It Feels Like Flying

Today's pace of technological change defies description. I keep hearing that we're in the middle of the next transformative leap in manufacturing, and with all the advances in robotics, automation, condition monitoring and artificial intelligence (AI), it's hard to argue that we're not. But it seems to me the pace of change is too fast for mere leaps and bounds. Industry 4.0 used to be a new thing, but we seemed to have skipped Industry 5.0 and are now talking about Industry 6.0 and beyond. By the time we stop long enough to define where we are, we're no longer there.

Today, it seems our feet can hardly touch the ground. Strap in, because we're headed toward the future, and we're headed there fast.

For example, robotics has long been a staple in manufacturing, but its role expands every day. Robots are no longer just for repetitive tasks and heavy lifting. Today's robots are designed to be more adaptable and intelligent, equipped with advanced sensors and AI capabilities, allowing them to perform complex operations with unprecedented precision and flexibility, often working hand-in-hand (or gripper) with their human counterparts.

Over the past few decades, automation has revolutionized manufacturing by improving speed, consistency, and reliability. But it's becoming far more sophisticated every day, incorporating advances like autonomous vehicles and robotic process automation (RPA). Autonomous guided vehicles (AGVs) and drones are taking over material transportation within factories, minimizing human intervention and reducing logistical bottlenecks.

Additionally, advanced automation systems are becoming integrated seamlessly with AI, enabling real-time adjustments to production processes. This integration allows for dynamic optimization, where production lines can adapt to changing demands or detect and rectify inefficiencies almost instantaneously. As a result, factories will achieve higher throughput and reduced waste, leading to more sustainable manufacturing practices.

In fact, AI is fast becoming the cornerstone of the modern factory, driving intelligent decision-making across all levels of manufacturing, starting with product design and continuing through a product's end-of-life. AI can analyze vast amounts of data generated by sales and ERP systems along with robotics, automation systems, and condition monitoring tools to provide actionable insights. These insights are being used to inform production planning, quality control and supply chain management.

Moreover, AI is facilitating advanced simulations and digital twins, virtual replicas of physical assets that can be used to model and optimize manufacturing processes. By running simulations, manufacturers can explore different scenarios and make data-driven decisions to enhance efficiency and reduce costs.

Go to IMTS in Chicago September 9–14. You'll see all this and more.

But if you can't make it there, all you have to do is read through this issue of *Power Transmission Engineering* to realize that the factory of the future, is not, in fact, in the future. It's here today.

If you're interested in staying informed about the transformative technologies that continue to shape our industry, don't wait for the next giant leap. If you're still thinking about Industry 4.0, you're already way behind. Join us by becoming a subscriber (or renewing if you've already signed up). It's fast, it's easy and it's free. Come fly with us at *powertransmission.com/subscriptions*

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