White paper

Five IoT Strategy Pitfalls and How to Avoid Them

LOPEZ RESEARCH

IoT Changes Manufacturing

Manufacturers are in the midst of the next industrial revolution driven by the Internet of Things (IoT), which refers to the growing network of physical objects that have sensors and internet connectivity. This next innovation wave in manufacturing, called Industry 4.0, focuses on automation
and data exchange in manufacturing technologies with cyber-physical systems, the Internet of things, cloud computing and cognitive computing.

IoT will fundamentally change manufacturing regarding technology adoption, process transformation, and product innovation. Advances in sensors, connectivity and analytics provide the ability for equipment manufacturers to offer new services and business models based on connected device data. Manufacturers with connected equipment strategies gain competitive advantage through plant uptime, product performance insights and better supply chain efficiencies. Leaders in the space are also changing the industry with connected product services and new business models such as Equipment-as-a-Service and Data-as-a-Service products. Embracing IoT provides the opportunity for manufacturers to improve operational efficiencies and develop new revenue by connecting factories, supply chains and products.

Finetune Existing IoT Strategies to Improve Deployments

While the concept of connecting equipment and systems data isn't new, it was too complicated and expensive to collect data in the past. Today, sensors and wireless broadband networks are cheaper. Meanwhile, advances in cloud computing offer new data storage and processing capabilities.

Yet, IoT creates a new world of challenges for information technology (IT) and operational technology (OT) leaders that require a well-defined connected device and business strategy. While it may be easy to outline what elements should be within an IoT strategy, the challenge for many companies remains in navigating the subtle nuances within those components. These details spell the difference between success and failure in the IoT market. In discussions with various manufacturing clients, Lopez Research identified at least five areas, listed below, where companies can enhance their IoT strategies.

1. Design a layered analytics strategy.

Data must be collected, analyzed and inserted into your existing applications and business processes to make it useful. An analytics strategy must define how and where your company will store, process and analyze information from structured data sources such as temperature readings and unstructured data such as video feeds. Many manufacturers focus on the technical strategy and fail to define how IoT data will improve business processes and applications. In the absence of this information, it's difficult to select the best analytics methods and tools for the job. For example, an edge computing analytics strategy is essential for use cases where the cost or time constraints of data processing matters. In cases where low-cost bandwidth availability is high, and time sensitivity isn't an issue, the data can be transferred and analyzed in batch format in the cloud or at the manufacturer's main data center. Once a manufacturer understands what workflows it can change with new data, the company can focus on defining the technical strategy that outlines what data should be analyzed immediately at the edge and what types of storage and analytics solutions are required. For services such as predictive maintenance, businesses will need to evaluate advanced analytics solutions such as machine learning and cognitive services.

2. Define a cloud strategy for data warehousing, analytics and partner connectivity.

Cloud computing plays a considerable role in a company's IoT strategy. The cloud provides compute for processing large volumes of data in real time. It also provides the ability to purchase a set of foundation tools for IT and OT executives to build new applications, services and insights based on IoT data. These cloud-based Platform-as-a-Service solutions help IT to develop, test, and secure IoT applications. To improve IoT strategies, manufacturers should look for PaaS cloud services such as middleware, security, application components and analytics tools that companies can use to build IoT solutions. Additionally, manufacturers can enhance their IoT solutions with third-party cloud-based Data-as-a-Service offerings such as weather and logistic information.

Finally, manufacturers should look for solutions that enable an open cloud model. Most organizations that Lopez Research interviews have one primary cloud provider but have selected a secondary infrastructure-as-a- service provider for a subset of their workloads. It's essential that any IoT solution that a company selects can operate on multiple clouds in case a company wants to switch its primary provider.

3. Connect data to apps with comprehensive integration strategies.

The new world of IoT requires supporting a broad range of operating systems, various device protocols and multiple types of wireless networks. Connected manufacturing devices, unlike networking LAN and WAN equipment, can be decades old. As a result, OT and IT need to define a technology strategy that supports a mixed environment of legacy systems such as supervisory control and data acquisition (SCADA), internet protocol (IP) and Message Queue Telemetry Transport (MQTT). Numerous IoT platforms do this.

However, buying a platform that helps the company connect various types of data, isn't enough to deliver business value. Manufacturers need to devise a strategy that links this data back into applications for a specific outcome. A plan should combine IoT-specific platforms that speak various protocols as well as API management platforms. While this sounds obvious, it's an oft-overlooked step that leads to business metric failure. Given that there are hundreds of IoT platforms to choose from it's essential to know what features the IoT platform needs to support to winnow purchase options.

4. Secure IoT at all levels.

Security concerns have always ranked high in surveys of IT leaders' top technology concerns. IoT strategies are no exception. In Q2/2018 Lopez Research fielded a survey that explored the challenges and barriers to IoT deployment for 300 IT decision makers in the U.K. and U.S. The findings revealed a large percentage of companies interviewed (63 percent) are delaying full deployment of a connected device strategy due to security concerns.

Mitigating security risks requires forethought to design a set of technical implementations at the beginning of delivering an IoT strategy. Similar to a mobile plan, companies need to think of securing data in a layered fashion that includes the device, the application and the wired and wireless LAN as well as the data in motion. While it's tempting to secure IoT data in one area, such as an IoT gateway, it leads to security vulnerabilities. In manufacturing, security also extends to the physical security of the building.

5. Secure funding for success.

Many companies fail to accurately budget for the continuous iteration and innovation that's required to create successful IoT deployments. In June 2018, 78% of companies Lopez Research surveyed said their companies lack sufficient budget and 40% lack adequate staff to deploy IoT solutions. Both of these issues are resolved with planning and the right strategic vendors.

In addition to funding IoT as a separate line item, funding can also be included in other budget line items for areas such as cloud computing, mobile app development, and networking upgrades. Many manufacturers are turning to their strategic hardware vendors and consulting partners to design, deploy and maintain IoT solutions. Manufacturers also should develop reskilling programs and purchase educational training courses to bolster the skills of their existing workforce.

Conclusion

Unlocking new value in the manufacturing industry requires designing applications and workflows that connect machines to other machines but also to systems and people. It's important to look for a provider with specific industrial IoT development, delivery and management tools. Ideally, a manufacturer will work with a small set of strategic partners that can provide blueprints and advanced analytics, and deliver integrated solutions. Executive sponsorships are also crucial to support funding and development across the organization. These are just a few of the IoT strategy considerations a company should address now and in the future.

See how Atos Codex accelerates IoT projects and delivers insight-driven outcomes. Learn more at: https://atos.net/codex

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