

Applied SmartFactory® Enables Manufacturers to PRIORITIZE QUALITY AND RELIABILITY Across the Manufacturing Process

Journalist | Wei Xiaowei

[Editor's Note]

The period of “14th five year plan” is a key stage for industrial internet to accelerate the transformation and upgrading of manufacturing industry in combination with 5G, big data, artificial intelligence, and other new generation information technologies. The industrial internet is reshaping the manufacturing ecology and making it present a new style. This time, with the theme of “Automation Giants to Embrace the Era of Industrial Internet”, the Application of Electronic Technique invited six automation giants around the world: ABB, Emerson, Schneider Electric, Siemens, Rockwell Automation, FESTO, as well as two leading companies in global electronic manufacturing: Applied Materials and Universal Scientific Industrial, to express their opinions on the enterprise transformation in the era of industrial internet, and to discuss together on the new chapter of intelligent manufacturing.

In the era of industrial internet, the improvement of industrial automation is of great significance to industrial transformation and upgrading, industrial restructuring and enterprise competitiveness. In the opinion of David Hanny, Marketing Director, Automation Products Group, Applied Materials, levels of automation are highly dependent on the manufacturing environment and the challenges that need to be solved.

COMPLETE AUTOMATION SOLUTION

At present, the semiconductor industry keeps on changing every day, and increasing factory productivity has become an urgent task. As a global leader in automation software, services, and equipment for the semiconductor industry, the Applied SmartFactory® developed by Applied Materials is a comprehensive automation software

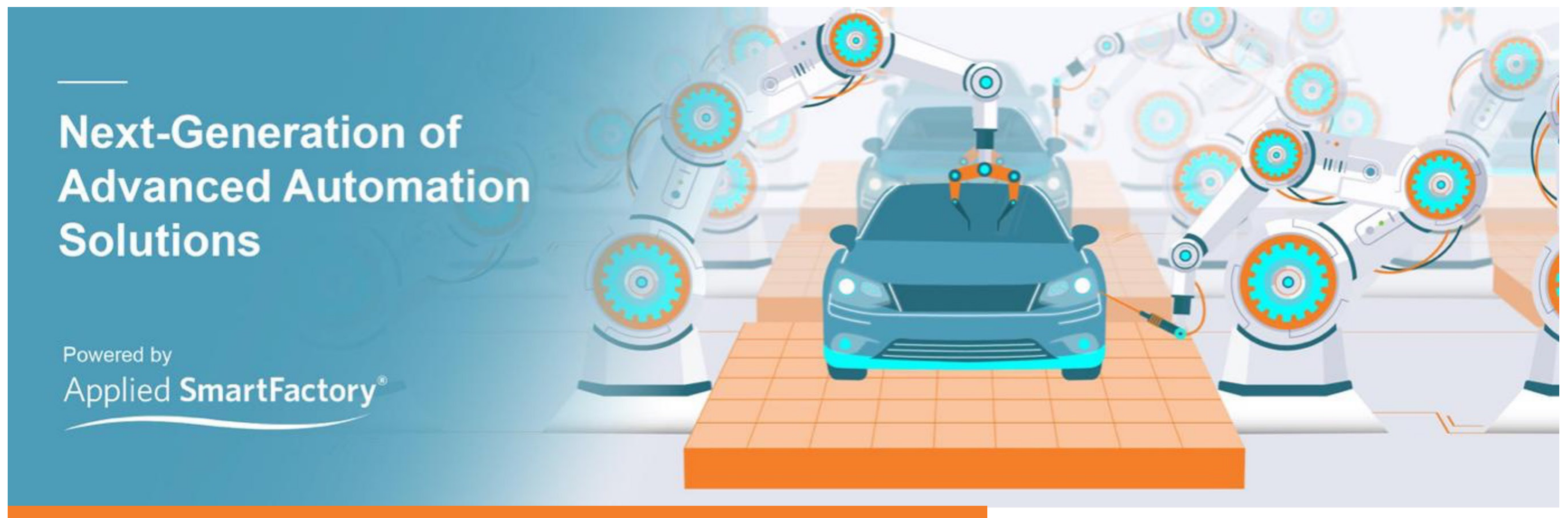
solution in manufacturing industry. Through increasing productivity across the manufacturing process and greatly reducing manual operations, Applied SmartFactory® aims to work together seamlessly with factories, and integrated system to improve operations and increase yields and drive profit.

The breadth of SmartFactory offerings from Applied is marketing leading. Its

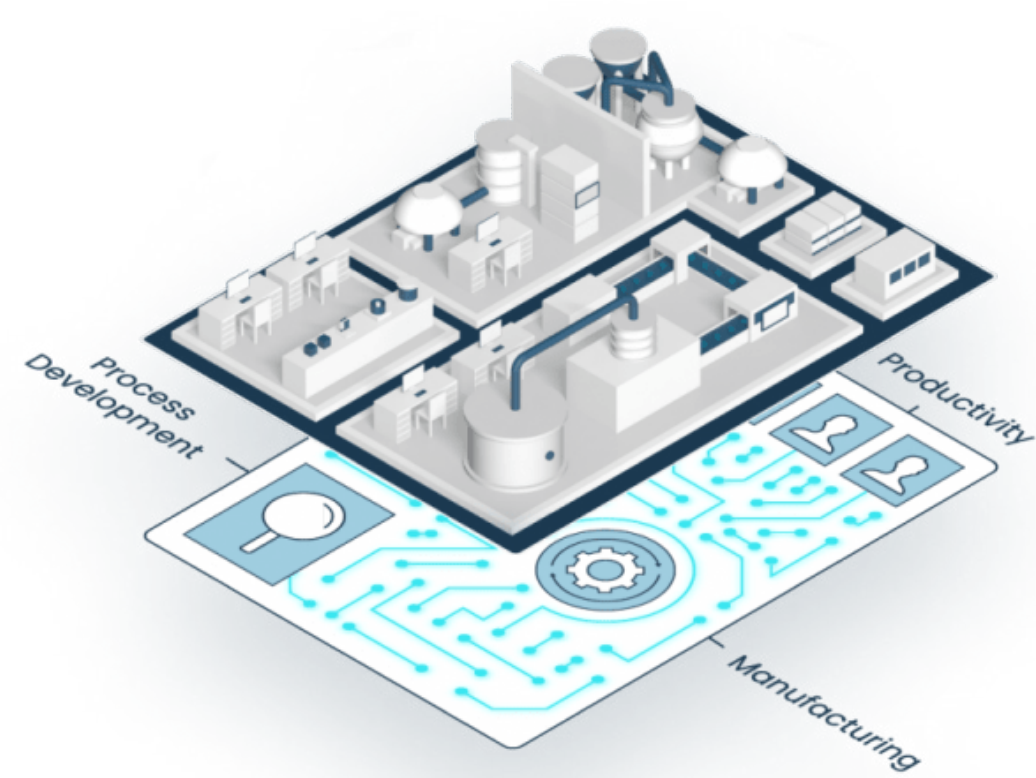
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integrated capabilities include process quality, factory productivity, manufacturing execution, and planning and scheduling through the supply chain. 'We achieve Full-Auto with a comprehensive manufacturing execution (MES), full automated material handling system (AMHS) control, real-time dispatching and short interval scheduling, spec compliance (SPC), equipment maintenance strategies and fault monitoring with live recipe tuning, and management of durables', as David Hanny answered in the interview.



BOOST INNOVATION

Traditional equipment companies usually focus on R&D and product launch. However, in Applied Materials, "service" is as important as products. For a long time, Applied Materials not only takes "meeting customer needs" as the standard, but also consider how to "help customers innovate". 'Applied has proven

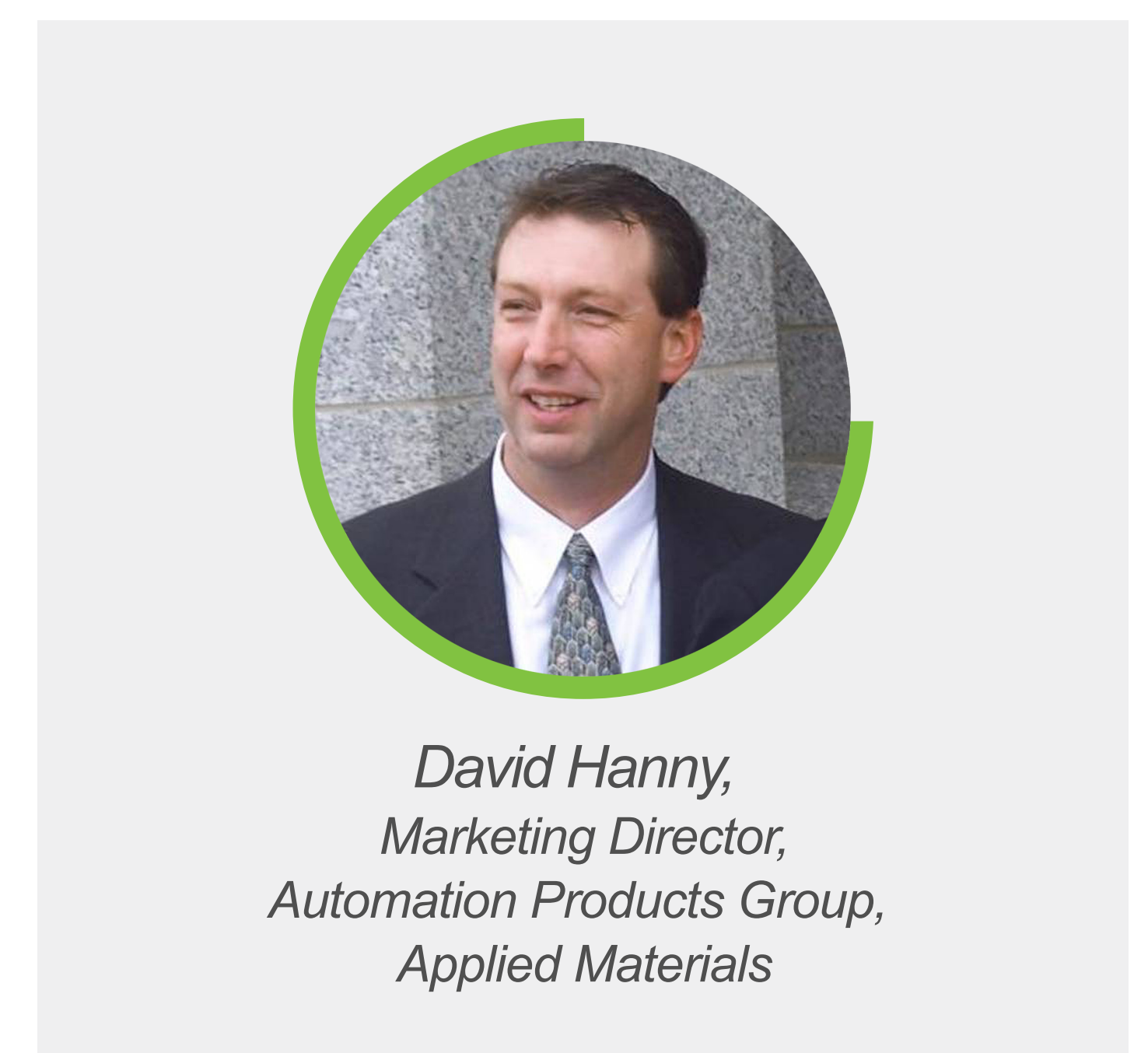
to bring sophisticated, asset intensive factories to a full-auto state in 90 days. Our support organization is available round the clock to provide resolution for factory issues. Business continuity is crucial for our SmartFactory customers and Applied provides automation roadmaps, updates, and patches to keep manufacturing running smooth', David Hanny said.

Meanwhile, the breadth of our SmartFactory portfolio allows us to be a 1-stop-shop for our customers. We have a large team of deployment experts. Single supplier accountability is more cost effective for our customers, enables speed to successful deployment, and provides a partner for ongoing changes as their manufacturing processes evolve. We provide EngineeredWorks®, our pre-built automation logic to enable rapid deployment of matured business rules.

ENSURE SECURITY

The major premise for traditional manufacturing industry to move towards intelligent manufacturing is data acquisition and transmission. "Manufacturers have a desire to move data faster." David Hanny said, "This is not only including data transfer, where 5G

becomes very useful, but also the need to store more data, process it faster, and gather analytics on the behaviour of the factory. 5G can be used as other advanced technologies mature, such as Cloud, Big Data, faster processors (GPU, etc.), and message bus technology become mainstream in the market. David Hanny told us that Applied is working to integrate these technologies into our SmartFactory portfolio, providing solutions for discrete manufacturers and process manufacturers.



*David Hanny,
Marketing Director,
Automation Products Group,
Applied Materials*

For the stable development of industrial internet, security risks cannot be underestimated. In David Hanny's opinion, security is a big challenge when customers consider taking their data off

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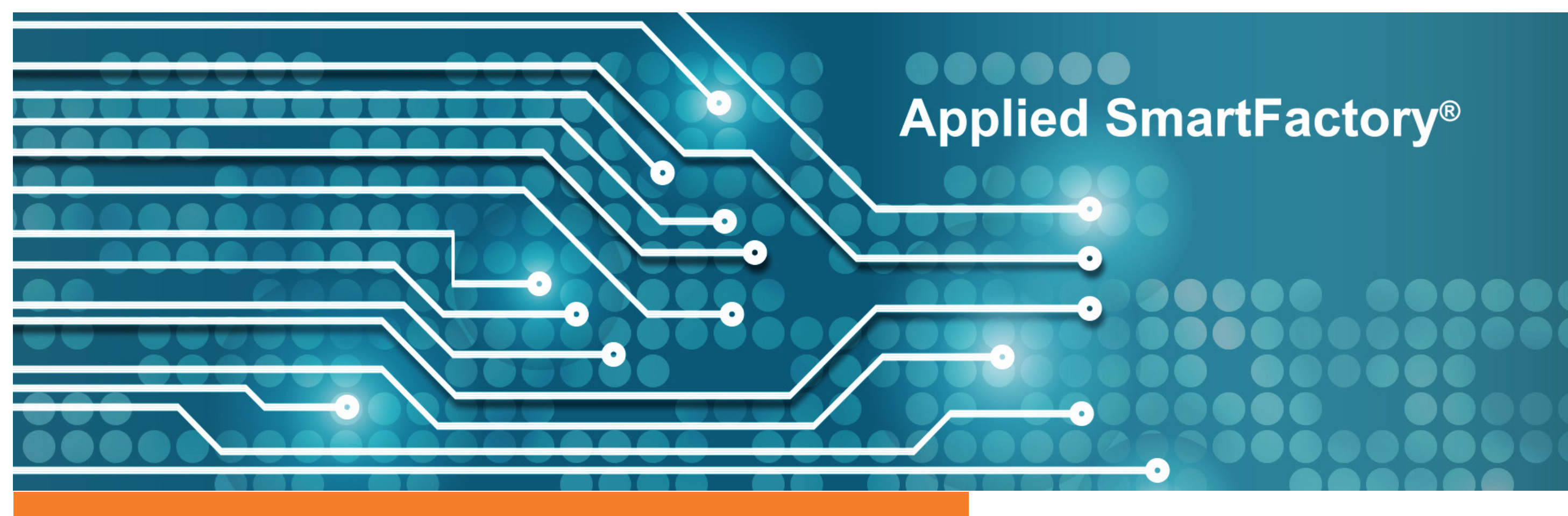
premise. The first obstacle to overcome is to discover when/how the benefit is greater than the risk. This requires companies to create risk reduction strategies. Applied Materials works closely with our customers to understand those use cases. We manage a security

roadmap that is aligned with our customer's view of the risk to move off premise with their data.

ENABLE INTELLIGENCE

Last but not the least, when it comes to the current challenges facing the

industrial internet, David Hanny said that Industry 4.0 is no the goal; it is a key enabler. He also said that automation intelligence must mature. Speed increase (enabled by advanced technologies) enables an environment of learning (machine learning, deep learning). This in turn allows a probabilistic intelligence where outcomes become predictable and can lead towards artificial intelligence applications. Adoption of enabling technologies requires security confidence and strong system data integrity. But we believe the biggest challenge is a willingness to embrace change in your manufacturing enterprise.



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