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4 Ways IoT Sparks New Business Value

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As the Internet of Things (IoT) creates a new influx of machine and process data, Original Equipment Manufacturers (OEMs) of industrial assets are finding themselves at a crossroads between disrupting or being disrupted. Pervasive interconnection powered by IoT technology opens the door to new avenues for value creation that were not previously achievable. For OEMs, this means they need to rethink their operational models or risk losing ground as digital businesses quickly encroach.

The opportunities of IoT for OEMs are bountiful. They encompass everything from improved maintenance services and aftermarket opportunities to innovative revenue generation, enhanced machine design and improved quality management. All of these are achieved through a new host of machine telemetry data delivered by embedded IoT sensors. By capitalizing on massive data collection and deep analytics, OEMs can transform the way they operate while activating new product and service offerings to better serve industrial customers. Here are four ways the IoT can create new business value for OEMs.

Proactive Quality Assurance

Quality control is fundamental in every industry, but in manufacturing, it's hyper-critical. Volatile market demand, high material and production costs alongside the mission-critical nature of end products impel OEM and manufacturers to pursue nothing but first-rate quality and a minimal rejection rate. With the IoT gradually

hitting its stride in manufacturing, quality management is an area with transformational opportunities.

Wireless IoT networks that can capture vast, granular critical data points along the production line give manufacturers unprecedented control over their operations and product outputs. Beyond reactive, end-of-run quality inspection, IoT data empowers a proactive quality assurance approach to diagnose and prevent defects much earlier in the process for peak production throughput and repeatability alongside reduced costs and waste. Concurrently, it provides valuable insights for achieving and maintaining storage best practices.

For example, with 24/7 remote monitoring, quality managers can instantly detect off-spec conditions among running equipment and processes that give rise to potential product defects. Following up with a prompt quality check helps to reaffirm the problem at the source and facilitate troubleshooting to hinder future defects. Once the sources of different quality problems have been diagnosed and verified, manufacturers can even develop and implement a quality control model to further optimize product properties. Capitalizing on ongoing sensor inputs such a model allows machine operations to automatically adapt to unwanted fluctuations in variables like environmental conditions, ultimately to achieve the top and consistent product attributes.

Business Model Innovation

Besides improving quality control and reducing waste costs, IoT also allows OEMs to capture an entirely new business model with data-driven product offerings. Rather than selling a piece of equipment as a one-off, an OEM can provide an option where the customer could rent it and is recurrently charged based on equipment use time and output. This model is called Equipment-as-a-Service (EaaS).

With its subscription-based pricing strategy, EaaS brings distinct advantages to both OEMs and industrial clients. On one hand, customers can enjoy greater flexibility, reduced risks, and easier equipment access by replacing high upfront capital costs with a lower monthly pay-per-use expense. Concurrently, maintenance and overhaul activities are fully covered in the Service Level Agreement (SLA) and better guaranteed, thanks to real-time data on machine operations. On the other hand, OEMs can benefit from stable, recurring revenue streams that span the asset lifetime, better customer engagement and more upselling opportunities.

In order for EaaS to be successful, it must be implemented with the proper business intelligence to ensure equipment is well-maintained and productive for as long as possible. With IoT sensors installed on equipment, vendors can remotely gather real-time data from customer sites. This can help them improve their designs to make machinery more robust and better-performing. Insights on the equipment status, material conditions, operational details and location will also make it easier to assess the costs and operational impact of the timing of when machinery should be maintained and repaired, and the optimal time it should be replaced. Eventually, to the benefit of both EaaS vendors and their customers, maintenance and repair costs will decrease.

While the shift to EaaS isn't without challenges, its enormous potential is well-recognized and the global EaaS market is expected to grow to $131 billion by 2025. Early adopters of this new flexible payment model are poised to gain a major competitive advantage over other equipment sellers.

Future Machine Design Optimization

Sensor data on equipment operations also reveals a wealth of insights for improvements and refinements in future product design. While machine engineers might develop simulation models to assess how an asset should perform on the field, its actual performance and output are highly subject to deviation as a result of various unpredictable factors. By monitoring how the same piece of equipment is functioning on different customers' premises, OEMs can detect common part failures or bottlenecks like minor stops, long start-up cycles or high energy consumption, so relevant adjustments can be incorporated in future design specs to mitigate them. With well-designed and efficient machines that bring significant cost-saving opportunities for customers, OEMs can attain an edge in the market while enhancing customer loyalty and retention.

Redefining Aftermarket Opportunities

Aftermarket services, including selling and replacing spare parts, performing repair and maintenance or installing upgrades on the machine, not only represent a significant revenue source but also contribute to an optimal customer experience. Yet managing these services has been anything but easy. Once a piece of equipment is sold, OEMs have hardly any insight into how it is performing on the customer's premises. Machine failures only come to light after the damage is

tangible or serious. But even so, time-consuming manual inspection of individual components could still be required to trace the root cause of the breakdown.
Not knowing exactly when products need servicing after commissioning also makes inventory management of spare parts challenging for OEMs. It could result in obsolete assets due to overstocking or worse, delayed responses due to out-of-stock items. The latter would then mean added downtime and astronomical costs on the customer side.

IoT can combat these challenges by helping OEMs and their customers transition from reactive to proactive asset management. Using wireless IoT sensors that continuously capture and communicate critical asset datapoints to a cloud-based analytics platform, an OEM can easily monitor commissioned equipment from afar. Anomalies and inconsistencies can be quickly detected, and point of failures can be accurately located. This in turn facilitates spare part order and troubleshooting workflows to minimize production disruption and asset downtime. Condition-based or predictive maintenance indeed serves as an innovative value-added service that sets the OEM's offering apart from any third-party aftermarket vendors. At the same time, digital data reporting of asset operations further elevates customer experience through improved quality controls and consultation services. For example, OEMs can use machine data for drill-down analysis of global breakdown causes to provide recommendations on how users could mitigate risk moving forward.

The potential of IoT for OEMs is enormous: it not only improves operational efficiencies in-house but also encourages a shift from a product-driven to a service-driven business model for greater value delivery. In this context, advanced sensor and networking technologies allow OEMs to unlock new floods of field data that empower creative digital offerings and future innovation. However, it is critical to remember that pervasive wireless connectivity is a major driving force behind the IoT revolution and a fundamental building block in digital architecture. The use of connectivity is not simply about getting a message to its destination; it is about doing so in a scalable, secure and cost-effective fashion. As such, selecting the right technology is paramount to the long-term success of your IoT project, and various factors need to be considered from the get-go to build a functional and future-proof wireless infrastructure.