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5G technology has arrived.

While promises of a more connected world and smart infrastructure are a few years off, carriers are beginning to take the first steps to implement this game-changing wireless system, with speeds almost 100 times faster than 4G. In early April, Verizon launched a 5G service in parts of Chicago and Minneapolis, establishing itself as a domestic leader in the new wave of networks. In parallel, equipment providers like Nokia are expanding their offers to include enterprise 5G LAN systems, providing a private solution that augments this technology's public rollout.

As widespread adoption approaches, the public and private sector alike are searching for ways to gain competitive advantages through 5G technology. Its capabilities have led to an international fight over which country will lead the way. By some estimates, the "winner" could land $500 billion in GDP and up to 3 million new jobs – a sum that justifies the worldwide scramble.

Manufacturers early to embrace the new technology will position themselves as technological titans in their field, riding the industrial innovation wave to new heights by implementing disruptive IIoT technologies. 5G technology is already here – now manufacturers must strategize and use it effectively.

Full Speed Ahead

With speeds expected to ascend to an average of one gigabit per second, 5G paves the way for near-instant data transfers and lighting-fast access to information. While swift downloads pique the interest of consumers, upgraded networks are also posed to dramatically impact industrial operations. On the factory floor, higher speed and lower latency will enable continuous monitoring of equipment's health and performance. Tracking and quickly responding to data gives factories unprecedented manufacturing agility without forcing them to relinquish high productivity levels.

Real-time insights allow manufacturers to proactively gauge machine wear and tear rather than waiting for equipment to break down. More effective troubleshooting and preventative maintenance cuts down on the $50 billion a year manufacturers cede to unplanned costs. Through 5G's faster network, companies reduce production costs while improving product quality – minimizing expensive recalls and boosting customer satisfaction. The benefit of continuous monitoring also extends to construction jobsites, where fleet managers can track equipment performance data and make instant adjustments.

Decision makers need information quickly, and 5G-based endpoint devices deliver it quickly and reliably. U.S. manufacturers can get ahead of the industrial IoT curve by pairing data-collection devices with a 5G network. Consumers continue to demand quality products at a faster pace, saddling factories with a heavy workload and a thin

margin for error. Constant inter-device communication through faster wireless networks helps companies escalate productivity and rise to this challenge while still complying with necessary regulations and standards.

Adding in Automation

From the grocery store to the bank, automation is becoming entrenched in society, and the factory floor is no exception. As 5G networks emerge, automation may take on a bigger role than most experts anticipate. Robots are completing increasingly complex tasks, making rapid data processing an expectation rather than a luxury. Now, 5G technology is transforming the role of robotics, allowing systems to not only monitor in real time, but also accept feedback.

By communicating with other machines, as well as their human counterparts, robots perform tasks more efficiently, adapting to changes without severely altering productivity. 5G's speed and reliability also opens the door for improved machine learning, enabling robots to assume greater responsibility and increase accuracy over time. Outside of productivity, automation can create better working conditions, taking on riskier worker tasks and simplifying jobs through human-robot collaboration.

Beyond factory efficiency, automation and lag-free intra-machine communication will lead to better, more integrated supply chain management. With more data points and progressively granular information, manufacturers gain greater visibility into product delivery times, transit conditions and more. Higher supply chain awareness allows companies to alter production strategies and optimize schedules.

A new era in network connectivity is upon us, with the U.S. doing all it can to finish first in the race to 5G. Although the transition may demand significant time and resources, the investment promises to pay off. With benefits like greater production speed, cost savings and new jobs stemming from industrial IoT technologies, leveraging a 5G network's capabilities will allow manufacturers to take a swift, bold step toward the future.