

TOP TIPS

Leveraging IoT-based Solutions

At each stage of the digitalization journey, tools and solutions are available that can assist companies in getting the most out of their Internet of Things (IoT) implementation. Whatever stage a company is at today, IoT-based solutions can unlock data insights that will optimize production, improve product quality and increase customer satisfaction.

Here are a few of the top IoT-based solutions to focus on in order to realize immediate value from the IoT:

1. Condition Monitoring

Adding condition monitoring to an IoT deployment empowers companies to automate the monitoring of key performance indicators (KPIs) as well as view crucial parameters (temperature, vibration, pressure, etc.) in real time. Condition monitoring enables access to machine performance and maintenance data that can then be analyzed to find opportunities to reduce high maintenance and service costs. To achieve condition monitoring, accurate and continuous input data from a wide variety of sensors and parameters in real time or near real time is needed.

Condition monitoring empowers teams with greater operational insights through advanced analytics and data visualization. Access to this type of information and insight is crucial to maximizing uptime of critical assets and protecting profitability. Condition monitoring not only allows companies to track the operating conditions for connected assets, but also gives users the ability to create automated alerts, such as email notifications, when metrics deviate from normal operating conditions.

2. Asset Management

With asset management capabilities, companies can easily identify, classify, profile, inventory and track physical assets. This allows the collection of asset data including production measures, quality data, operating hours and more to continually build accurate production schedules and better understand asset availability.

Being able to better understand organizational assets is a crucial component to assessing overall equipment effectiveness (OEE), a key metric when working to understand operational performance. Being able to accurately determine OEE is vital because degrading asset health not only results in unplanned downtime, it is also a key contributor to poor product quality

3. Predictive and Prescriptive Maintenance

The ability to continuously collect and analyze real-time asset health and performance data plays a key role in determining the root cause of production and quality issues. An IoT-based predictive maintenance solution utilizes current and past data to determine the best, most cost-effective time to service assets before unplanned downtime occurs. Predictive learning capabilities enable users to build models using machine learning (ML) techniques to help understand future asset performance and optimize product quality. As a result, companies can reduce performance issues and prevent potential asset failures. Predictive maintenance capabilities can also be utilized to schedule asset maintenance in the most efficient way possible. This enables the ability to maintain assets, while still making sure they have the resources needed to meet production goals. As companies improve their ability to predict asset failure, they benefit from increased product performance, which ultimately improves the customer experience.

Prescriptive maintenance takes predictive maintenance to the next level by using more automation. By using artificial intelligence (AI) and machine learning (ML) in combination with sensors, an IoT-based prescriptive maintenance solution will diagnose the root cause of problems and indicate appropriate, cost effective remedial actions. Additionally, prescriptive maintenance systems learn more over time based on the accumulation of historical and live data and continuously work to optimize maintenance practices for efficiency.

4. Digital Twins

As virtual copies of a physical asset or environment, digital twins provide organizations with new insights and opportunities. Digital twins can be of a product, production or performance. They are created by leveraging sensors that gather an array of data about physical assets, processes or environments.

With digital twins of product and production, companies gain the capability to virtually test, validate and analyze products and processes before they are put into production. By digitally simulating designs and process steps, companies save the time and expense associated with physical prototyping or the risk of performing tests during live production.

The performance digital twin takes these capabilities a step further. It uses the performance data of the product and production machines to see if the virtual simulations match the output. With the performance digital twin, companies can capture and analyze real-time operational data from connected products and plants to gain insights for refining virtual models and improving the performance of systems in production.

5. Low-Code Application Development

As the number of companies adopting IoT strategies grows, so does their need for tailored solutions that optimize their operations. While many have made good progress by adopting agile methods and cloud technologies to help solve the problem, organizations are quickly noting that there is also a significant gap between the demand for the application and IT's capacity to deliver it. An alternative to this costly, resource intensive, and time-consuming process is leveraging a low-code application development platform.

Low-code application development platforms can help organizations overcome the challenges of traditional application development by enabling them to build and continuously improve multi-experience applications with collaboration throughout the process. Using drag-and-drop components and model-driven logic through a graphical user interface, these platforms are designed to accelerate the entire development lifecycle (from ideation to deployment and operation) and support developers of varying experience levels to create multi-experience IoT- based applications for teams across the organization.

Bottom line:

To get immediate value from the wealth of data collected from the IoT, companies should implement additional IoT-based solutions and customized applications to further accelerate their digitalization strategy.

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