Extending industrial automation to optimize efficiency and decision making

How you can accelerate hyperautomation through the adoption of industrial IoT

SIEMENS

An investment in industrial IoT can power hyperautomation

Industrial organizations have embraced automation to improve operational efficiency and reduce human error. By and large, however, industrial automation is siloed – it is applied to individual aspects of the business, but not used holistically across the organization. The key to extending automation throughout your business is hyperautomation.

But what is hyperautomation? Gartner calls it the No. 1 technology trend for 2020.[1] Hyperautomation is the application of advanced technologies to automate processes even more, breaking down data silos and further enhancing efficiency and decision making.

In order to successfully achieve hyperautomation, industrial organizations need transparency across their entire operations. With an industrial Internet of Things (IoT) solution, you can capture and analyze data from plants, processes, and products enabling this level of visibility. Furthermore, on top of your industrial IoT solution, you can deploy applications and advanced capabilities that allow you to continuously automate aspects of your business.

In this guide, we'll walk you through four specific areas where integrating industrial IoT can help you accelerate hyperautomation.

Condition monitoring

Automates fault detection to help prevent downtime

Industrial IoT-driven condition monitoring can be done remotely or on site to help you mitigate asset downtime and improve plant reliability. Implementing condition monitoring through industrial IoT adoption is more effective than other methods, as industrial IoT enables an accurate and continuous data flow on parameters in near real time.

Condition monitoring is the analysis of key asset parameters, removing human judgment from fault detection. In practice, your condition monitoring application may identify an excessively vibrating part or an asset running at high temperatures. In many cases, these anomalies are the early signs of a fault that could lead to failure. With a condition monitoring application, you can implement automated alarms that notify your teams when the anomaly occurs. Condition monitoring can be applied across assets, plants, and systems.

Asset performance management

Automates asset performance optimization

An industrial IoT-driven asset performance management solution can help organizations maximize asset performance to drive both profitability and productivity. Commonly, organizations will attempt to adopt asset performance management using a manual approach, in which teams will identify deviations from optimal operating conditions. However, by using an industrial IoT-based approach, teams can remove human judgment from their efforts to achieve continuous machine performance improvements. This allows teams to more reliably utilize assets at peak production rates, while freeing their teams from manual work.

Predictive maintenance

Automates maintenance cycle decision making

Predictive maintenance is an industrial IoT solution that continuously collects and analyzes real-time asset health and performance data to understand the root cause of quality and production issues. Prior to industrial IoT adoption, plant assets are typically maintained using a calendar-based or reactive maintenance approach. Both approaches can create excessive costs and lead to failures. Conversely, predictive maintenance analysis identifies the optimal time and frequency to service assets, thus preventing downtime. By automating the decision of when and how often to maintain assets, your team can spend more time focusing on areas of differentiation.
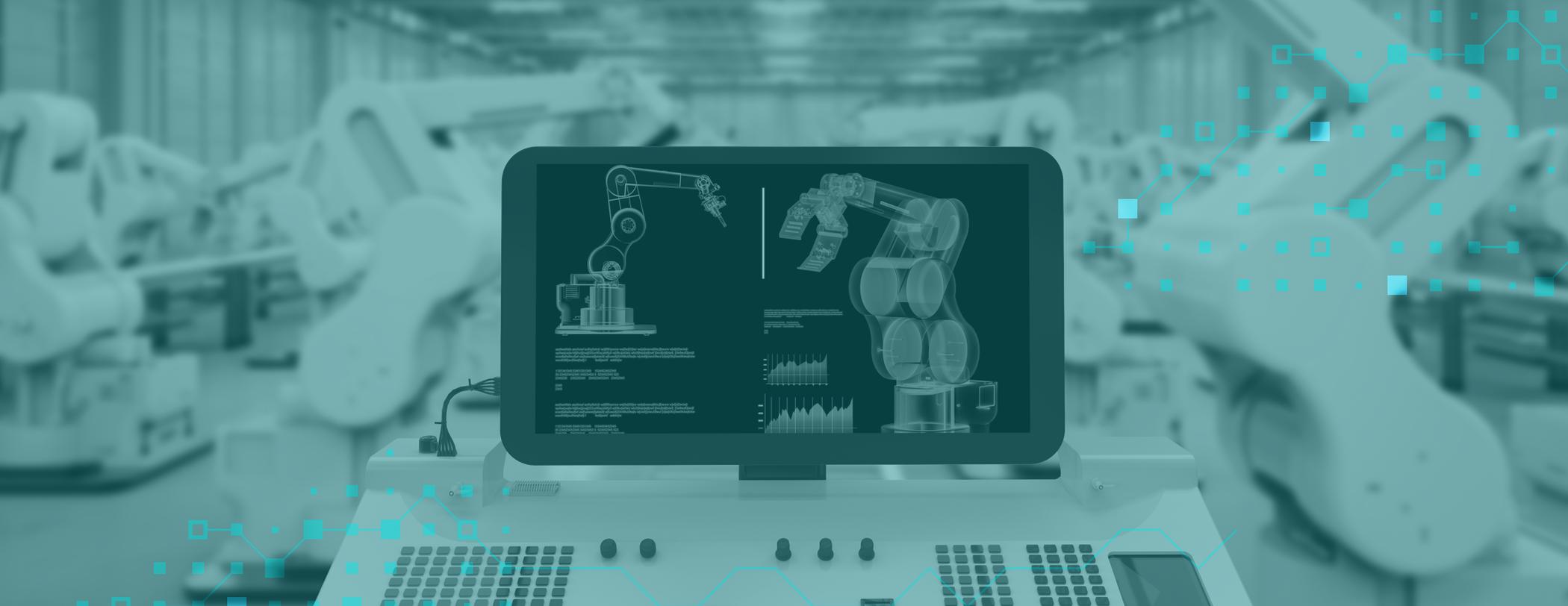
Closed-loop digital twin

Automates feedback loops and aspects of the product lifecycle

Leveraging a digital twin creates a closed feedback loop, in which you can better understand how products and processes perform in real-life situations. A digital twin is a virtual representation of a physical product or process, often powered by industrial IoT. Digital twins can be viewed as an extension of hyperautomation because they reveal and take action on previously inaccessible data, such as performance data from IoT-connected products in the field. These capabilities provide clear insights to help industrial organizations optimize decision making. By leveraging IoT data to understand how products and processes work in the real world, you can take actions to improve asset utilization, effectiveness, and availability, as well as test new processes - all without impacting production.

SIEMENS

Unlock hyperautomation with MindSphere

MindSphere® is a leading industrial IoT as a service solution that connects every machine and system in the enterprise to deliver better productivity and efficiency. With MindSphere, you can accelerate industrial IoT adoption and cost-effectively move towards hyperautomation. Through industrial IoT-enabled solutions, like condition monitoring, predictive maintenance, asset performance management, and closed-loop digital twins, you unlock insights that can drive automation throughout your organization to optimize decision making and overall efficiency.

To learn more about MindSphere, visit www.siemens.com/ mindsphere

Sources:
1. https://www.gartner.com/smarterwithgartner/gartner-top-10-strategic-technology-trends-for-2020/