



# Chart your path to smart manufacturing

Cognizant and AWS help you build intelligence into industrial systems and processes



## Data-driven operations are the key to smart manufacturing

For manufacturers, increasing competition combined with rising customer expectations and flat or shrinking budgets creates an environment where you need to do more with less. Smart manufacturing helps you thrive in today's market by making use of disruptive technologies—such as computer vision, AI and GenAI—to integrate and contextualize data from across your data landscape for curated insights that help you make better decisions, faster.

Smart manufacturers use these insights to optimize operations and maintain production resilience, control costs and waste, extend the value of systems and reduce downtime. This enables them to create new value by applying the right IT and OT technology solutions at scale for further automation, process and production efficiencies.

## Roadblocks on the journey to success

On your journey to smart manufacturing, the decisions you make today will affect your ability to continue to adapt and thrive in the future. However, smart manufacturing roadmaps are often complicated by manual, missing or complex processes, scattered technology systems, fragmented OT landscapes, and a lack of IT/OT convergence. Completing the journey to smart manufacturing including fully leveraging AI, GenAI, IoT, 5G and more requires overcoming these roadblocks.

## Build in intelligence with Cognizant and AWS

Together, Cognizant and AWS help you build intelligence into production systems and processes to provide real-time visibility and closed-loop automation into manufacturing operations. Cognizant Asset Performance Excellence (APEX) and AWS help you apply the right IT and OT technology solutions at scale, embedded with automation and analytics to deliver production resilience, process efficiencies, cost and waste control and failure prediction—all while reducing downtime and extending the

value of your systems. This approach gives you the visibility into operations you need today while establishing the foundation required for AI and other emerging technologies.

## Solution capabilities

- **Generative AI** helps turn raw data into real-time insights, optimizing operations, reducing waste and driving smarter decision-making at scale
- **Industrial IoT (IIoT)** enables real-time visibility into operations across the value chain
- **Digital twins and AI for process optimization** improve efficiency
- **AWS cloud migration** accelerates digital transformation by integrating IT and OT systems
- **Enhanced and resilient OT networks** include zero-trust security for critical connected infrastructure
- **Sustainability** is supported by net-zero carbon data and insights unlocked by AI and automation
- **Autonomous operations** are possible with automated processes and connected shop floors





## Unlock business value

Working together, Cognizant and AWS bring you solutions that move you along the path to smart manufacturing.

- **Operate from a single source of truth:** Manage all assets across locations from a single platform with a single view
- **Gain end-to-end visibility:** Enhance business agility
- **Make faster decisions:** Get access to data, anywhere or anytime, through multiple devices
- **Improve operational efficiency:** Improve asset availability, reliability and performance
- **Reduce total cost of ownership (TCO):** Reduce maintenance costs to do more with less
- **Increase collaboration:** Achieve operational and organizational excellence
- **Improve OEE:** Optimize production costs by avoiding manual errors and recalls and streamlining the process
- **Support regulatory compliance:** Monitor more efficiently at every step

## Reach your top goals

Cognizant APEX and AWS help you forward your most critical smart manufacturing goals.

### Operational excellence

- **Do more with less downtime:** Reduce operating costs and improve product quality by bringing real-time data from existing production systems and machines into the AWS cloud to derive insights that improve efficiency and reduce operational disruptions. The solution evolves with your business and production needs, so you always have the tools needed to improve operations.

### Asset excellence

- **Overall equipment effectiveness (OEE) monitoring:** Easily configure models to collect data from industrial sources. Calculate the OEE on multiple dimensions and visualize results in real time to identify areas for optimizing efficiency and performance.

### Resource excellence

- **Quality management:** Automate defect detection and process monitoring by integrating visual inspection with time-series data analysis. Identify, categorize and label defects, errors and process anomalies—whether from visual cues or deviations in sensor and process data. Detect process drift and shifts in real time, correlate them with root causes and integrate findings with OEE calculations and the quality management system to trigger proactive corrective actions before defects occur.

## The digital manufacturing maturity curve



Digital foundation



Digital manufacturing



Smart factory



Autonomous operations



## Benefits you can take to the bank

**10–20%**

Reduced cost of quality

**30–50%**

Less equipment downtime

**45–55%**

Improved labor  
productivity

**<12 months**

Return on investment

**10–40%**

Lower maintenance costs

## Maintain your momentum

Take the next step on your smart manufacturing journey with Cognizant and AWS. Contact a manufacturing industry adviser: <https://www.cognizant.com/us/en/services/cloud-solutions/aws-cloud/aws-smart-manufacturing-at-scale>



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### World Headquarters

300 Frank W. Burr Blvd.  
Suite 36, 6th Floor  
Teaneck, NJ 07666 USA  
Phone: +1 201 801 0233  
Fax: +1 201 801 0243  
Toll Free: +1 888 937 3277

### European Headquarters

280 Bishopsgate  
London  
EC2M 4RB  
Phone: +44 207 297 7600

### India Operations Headquarters

5/535, Okkiam Thoraiakkam,  
Old Mahabalipuram Road,  
Chennai, 600 096 India  
Tel: 1-800-208-6999  
Fax: +91 (01) 44 4209 6060

### APAC Headquarters

1 Fusionopolis Link,  
Level 5 NEXUS@One-North,  
North Tower Singapore 138542  
Phone: +65 6812 4000

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