



Improve Automotive Production Efficiency with a Robust Network

SOLUTION BRIEF 

Automotive companies have a variety of new technologies and tools at a time when the industry's needs are changing. Their main priorities are improving their overall equipment effectiveness (OEE), increasing production, and optimizing their facilities to meet future demand – and the needs of new vehicle models.

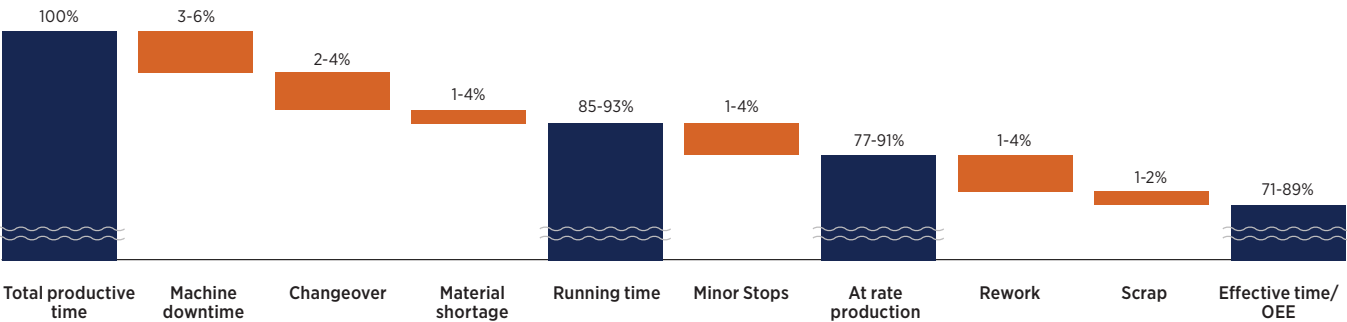
Belden's solutions for automotive facilities help you proactively meet these challenges.

Increase Efficiency in Automotive Facilities

Companies need to address operational challenges that can decrease their overall equipment effectiveness (OEE), including:

- Downtime
- Scrap/rework
- Minor stops

Overcoming these challenges can help automotive manufacturers with two of their primary KPIs: throughput and OEE. This table indicates the combined average OEE as it relates to automotive assembly plants and machine builders.



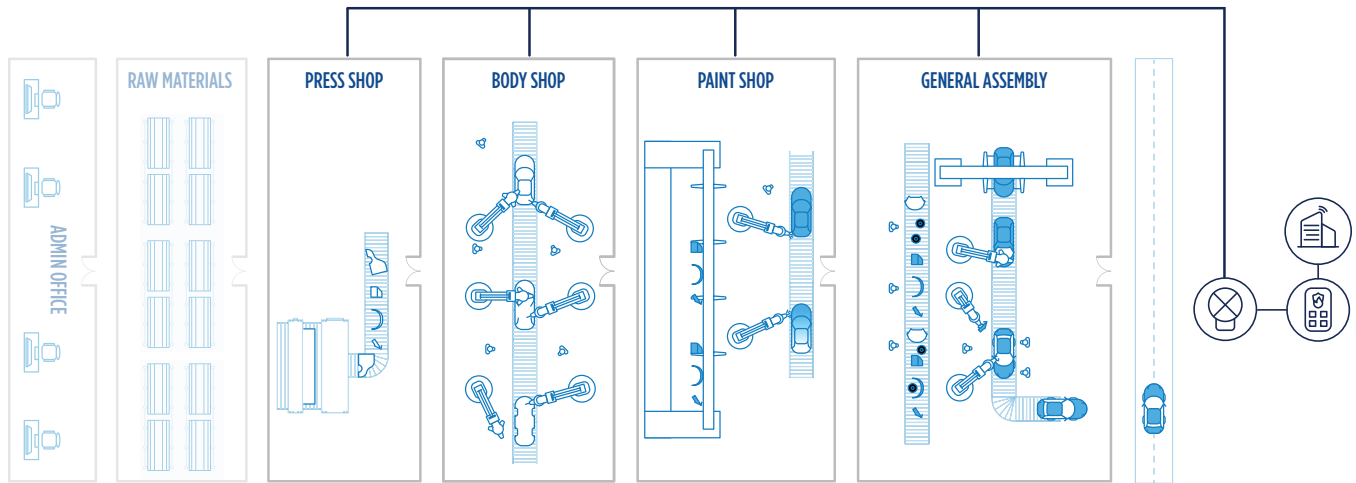
Leverage Industry 4.0 technologies – and Belden’s expertise

Operational choices significantly impact production costs—in the automotive production arena perhaps more than others. Industry 4.0 can positively impact more than one-third of the costs that arise from operational decisions. Better decisions made in real time drive performance efficiencies, conserve resources, and reduce waste. This image shows operational needs for machine builders that are addressable via Industry 4.0 technologies.

	Automotive OEM	Addressable with Industry 4.0
Sourced Parts	44%	
Manufacturing Labor	11%	
Manufacturing Maintenance and Repair	8%	
Raw Materials and Consumables	6%	
Energy	4%	
Depreciation of Fixed Assets	4%	
Marketing and Sales	4%	
R&D	4%	
Other Operating Expenses	4%	
Warranty	3%	
Service/Aftersales	3%	
Inventory Carrying	3%	
General and Administrative	2%	

Technologies to Improve Automotive Manufacturing

When looking to improve automotive manufacturing, there are several strategies that can positively affect your bottom line.



Manufacturing Automation

- Increased throughput
- Fewer minor stops
- Improved performance consistency

Human Connectivity

- Augmented reality (AR) glasses
- Tablets
- Handheld scanners

Predictive Analytics

- Minimal downtime
- Fewer minor stops
- Less scrap as a result of machine faults

OT Cybersecurity

- State-of-the-art system reduces chance of downtime due to attacks
- Segmentation based on network access needs
- Defense-in-depth strategy

Component Tracking

- Reduce part loss
- Decrease buffer starvation
- Prevent rework by matching bad parts to their source

Elements of Robust Automotive Networks

This holistic approach to an automotive manufacturing network enables the strategies mentioned on the previous page. Belden has mapped an ideal approach to the network design for automotive assembly based upon three essential elements required for success in creating seamless connections between your production plant assets and personnel.



Element #1: Connect Fixed Assets

Fixed assets do their job from a stationary point in the process. Even equipment that can be redeployed on demand is considered fixed because it does not roam around a facility or a work cell during operation.

- Robots and cobots
- Process equipment
- Machine interfaces and controls
- Process and asset monitoring devices

Element #2: Connect Mobile Assets

Mobile assets move during their active-duty cycle. They may have elements fixed in a location but are distinct from fixed assets that remain stationary in location during use.

- Material delivery vehicles
- Handheld and wearable devices
- Smart tools
- Mobile workstations

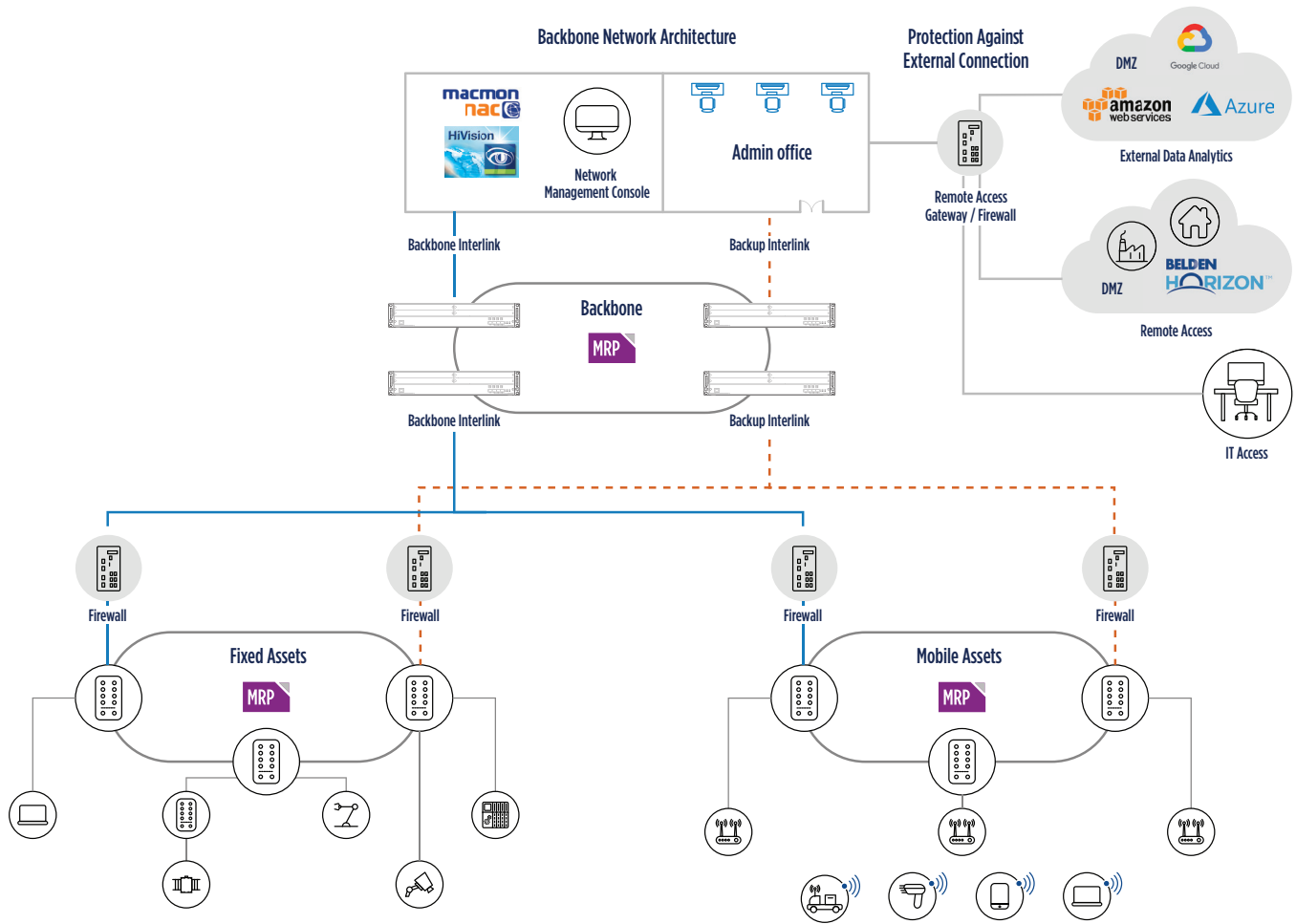
Element #3: Create a Network Backbone

As systems grow in complexity and size, network switches are linked together to enable devices to communicate with each other.

- Secured zones
- OT aggregation
- IT/OT connections
- Secure remote access

Bringing it all together

On your digitization journey, our experts will work with you to bring your automotive network plans to life by combining Belden's extensive network portfolio and third-party tools and services.



Connecting Fixed Assets

- PLX3x gateways
- EAGLE40 firewall
- OpEdge-8D edge device
- 10GXS Ethernet cables
- BRS52-8TX/4SFP and OS3-44 switches

Connecting Mobile Assets

- DataTuff 7938A cables
- PLX3x gateways
- EAGLE40 firewall
- OpEdge-8D edge device
- RLX2-IHNF weatherproof WiFi
- BAT-F WiFi access points
- BAT867-F wireless clients
- 0980 XSL digital I/O block

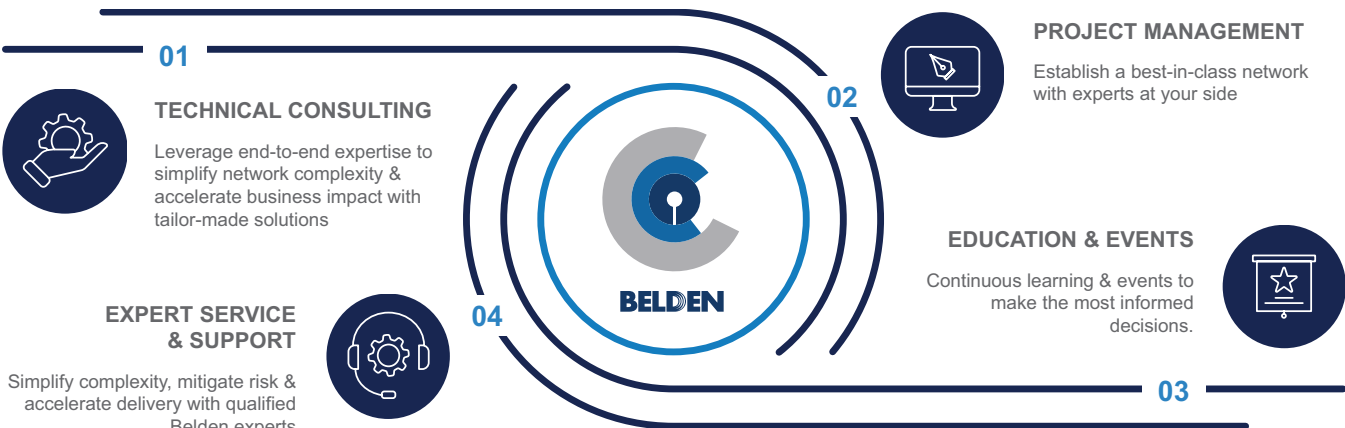
Your Network Backbone

- HiVision NMS
- Belden macmon NAC
- Mach4500 switch
- 105/106 Switches
- Layer 3 Switch
- Belden Horizon platform
- Wireless LAN controller

About the CIC

Global Customer Innovation Centers





Belden's Customer Innovation Centers (CICs) serve your needs throughout the solution development lifecycle. These hubs – strategically located to serve regions throughout the world – offer access to best-in-class capabilities, including the opportunity to run proof of concepts (PoCs) in our Validation Lab.





Our Experts at Your Side

Designing the right solution for your business needs is not an easy task, so Belden provides direct access to our experts.

 Solution Architect	 Digital Automation Consultant	 Solution Consultant	 Solution Engineer
<p>Deep technical knowledge of network architectures</p> <p>Develop, design, and validate best solutions tailored to the complexity of each customer unique business challenge</p>	<p>Industry expertise with deep networking know-how</p> <p>Lead process, workflows, and data assessments to identify digital transformation opportunities and calculate potential value of network solutions for the customer</p>	<p>Deep technical knowledge of applications and industries</p> <p>Guide the customer in their digital transformation journey conducting industrial network audits and positioning the ideal solutions</p>	<p>Deep technical knowledge of products and technologies</p> <p>Conduct trainings, testing and commissioning networks</p> <p>Lead network assessments and deliver high quality pre-sales and post-sales technical support</p>

About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today's applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

Learn More

Learn more about automotive solutions from Belden and contact our automotive solution experts: [belden.com/markets/automotive-manufacturing](https://www.belden.com/markets/automotive-manufacturing)