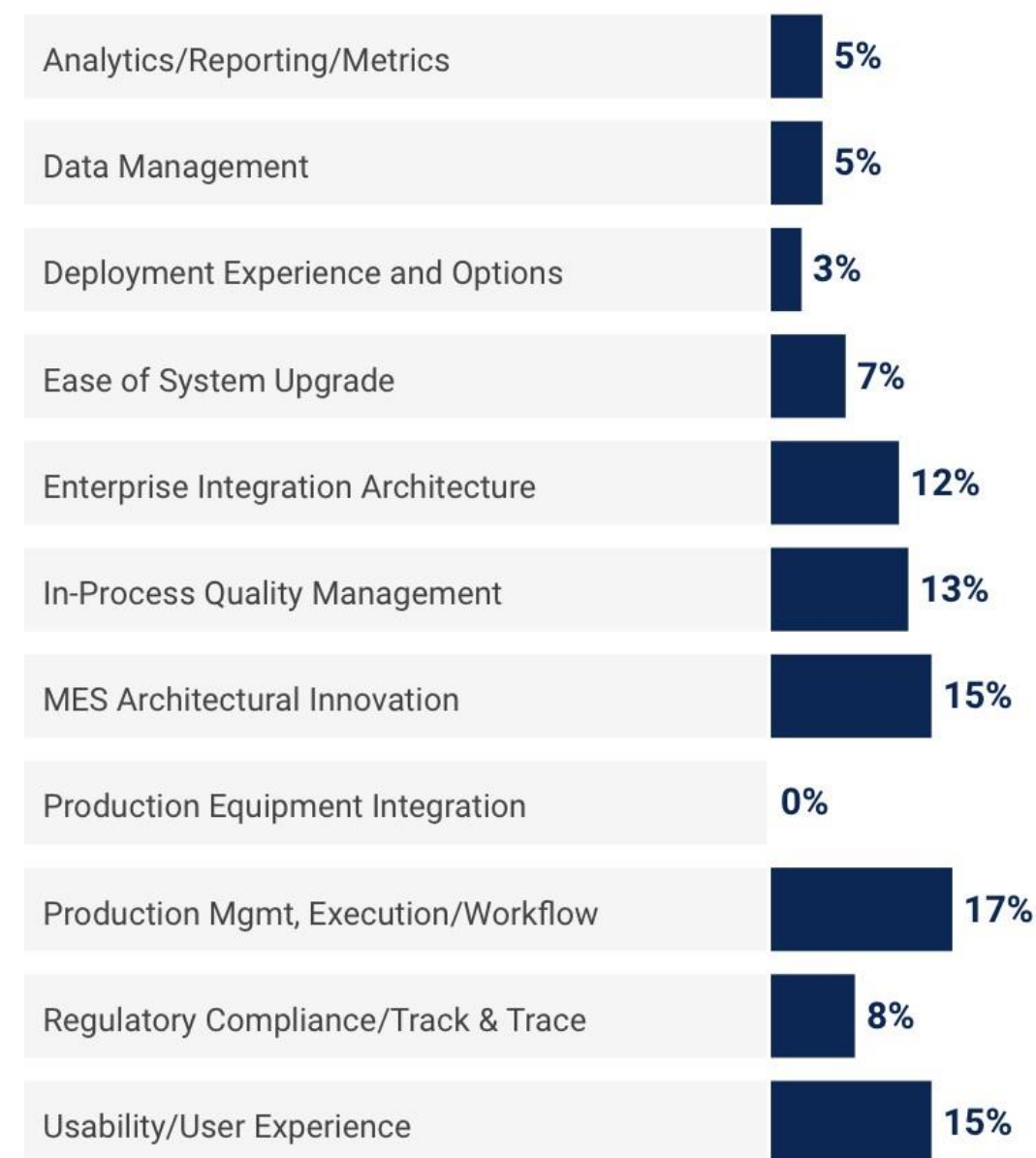| Capability	Weight
Analytics/Reporting/Metrics	10%
Data Management	8%
Deployment Experience and Options	5%
Ease of System Upgrade	4%
Enterprise Integration Architecture	9%
In-Process Quality Management	10%
MES Architectural Innovation	15%
Production Equipment Integration	8%
Production Mgmt, Execution/Workflow	10%
Regulatory Compliance/Track & Trace	8%
Usability/User Experience	13%

Complex Discrete Manufacturing

As of 9 June 2023

Complex discrete manufacturing is the production of a complex physical product in a low-volume, high-mix environment, often with significant manual work and custom content.

Capabilities and Weightings   CUSTOMIZE

Capability	Weight
Analytics/Reporting/Metrics	5%
Data Management	5%
Deployment Experience and Options	3%
Ease of System Upgrade	7%
Enterprise Integration Architecture	12%
In-Process Quality Management	13%
MES Architectural Innovation	15%
Production Equipment Integration	0%
Production Mgmt, Execution/Workflow	17%
Regulatory Compliance/Track & Trace	8%
Usability/User Experience	15%

Source: Gartner

Cantier MES X.0

Functional Capabilities

● Critical/Standard
● Extended

Data Management	Master Data Management	Product Configuration	Edge Deployment Management		
Production Management	Transactional Platform with Task Flow	Production Execution, Track and Trace	Inventory Management & Optimization	Instruction & Recipe Management	Production twin with Co-pilot
End-to-end Traceability	WIP Traceability & Genealogy	Location Tracking & Analytics	Resource effectiveness monitoring	Sustainable Index tracking and publishing	In-factory dispatching
Quality	Incoming/Outgoing Quality Control	Statistical Process Control (SPC)	Non-Conformance Management (NCM)	Product Quality Management (PQM) – CAPA, RCA	Yield Management with Root Cause Finding
Maintenance	Production & Performance Monitoring with OEE	Corrective Maintenance with worker guidance	Fault Detection with equipment SPC	Predictive & Prescriptive Maintenance	Equipment Maintenance twin with Co-pilot
AIoT	IIoT (Secure Connectivity)	Metadata Catalogue	Machine Learning		
Analytics/ Digital Twin	Manufacturing Intelligence	Manufacturing Co-Pilot	Immersive Experience (AR,& XR)		
Integration Manager	Enterprise Integration Manager (SAP/Cloud)	3rd party API packaging for transaction	Blockchain-protected Traceability Publishing	Hypergraph for enterprise knowledge	

Cantier MES X.0
Architectural and High-Performance Capabilities

● Critical / Standard
● Extended

Architectural Innovation	User Experience	Deployment	Ease of Upgrades
IoT Device Compatibility	Responsive UI Design	Available in On-premise & Cloud	Migration Support
APIs for Interoperability	Multi-Language Support	Modular Licensing Options	Rollback Mechanisms
Data Security	Role-Based Dashboards	Pre-Built Industry Templates	Frequent Updates & Releases
Microservices Architecture	Drag & drop Enterprise Workflow Management	Global Partner Ecosystem	New Technology Support As a Service
Edge Computing	Low-Code/No-Code Customization	Rapid Deployment Tools	Cantier Manufacturing PlayStore
AI/ML Integration	AR/VR-Enabled Visualization	Plug & Play Integration	Zero Downtime
	Voice & Advanced hands-free modes.	Edge Deployment Management	

Customers

Cantier®
Making Factories Smarter

Semiconductor & Electronics

Texas Instruments · Littelfuse · Allegro MicroSystems, Inc. · atec Automated Technology (Phil.) Inc. · Infineon · Ionics EMS, INC.

Metal Precision Engineering

TATA ELECTRONICS · ShinEtsu · Newtech · Sohbi Kohgei

Automotive & Aerospace

MRF · AIS Asahi India Glass Ltd. · ATC A·S·I·A·N TRANSMISSION · Brakes India · SONA COMSTAR · HONDA · Collins Aerospace

Solar

TATA POWER SOLAR · SOLARCYCLE

Partner Ecosystem

Systems Integrators

BOSCH · TATA TECHNOLOGIES · Tech Mahindra · EY Building a better working world · YOKOGAWA · VELTRIS INNOVATE | ACCELERATE | TRANSFORM

Technology Partners

inductive automation · LITMUS · ZEBRA · BDATA Innovating Security · ORACLE Cloud Infrastructure · SAP · Microsoft Azure · Google Cloud Partner

Case Studies

Cantier's case studies highlight transformative manufacturing journeys enabled by Cantier MES X.0, delivering measurable results across industries. From achieving end-to-end traceability to enabling intelligent automation, manufacturers have enhanced productivity, reduced inefficiencies, and future-proofed operations.

With rapid deployment, significant ROI, and customizable solutions tailored to industry challenges, Cantier MES X.0 empowers businesses to achieve their smart manufacturing goals.

Proven Case Studies

With successful implementations on tens of thousands of machines, we have proven use cases that demonstrate improved efficiency within shorter time frames with solutions that are easily scalable and cost effective.

High Tech Precision Machining

TATA ELECTRONICS

Establishing World-Class Smart Mega Factory

Green Mega Plant with 9,000 machines

Challenge

Establish Enterprise MES across facilities, ensuring secure, low-latency connectivity for WIP Traceability, OEE, product quality, and asset maintenance.

Solution & Outcome

- MES 4.0, implemented via IIoT Edge Computing, connecting and collecting data from 3,500 machines in Phase 1, with an extension to 5,500 more machines in Phase 2.
- Core-Edge Architecture ensures high performance and scalability.
- Unlimited user licensing at site level and agility for unique requirements are provided, along with readiness to interface with proprietary protocols.

Cantier MES 4.0 at Tata Electronics

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Features & functions enabled

Traceability	Inventory		Integration Manager		QMS				Maintenance		OEE	Reports & Dashboards
	APS		Machine connectivity & Trace integration	SAP	IPQC	OQC	NCM	PQM	Preventive	Corrective		

Milestones

No of lines connected	Total duration for MES deployment	No of machines connected	No of user connected to MES	No of Fixtures and tools configured	Daily production Volume supported from 10 lines	No of transactions per day (Max)
BM : 6 Ano : 2 Assembly : 2	**8** months	**9,000+**	**20k+**	**14k+**	**Supported as per the plan**	**3.5** million records / day

PERFORMANCE	NPI Implementations	Trace Integration	End2end data availability in MES	Systems integrated	Bulk scanning	Production support
200 Ms / Transaction	BM : 5 Ano : 2 Assembly : 2	**500+ Machines**	As per DFM	SAP, Trace, Quality, Bobcat, Tableau	6 Bulk scanning	24/7 365 days support system

Proven Case Studies

With successful implementations on tens of thousands of machines, we have proven use cases that demonstrate improved efficiency within shorter time frames with solutions that are easily scalable and cost effective.

Semiconductor & Electronics

Seamless integration without scraping old machines or increase in CAPEX

Brownfield Implementation

Challenge

- Support Industry 4.0 Transformation across various locations by retrofitting 45+ year-old machines with minimal investment using PLC interfaces like Allen Bradly and GE Fanuc

Solution & Outcome

- Connected 450 machines via IIoT Gateway for real-time communication.
- Provided detailed OEE Dashboards and maintenance KPIs (MTTR, MTBF, MTBA) to reduce downtime.
- MTTR (Meantime-to-Repair) improvement 49%
- OEE (Overall Equipment Effectiveness) improvement 36%
- Productivity Output increase by 45%

Proven Case Studies

With successful implementations on tens of thousands of machines, we have proven use cases that demonstrate improved efficiency within shorter time frames with solutions that are easily scalable and cost effective.

Automotive – Tire Manufacturing

Connecting Multiple Machines for Traceability, SPC, CMMS & OEE

Brownfield Implementation

Challenge

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

Solution & Outcome

- MES 4.0, implemented via IIoT Edge Computing, established real-time communications by connecting 250 machines.
- Robust configuration simplifies Requirement Mapping, ensuring cost-effectiveness.
- Seamless integration with factory data using a leading IIOT Edge Computing provider.
- The project was delivered on schedule and within budget.

Proven Case Studies

With successful implementations on tens of thousands of machines, we have proven use cases that demonstrate improved efficiency within shorter time frames with solutions that are easily scalable and cost effective.

Automotive - Metal Fabrication & Assembly

End to End Production Execution and Control
(supply chain, planning, WIP, SPC & CMMS)

Brownfield Implementation

Challenge

- Centralize Supply Chain Management across manufacturing units & Automate Shop-floor Planning, WIP Traceability, Quality & Maintenance

Solution & Outcome

- Implementation of Supply Chain Management with focus on Sales, Purchasing & Warehouse operations
- Implementation of Shop Floor management with focus on Inventory, Planning, Production, Quality and Maintenance
- Cost reduction, Better equipment utilization, Better process control, Improved Shop Floor Inventory & Operations visibility and Reduced Scrap & Waste.

Why Cantier MES X.0?

Cantier MES X.0 simplifies and enhances manufacturing, making operations smarter, more efficient, and ready for the future.

- **Sleek and intuitive interface** ensures fast adoption and improved productivity.

- **Rapid deployment capabilities** minimize downtime and deliver quick ROI.

- **Built-in maintenance management** enhances equipment readiness and reduces operational disruptions.

- **Workflow automation and task optimization** enable seamless manufacturing operations.

- **Real-time data integration and actionable insights** empower smarter decision-making.

- **Digital twin capabilities** optimize processes and future-proof factory operations.

- **Adaptable to diverse needs**, Cantier MES X.0 supports both greenfield and brownfield projects.

- **Measurable improvements** in efficiency, reduced downtime, and faster time-to-value

- **Advanced features** like **Generative AI** and composable applications drive innovation.

- **Sustainable innovation and global support** ensure long-term success for our clients.

The Leadership Team

Prabakar Selvam
Founder & CEO

25+ years in IT solutions applied to manufacturing. Created the next generation of MES using disruptive technologies (**IIoT, Cloud, Machine Learning, & AI). APAC Board Chairman** of the **Manufacturing Enterprise Solutions Association**

Brandon Lee
CTO

25+ years in operation excellence, Lean Six Sigma, quality management, data governance, data analytics, predictive and prescriptive maintenance and value-based industrial digitalization**. Vice-Chair** of the **Singapore Manufacturing Federation**.

Florian Loloum
CRO

Tsinghua-INSEAD Executive MBA graduate with **20+ years** of APAC leadership roles with expertise in **Business Development, Marketing** and finance and capital raising. Former family office board member, senior advisor to several PE & VC funds and investment platforms.

Vineet Kumar
CMO

Marketing leader with expertise in driving brand growth, innovation, and business results. Vineet has worked with Global companies like **SAP, Reliance Communications, Canon** etc and is an **Executive MBA from INSEAD**.

R. Ravisankar
CBO - India

45+ years in IT & Manufacturing with Marketing, Pre-Sales, IT Strategy, Program and Product Management roles for **TCS & Ramco Systems** in India and South Africa.

Suresh Babu
CBO – Middle East

Core and Digital Engineering expertise delivering exponential value to customers across key industry verticals: **Aerospace, Automotive, Heavy Industries, Healthcare** and **Railways**

George A Shaw
COO - Americas

Semiconductor and Solar Industry veteran with expansive experience in Operations/Engineering Management in several companies, through **25 years** across seven countries throughout Asia.

Darin Valley
CBO - Americas

30+ years experience in operations, engineering and marketing for the semiconductor services, capital equipment, and alternative energy (PV) markets. .

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