



## Converging Industrial Automation Networks with Business Systems for Intelligent, Responsive Management of Global, Distributed Operations

### Benefits

- Reduce operations costs through integrated automation and business networks
- Accelerate decision making with secure visibility into real-time data and access to experts, teams, and suppliers
- Enhance safety and security and support compliance with real-time monitoring and reporting
- Improve productivity through worker mobility and asset tracking
- Monitor remote and otherwise inaccessible locations
- Collaborate and share information, video, and voice to solve operations issues

### Increasing Demands on Industrial Producers and Transportation Systems

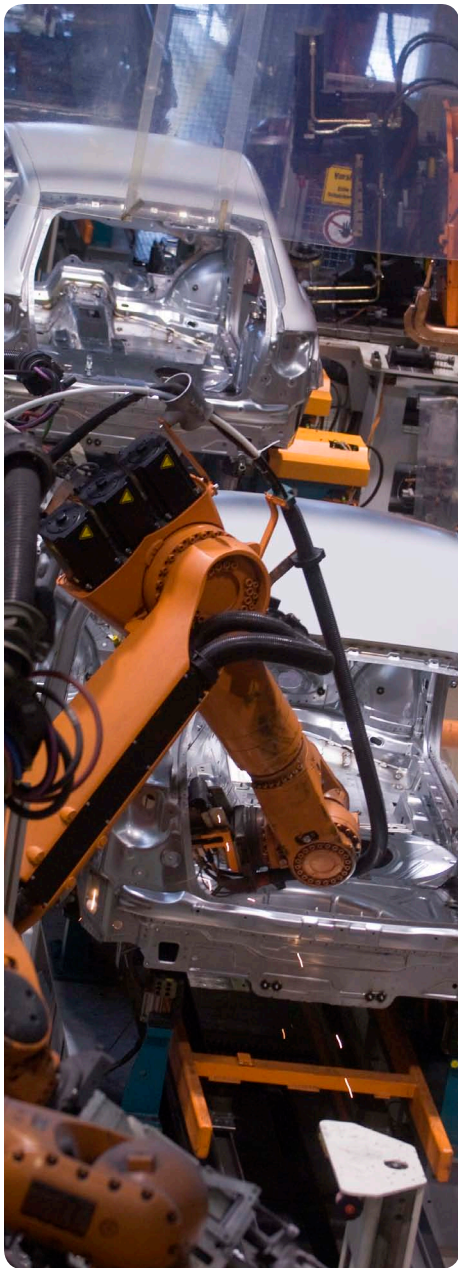
Automation has revolutionized manufacturing processes and transportation systems during the past three decades, reducing costs and improving efficiency. Enterprises and institutions in the manufacturing, process control, and transportation industries face similar challenges as they strive to build on these gains and compete effectively in a global economic environment. These challenges include:

- Making strategic business decisions supported by precise real-time operations information
- Minimizing operational, supply chain and service fulfillment risks
- Reducing excess inventory through improved visibility into production performance and demand information
- Delivering high quality products and services consistently
- Ensuring on-time delivery and service performance

- Improving asset lifecycle management by processing more data from equipment and processes
- Reducing support costs for automation, equipment and industrial networks
- Delivering repeatable customer experiences with high satisfaction
- Enhancing the company's ability to compete effectively in a global business environment

### Industrial Intelligence

Where can organizations in the manufacturing, process control, and transportation industries look for solutions? The answer lies with "industrial intelligence," which simply put, is the enablement of enterprises to more intelligently and responsively manage industrial operations globally. Traditional industrial automation tools, including plant systems running programmable logic controllers (PLCs) and supervisory control and data acquisition (SCADA) systems, are only part of what constitutes industrial intelligence. Today, industrial intelligence extends beyond operations, connecting production environments to the rest of the business,



“This is about a business change, to make our manufacturing facilities more flexible, more agile and leaner.”

— Kirk Gutmann  
Global Information Officer,  
Manufacturing and Quality,  
General Motors Corporation

to suppliers, and to trusted partners in the broader industrial ecosystem.

In many deployments, industrial intelligence solutions use IP-networking and cloud-based services to “converge” industrial and enterprise networks and allow system-wide communication and collaboration. Cisco’s solution architecture for Industrial Automation subscribes a more intelligent platform for innovations that enable:

- Interconnectivity of all machines, actuators, drives, sensors, controllers, etc.
- Operational processes that are intelligent, resilient, available, secure and responsive
- Operating assets that are integrated and self-aware of their state
- Knowledgeable, well-trained, empowered people are able to improve operational performance safely
- Systems and people that are continuously innovating, planning, designing, building, operating, maintaining, supporting and managing the processes and outputs.

Cisco® Industrial Intelligence solutions converge industrial automation and control networks with business networks to increase effectiveness and responsiveness. At the same time, a converged industrial intelligence architecture brings together information from business IT and industrial automation systems for greater competitive advantage and to fuel innovation and growth.

Cisco has demonstrated that IP-networked automation and control systems converged with voice, video and virtualization create opportunities to reduce downtime, improve operations and tightly integrate production with enterprise processes. This leads to the intelligent industrial network powering the Cloud

and Virtualized layer with not only richer, timely data, but also the ability to securely affect production and operations in real time. Together with industry partners, Cisco delivers industrial intelligence solutions that:

- Connect devices to measure, monitor, and manage resources for greater efficiencies
- Connect people in less time and space
- Connect ideas to generate solutions to today’s industrial, operational, and environmental challenges

### Improving Manufacturing Agility

Manufacturing and supply chain management businesses can reduce operations costs and improve manufacturing flexibility and agility by providing greater visibility into real-time production information with real-time business and economic context. Cisco Industrial Intelligence solutions connect the plant to the executive suite, enabling manufacturers to make better strategic business decisions. For example, they can customize solutions that deliver new business model competitive advantages, “right-source” components and subassemblies, increase production asset utilization, and improve customer commits—all supported by precise real-time production information.

Deep visibility into performance, demand, and process data can also help reduce excess inventory and improve asset maintenance. Open, standards-based Ethernet networks simplify networking infrastructure and reduce integration costs by allowing manufacturers to use commercial, off-the-shelf solutions. Ethernet as a standard also improves overall industrial network performance and reliability while reducing support costs for automation, equipment, and manufacturing.





## Enhancing Process Performance

Chemical manufacturers, upstream and downstream oil and gas operations, as well as process manufacturers in the pharmaceutical, mining, metals, materials, food and beverage, and water and wastewater industries can implement industrial intelligence to improve operational performance. For example:

- By converging process control networks onto a standard network platform, processors can integrate sensor networks and control systems to improve asset utilization, enhance safety, and reduce risk.
- By integrating exploration, production, and pipeline systems with the rest of their supply chain, oil and gas companies can optimize margins and enable remote support to reduce the time it takes to respond to problems.
- In operations that require specialized expertise, Cisco Industrial Intelligence solutions enhance the ability to securely collaborate with subject matter experts, regardless of where they are located.
- By gaining deeper insight into production data and onsite voice and video services, process control organizations can improve operational efficiency, as well as track workers and assets.
- By deploying standards-based network architectures, process control

organizations, like manufacturers, can save money on operations, maintenance, and support.

## Maximizing Transportation Asset Utilization

Whether coping with reduced budgets or implementing new, high-speed rail infrastructures, governments and transit systems are seeking solutions that maximize use of their transportation assets. Industrial intelligence works with transportation systems to enable real-time video surveillance, real-time signage, IP-enabled traffic controllers, and IP sensors. Using environmental monitoring and telemetry capabilities, city traffic managers can gain instant visibility into snow and ice conditions to direct snow removal crews efficiently. They can monitor traffic for streamlining traffic flow, preventing or managing incidents, and sharing data with police and fire departments. Highway video surveillance, real-time alerts and advisories, and automated toll collection with industrial intelligence capabilities can reduce operational costs and accelerate responsiveness to adverse conditions or emergencies. Rail and mass transit systems are using connected signaling and connected stations architectures to minimize service disruptions and increase on-time performance, as well as enhance passenger service with real-time signage and wireless services.

## CASE STUDIES

### Samsung

**Challenge:** Multiple manufacturing networks were difficult to troubleshoot and slowed response to customer needs

**Solution:** Converged Plantwide Ethernet solutions

**Results:** Reduced costs and enabled flexible manufacturing to produce new models on demand

### Petrobel

**Challenge:** Reduce costly downtime on oil rigs by improving decision-making

**Solution:** Cisco Ethernet in The First Mile Solution, creating a secure, media-rich network accessible anywhere

**Results:** Linked remote rigs to corporate network, allowing workers to consult specialized experts in real time from anywhere and make faster, better decisions that can make the difference between losing and keeping an oil well

### Utah Department of Transportation

**Challenge:** Improve traffic management and safety, increase traveler information, and provide greater access to management

**Solution:** Converged Cisco core network and intelligent traffic management system

**Results:** Saves Utah travelers \$179 million and 9.8 million hours annually; prevents 948 traffic accidents and three traffic-related deaths each year.



## SOLUTIONS AND SERVICES

- Converged Plantwide Ethernet solutions
- Cisco SAFE for process control
- Secure Wireless Plant
- Cisco Context-Aware Mobility Solution
- Industrial Wireless Video Surveillance
- Cisco Unified Communications
- Cisco Industrial Energy Management
- Video-enabled collaborative production management
- Cisco Ethernet in The First Mile Solution
- Cisco TelePresence® solutions

## Services

Cisco Business Transformation Services and Solutions  
Cisco Service-Oriented Network Architecture (SONA) RFID Services

## Partners

Rockwell Automation  
Honeywell Process Systems  
Emerson Process Management  
AeroScout  
Intermec  
Pelco  
OSisoft  
Librestream  
Panduit

## Products

Cisco IE 3000 Series Switches  
Cisco Catalyst® 3750 Series Switches  
Cisco Catalyst 2955 and 2960 Series Switches

Cisco Catalyst 4500 Series Switches  
Cisco ASA 5500 Series Adaptive Security Appliances  
Cisco Video Surveillance IP Camera  
Cisco Aironet® 1200 Series Indoor Rugged Access Points  
Cisco Aironet 1500 Series Outdoor Mesh Access Points  
Cisco Aironet 3500 Series Access Points  
Cisco Physical Security  
Cisco Physical Access Reader Module  
Cisco Physical Access Output Module  
Cisco Physical Access Input Module  
Cisco Physical Access Controller  
Cisco Unified Wireless IP Phone 7925G-EX

## For More Information

For more information about Cisco Industrial Intelligence solutions, visit: [www.cisco.com/go/industrial](http://www.cisco.com/go/industrial).



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