

# Cisco Heavy Equipment and Discrete Manufacturing Solutions

At-A-Glance



## Connect the Factory to the Business

Heavy equipment and discrete manufacturing companies are faced with an increasingly dynamic and competitive global market.

The industry is impacted by a few major macroeconomic trends:

- Rapid rise in worldwide population (projected at 9 billion by 2050)
- Increased food demands (agricultural output must double to meet population growth)
- Rapid urbanization (particularly in areas of the world such as China, Brazil and India)

These trends all lead to the need for more heavy equipment and discrete manufacturing production.

The business challenges associated with these new dynamic global markets are highly complex and diverse. Perhaps you're a semiconductor fab machine builder working amidst Moore's Law to meet increased expectations from more informed and social-media-savvy consumers. Perhaps you're an aerospace supplier looking to expand into new global markets where business and environmental regulations are diverse and rapidly changing. Or in another industry facing conditions just as complicated. You need help in leveraging technology to innovate, reduce cost and compete in these dynamic global environments.

As a result, heavy equipment machinery and capital equipment manufacturers that serve industries such as agriculture, aerospace and defense, construction and mining, semiconductor fabs, distribution centers, contract and other discrete manufacturing sub-industries must develop and deploy a technology platform that tightly integrates previously siloed business models and organizations to:

- Ensure profitable growth in a globally competitive environment
- Improve operational performance and reliability while meeting productivity metrics
- Meet the demand for higher product throughput, better quality and lower lifecycle costs
- Build trusted partnerships with end users, suppliers, and dealer networks in local markets
- Comply with evolving and dynamic regional environmental, health and safety regulations

All of these challenges must be addressed in a competitive environment where there is an increased expectation to reduce machine cycle times and accelerate customer work flows. As this takes place, the basis for competition is shifting, requiring you to produce measurable efficiencies and cost savings throughout the entire business and manufacturing value chain.

## The IoT Value Opportunity

Increasingly, manufacturers serving these industries understand and embrace the business value and cost savings opportunities afforded by the Internet of Things (IoT). Through the IoT revolution (or evolution), people, processes, data, and things are connected to create unprecedented business value.

Heavy equipment and discrete manufacturers are realizing that they can connect machine-to-machine cells, conveyor lines, RFID and Wi-Fi Safety systems, water filtration systems, construction equipment, and energy subsystems with enterprise resource planning (ERP), manufacturing execution systems (MES), supply chain management (SCM), plant asset management (PAM), warehouse management systems (WMS) and other applications across a standard-based IP networking platform. By connecting existing industrial sub-systems, sensors and machines with enterprise applications they can create a foundation for highly integrated and intelligent decision-making value chain.

## Cisco Connected Solutions: The Path to IoT Value

IoT is a disruptive force that radically transforms the way the industry innovates, builds, delivers, and services every product manufactured today. Cisco can help you take advantage of this industry transformation, and drive IoT value into your business with our Cisco Connected Industry Solutions for heavy and discrete industries.

The Cisco® Connected Factory is an end-to-end solution architecture specifically designed, tested, and validated to provide predictable performance and system resiliency for industrial automation and controls applications from plant device management to plant-wide HMI/SCADA and MES. It is built on a secure, robust platform that enables remote user and partner access.

Cisco solutions provide performance-tested architectures that are validated with an extensive ecosystem of partners in a wide variety of use case configurations and topologies and applications.



## Case Study: Transforming Production with IE

**Customer:** A global provider of critical automotive systems, including seating and electrical power management, decided to migrate from traditional device-based communications on the plant floor to an open-standard, IP-based industrial Ethernet (IE) environment using managed switches.

**Business Challenge:** The client company needed to access control systems remotely to speed troubleshooting, and improve its predictive monitoring, reporting, and security. With production lines distributed across 31 countries, being able to support and manage control systems 24 hours a day from a centralized support center would be a significant improvement over providing onsite engineers for each facility.

**Solution and Results:** Cisco and Rockwell Automation together met with the client and clarified that their joint powerful switching solutions would provide:

- Factory control systems
- Tools the IT staff needed to manage the network

The solution is based on the Rockwell Stratix switch and uses the current Cisco Connected Factory solution architecture. Its configuration and monitoring tools provide secure integration with the enterprise network and allow easy setup and diagnostics. To date, six production lines on six sites have been migrated to the new configuration. Further expansion is planned based on the client's future plant expansions, modernizations and designs.

## Manage Complex Supply Chains

Many heavy equipment manufacturers and their suppliers are taking advantage of this highly integrated and secure solution architecture to bring together their IT and operational technology (OT) systems. Joining these systems enables manufacturers integrate secure real-time plant-floor data with ERP, SCM and other applications in the data center. By taking advantage of Cisco Connected Factory, you can realize the following benefits:

- **Borderless equipment visibility:** Gain secure remote access to capital equipment anywhere.
- **Improved service:** Concentrate product expertise in a few people and give them remote, real-time access to customers' equipment. Fast response by an expert improves equipment performance, uptime, and customers' satisfaction with you.
- **Improved fleet performance:** Optimize asset performance with more visible monitoring and contextual information. Save fuel, boost uptime and utilization and improve your operations.
- **Support for critical decisions:** Deliver data to improve forecasting and improve supply chain efficiency. Our collaboration solutions connect people to spark innovation and enhance your customers' experience. Real-time data and multidimensional analysis deliver better visibility and decision support across production operations.

## Encourage Innovation with Collaboration

Cisco Connected Factory also provides a platform for manufacturers to take advantage of rich collaboration, analytics, and video applications on the plant floor, to improve product development, advance quality, and resolve production issues faster.

Cisco Video Solutions enable manufacturers to use real-time video to facilitate more effective collaboration between globally distributed design centers, account teams, factories, partners, and suppliers. Cisco TelePresence® provides powerful support for remote collaboration that allows distributed participants to interact with colleagues just as they do at in-person meetings. Digital media and signage solutions enable manufacturers to present complex information in a visual format that can be quickly and easily understood by employees. Content can be presented as a live video stream, or cached and stored for presentation in the best possible format for easy consumption.

The result is improved product quality, enhanced worker productivity and safety, and improved business agility. Cisco also offers physical security solutions such as video surveillance and access control systems to help safeguard the workplace and assets. For customer-facing environments, Cisco's iServices solution features interactive video panels that let dealerships and distributors reach out to customers and provide a richer buying experience.

“On the way towards the factory of the future, 2014 will set the stage for a new manufacturing renaissance... Plant floor IT investments will continue to become a higher share of the overall technology investment portfolio.”

—IDC Manufacturing Insights

## Enable Truly ‘Smart’ Factories

With Cisco Connected Factory, you can implement “smart factories” that use IP networks to connect and control intelligent robots, sensors, and analytics capabilities. And connect your production facilities to the rest of the enterprise. You can also:

- **Automate production:** Cisco Heavy Equipment and Discrete Manufacturing solutions let you reliably automate production processes.
- **Track assets:** Monitor plant assets and track inventory and shipments.
- **Build for tomorrow:** Create a platform for delivering new capabilities that help your company improve uptime and deliver new products to market faster and more reliably than ever before.

Cisco is investing heavily in and committed to providing the best business solutions that integrate unconnected devices, machines, applications and systems securely across an IP-based architecture. Applications that haven't been identified will be created and enabled to drive operational excellence, improved asset utilization, supply chain agility, innovation, workforce productivity, and increased customer satisfaction and acquisition, helping you realize the value afforded by IoT.

## Cisco Services for Manufacturing

Cisco Heavy Equipment and Discrete Manufacturing solutions are backed by comprehensive support services. From design strategy, through network optimization and management, Cisco Services offers business, professional, and technical assistance with any aspect of your solution deployment.

## Why Cisco?

As the leading provider of global IP networks, Cisco is uniquely qualified to deliver secure, converged solutions for automated manufacturing. Unlike other providers who are largely limited to stand-alone hardware or software, Cisco offers extensively tested, validated, and well-documented solutions architectures that ensure end-to-end security, performance, and reliability. Our solutions are backed by a lifecycle of services from design strategy through network optimization and management. Cisco manufacturing solutions are designed to help our customers create a clear architectural vision to align their combined IT and OT strategies with business requirements.

## For More Information

To find out more about Cisco Solutions for Heavy Equipment and Discrete Manufacturing, visit <http://www.cisco.com/web/strategy/manufacturing>.

