



Article

The connected workforce and Industry 4.0



Improved productivity will require empowered workers.

It's not just hype — Industry 4.0 is transforming manufacturing with higher overall equipment effectiveness, production flexibility and significant return on investment (ROI). Most discussions on how to achieve advanced manufacturing have focused on new technologies and their integration into current facilities.

What is often overlooked is the human element.

To make the next generation of industry a reality, workers, managers, engineers and technologists need to be highly collaborative. The key to success? Enabling workers to leverage new technology and data at scale with an unprecedented level of near-seamless connectivity throughout the factory.

Building for today and tomorrow

Transforming your production for Industry 4.0 is no simple task. Whether you're modernizing an older factory or installing a state-of-the-art greenfield facility, revolutionary change requires the latest technology, engineering and production expertise.

Big thinking is a must.

"Most failures with Industry 4.0 initiatives occur because manufacturers think too small," says Michael Weller, Associate Director - Global Solutions - Practice Lead for Manufacturing, Verizon Business. A clear and actionable strategy and business case are required to achieve a positive outcome. Many initiatives fail or get stuck in "pilot purgatory" due to a combination of technical, organizational and strategic pitfalls. Verizon can help you navigate the challenges of implementing Industry 4.0.

Equally important, manufacturers also need to attract new talent and equip them with the technology to operate advanced production lines.



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Associate Director - Global Solutions - Practice Lead for Manufacturing, Verizon Business

Michael and his team are responsible for developing on-site 5G/LTE and mobile edge computing solutions for enterprise accounts at Verizon. His extensive experience and contributions have established him as a thought leader in Industry 4.0, smart factories and next-generation utilities.





Meet the connected worker.

Industry 4.0 innovations, combined with rapid changes in how technology is used in factories, require manufacturers to rethink their approach to building productive teams. Tomorrow's successful manufacturers will develop workers who thrive in a tech-rich environment, individuals who can quickly and eagerly tap into the digital world.

We call them connected workers.

"For the first time, a manufacturer can tap into people's creativity, problem-solving, knowledge and collaboration skills," says Michael. "Industry 4.0 automation will not replace people; it's going to empower them to do other things."

Connected workers can help manufacturers facing various challenges.

Safety

Connected workers are eager to create safer environments by using advanced technology to monitor factory conditions.

Staffing

Turnover in personnel is expensive and time-consuming. Connected workers love to work in dynamic operations, especially those where they are learning skills and feel valued by their managers.

The future of staffing is expected to be challenging. A study by Deloitte and The Manufacturing Institute projects that the net need for new employees in manufacturing could be around 3.8 million between 2024 and 2033. Around half of these open jobs (1.9 million) could remain unfilled if manufacturers are not able to address the skills gap and the applicant gap.¹

Engagement

Connected workers are not put off by technology. They are natural problem solvers and look for solutions proactively.



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1. John Coykendall, Kate Hardin, John Morehouse, Victor Reyes, Gardner Carrick, "Taking charge: Manufacturers support growth with active workforce strategies," Deloitte Insights, Apr 3, 2024. <https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/supporting-us-manufacturing-growth-amid-workforce-challenges.html>



Now hiring: Generation Z

Gen Z, the term demographers generally use for those born between 1997 and 2012, presents new opportunities for employers, according to Michael. Like generations of workers before them, they bring distinct skills and a unique mindset – especially about manufacturing, technology and connectivity.

As a group, Michael sees that Gen Zers are open to the idea of working in manufacturing. They are also highly adept at working independently. In many ways, they are ready to roll up their sleeves and get to work.

Another big advantage: Gen Zers are digital natives.

According to Michael, Gen Zers expect to use devices and software on the job, just as they have at home and in school. Additionally, they can pick up digital workflows with surprising speed.

However, not being allowed to carry a phone at work – even for legitimate reasons – can be a source of irritation for a constantly connected generation. When employers require them to unplug, some Gen Zers are working outside their comfort zone.

Michael also notes that compared to previous generations of workers, Gen Zers are more willing to leave jobs that don't meet their expectations. Fulfillment is an important aspect of their work life, especially in roles that require repetitive tasks.



The device dilemma

Digitization continues to transform manufacturing. Innovations and new Internet of Things (IoT) technologies continue to expand a manufacturer's ability to collect data. But what is the point of gathering all that data if you can't deliver it in real time when the workers need it?

Devices on the production line are essential tools for connected workers. "How can we have a digital factory without giving workers digital devices?" Michael asks.

The right connectivity can make all the difference.

Providing workers with rugged devices linked to a production system – and not to outside phone or internet services – can help manufacturers unlock an array of benefits.

Connected workers equipped with devices are more attuned to their responsibilities and performance. Access to the real-time data on these devices enables workers to think critically and solve problems, two key characteristics of a fulfilling job.

Younger workers are accustomed to using devices to learn new skills. Providing instructional videos and written tutorials, produced by management or equipment manufacturers, could help accelerate learning and competence. Cutting the time for workers to reach full effectiveness can lead to tangible gains in productivity. In addition, real-time access to service manuals can help prevent lengthy downtime and loss of productivity.

Improving safety is another advantage of connectivity. Depending on the device, messages can be pushed to connected workers to help reduce accidents. Text alerts can be particularly effective in loud or remote areas of a facility. Furthermore, camera vision and IoT systems can help monitor, identify and document safety incidents without the need for workers to self-report.



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Engagement drives Industry 4.0.

In modern manufacturing, managers want to tap into their teams' knowledge, experience and insight. This becomes possible when production team members have the right digital tools to engage effectively.

Engagement begins with sharing information and asking questions. When more information – including high-bandwidth media such as video – can be pushed to factory staff in real time, the production process can be better aligned with company goals.

Information should flow both ways.

Push to talk, text, video and foreign language translation provide situational awareness at virtually every production level. Workers should have the ability to upload process documentation, machine health reports, workflow suggestions and more. When connected workers have the right tools, it builds an environment that's more collaborative.

Connected workers are also more likely to take initiative when problems arise. Employees equipped to connect with experts remotely in real time can help reduce downtime and costs.

Creativity that builds connectivity

In Industry 4.0 manufacturing, collaboration relies on digital networks. It involves exchanging information to and from the floor, tapping into real-time data from IoT devices, and accessing learning modules and other key resources. With the right network provider, manufacturers can unlock these benefits and much more.

Verizon Business is a global leader in creating networks that build business value.

“Verizon Business invests the time to understand the customer’s operating environment and their challenges on a more specific, functional and technical level,” Michael says. The Verizon Business team then works with manufacturers to implement changes that help them reach their goals.

One guiding principle for manufacturing network recommendations is network optionality, the ability to blend wired, Wi-Fi and cellular connectivity. Verizon Business manufacturing specialists evaluate the specifics of an operation to determine which technologies work best. In many facilities, a combination of established and new technologies is recommended.

“Network optionality is critical,” Michael says. “It gives the customer the freedom and flexibility to invest in the right infrastructure for their use case.”



Proven solutions for manufacturers

Private Wireless Network

Many operations and production employees often want to take on more innovative initiatives, but they are not sure the network can handle it. They can't risk impacting production.² Verizon Private Wireless Network provides the fast, low-latency connectivity needed by advanced manufacturers.

A private wireless network can help deliver consistent coverage across an entire facility and is equally adept at transmitting IoT data streams and bandwidth-hungry applications such as real-time video monitoring. Encryption on private wireless networks also helps protect your data from cyberthreats.

We believe manufacturing wireless solutions will continue to grow in importance and adoption. They can be deployed much faster than wired options and at a lower cost compared to expensive fiber optics.

5G is increasingly becoming the preferred choice for manufacturers, especially for those looking to implement advanced technologies and transform their operations. They offer enhanced flexibility and agility for dynamic layouts, along with the free movement of assets and workers. In addition, 5G can help reduce the cost of installation, maintenance and repairs.

Neutral Host Network

Recognizing the diverse needs of manufacturers, Verizon Neutral Host Network offers tailored and scalable connectivity solutions. Each network is customized to a specific location to deliver an effective in-building wireless experience. Leveraging licensed or unlicensed spectrum, it runs manufacturing applications with high-quality and reliable connectivity.

To maximize your infrastructure investment, Neutral Host Network can scale easily and adapt to evolving needs, such as deploying a private network to meet growing connectivity demands.



2. "Connectivity: A Critical Differentiator for Digital Transformation," Manufacturers Alliance Foundation in partnership with Verizon, Apr 2024. <https://www.manufacturersalliance.org/sites/default/files/2024-04/VerizonConnectivity-Report-F2.pdf>



Why Verizon Business

Connecting workers with necessary data and tools is essential to manufacturers. When it comes to the challenge of modernizing your network, Verizon Business offers the expertise, insight and on-the-ground experience to help drive operations of virtually any size toward a connected, efficient future.

Verizon Business at a glance

- America's most reliable 5G network³
- Recognized as a Leader in the first-ever Gartner® Magic Quadrant™ for 4G and 5G Private Mobile Network Services⁴
- Recognized as a Leader in the 2025 Gartner® Magic Quadrant™ for Managed IoT Connectivity Services, Worldwide⁵
- Deterministic networks expertise – combining a guaranteed level of network service/bandwidth with tailored solutions

Our solutions architects are ready to discover firsthand how your business operates and then collaborate with you to define your goals and next steps. To schedule an innovation session or plant tour, contact your Verizon Business Representative.

3. Based on RootMetrics® United States RootScore® Report: 1H 2025. Tested with best commercially available smartphones on three national mobile networks across all available network types. Your experiences may vary. RootMetrics rankings are not an endorsement of Verizon.

4. "Magic Quadrant for 4G and 5G Private Mobile Network Services," Gartner, Jan 6, 2025. <https://www.gartner.com/doc/reprints?id=1-2J9ZQDL4&ct=241105&st=sb>

5. "Magic Quadrant for Managed IoT Connectivity Services, Worldwide," Gartner, Mar 11, 2025. <https://www.gartner.com/doc/reprints?id=1-2KJCEEZ2&ct=250314&st=sb>

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