

The Internet of Things: Maximizing Efficiency and Value Generation

Abstract

Companies are looking to go beyond experimental IoT use cases and meaningfully leverage the technology for first, operational efficiency, and second, value generation. In both cases, several challenges arise due to the heterogeneous nature of devices and underlying networks, as well as the new partnerships required for market sustenance. This paper discusses how a unified device management platform and a subscription management solution can help IoT users or providers to maximize their investments, achieving significant returns through both bottom line and top line improvements.

Varied Opportunities across Industries: Exploring the IoT Potential

The internet of things (IoT) has taken every industry by storm, offering new ways to access data, connect with customers, and link the different components of an enterprise. Use cases range from consumer-facing smart homes, where every appliance forms an IoT endpoint, to enterprise-grade IoT networks for supply chain management and logistics. Given this emerging popularity of IoT and the immense possibilities it offers for all sectors, global investments have been on the rise

However, the roadmap for implementation is not quite clear yet. While theoretical benefits abound, on-ground execution is fraught with challenges.

Combining IoT with available data analytics solutions can help enterprises unlock hidden insights into asset performance. Unnecessary costs can be eliminated while accurately predicting future demand, as well as reducing the downtime of both digital and physical assets.

Despite these advantages, 60% of investors are finding it difficult to find the right IoT technology to fund. Concerns extend beyond initial implementation, to long-term sustainability and ways to monetize this emerging technology. Below, we detail the primary challenges faced by enterprises on their IoT implementation journey.

Hurdles to Overcome When Adopting IoT Systems

In any industry, IoT implementation can be recognized as having two major impact areas. First, it helps to drive bottom line growth by identifying areas of operational efficiency and cost optimization. This could lead to major savings, such as monitoring room occupancy to identify empty spaces in hospitals or to predict equipment breakdowns in manufacturing. Similarly, RFID tags attached to vehicles could help transport providers receive full updates, reducing the cost of operations.

In this respect, several industry players have already explored a number of applications, however, given that

these applications are limited to routine tasks (which would otherwise require manual intervention) measuring ROI is the biggest challenge. On top of that, any positive impact on the bottom line may be spread over an extended period after implementation, creating ambiguity around sustainability.

In this first phase, enterprises could expect the following hurdles:

- Identifying value-add for the end customer and effectively communicating or marketing the same for buy-in
- Managing heterogeneous devices, form factors, energy requirements, and multiple communication protocols
- Deriving the right set of actionable insights that can both optimize current operations and future strategies
- Ensuring data security and user privacy in line with the latest mandates

Second, IoT can help introduce a new family of marketable services which were hitherto impossible in traditional digital ecosystems. These services would be monetized, allowing any digital company to become an orchestrator on the IoT value chain and reap profits. If the first tactic is more inward facing, focused on improving enterprise efficiency, this second stage allows companies to reach out to new-age customers. IoT products could range from smart doorbells and connected toys to logistics drones and entire smart cities.

In this second phase, companies could expect two major hurdles:

- Difficulty in integrating with partners and vendors (technology companies, firmware developers, network providers, and the like)
- Lack of adequate frameworks or onboarding IoT customers and managing service subscriptions

To overcome these challenges, enterprises need a set of key drivers at both stages. This will help them maintain their bottom line, while constantly adding to top line margins.

Utilizing IoT in the Operational Efficiency Stage

As discussed, cross-industry IoT-ization use cases include smart buildings, energy management, inventory management, intelligent supply chains, remote asset governance, and more. However, despite IoT devices and sensors constantly gathering data, maximizing the output remains a challenge in the absence of a robust technology backbone. Without understanding the type of insights required and identifying the relevant analytics models, it is impossible to derive positive outcomes.

In other words, enterprises need to understand the impact of IoT on users and business, outlining the necessary supporting infrastructure. Once this vision is clearly defined, a platform is required which can:

- Reconcile and properly manage heterogeneous devices and protocols
- Integrate IoT nodes with other enterprise modules such as incident management and workforce management
- Centralize configurations for all connected devices and network pathways
- Enable remote diagnostics and data backup or restoration
- Ensure transmission of voluminous data through secure channels
- Continuously monitor IoT devices and feed into real-time dashboards

Let us consider an example. An IoT solution developed to conserve resources in a factory must interact with multiple touchpoints including water outlets, energy sources, waste bins, electrical appliances, and machinery. Managing all of these remotely and issuing alerts pertaining to consumption, repairs, and more, will help build a true 'smart factory'. However, this is dependent on the ability to manage this diverse selection of devices across different network protocols and analytics layers, while simultaneously integrating with

external infrastructure. Figure 1 shows the capabilities required to successfully implement a complex IoT environment geared for heightened operational efficiency. The centralized device management platform acts as the driver and a unified subscription management platform with modular capabilities and device management competencies enables operations support.

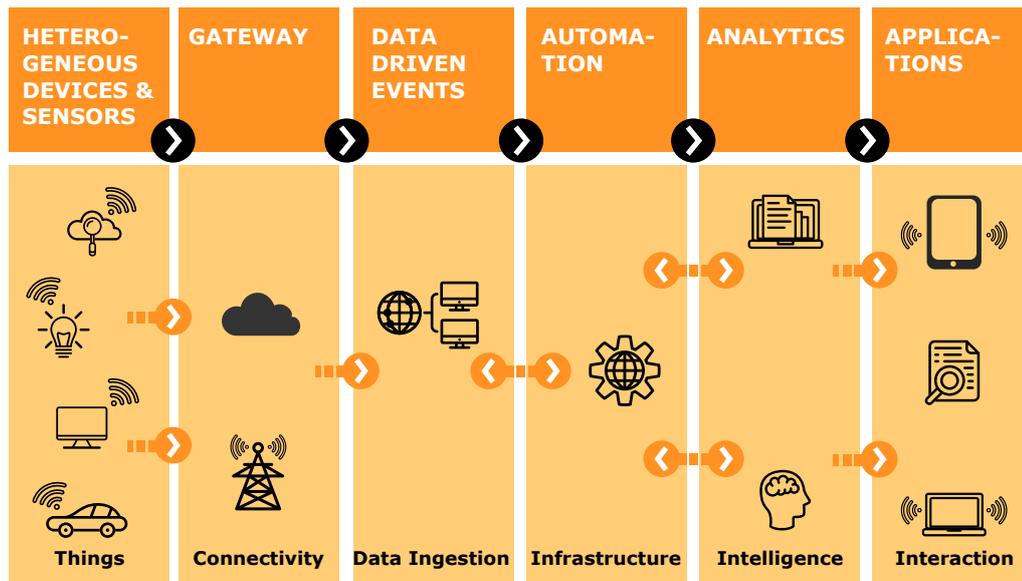


Figure 1: Capabilities required to improve operational efficiency

Outcomes enabled through such a device management platform include:

- Seamless device integration and ease of management
- Consolidation and standardization of voluminous data flows
- A single source of information to power analytics
- Built-in report generation and dashboards to aid decision-making
- High-level command centers for use cases like smart cities, facilitating IoT orchestration.

Utilizing IoT in the Service Monetization Stage

In the last few years, as-a-service models have completely transformed software consumption and are now penetrating other areas such as Big Data (Big Data-as-a-service) and infrastructure (infrastructure-as-a-service). It is only a matter of time until IoT deployment also happens through flexible subscription-based models. There have been disruptive instances where providers are looking to launch IoT service offerings, targeted toward both cross-industry users as well as for domain or vertical specific use cases.

The first mover advantage cannot be overstated here. Companies that can proactively introduce a customizable IoT service bundle, mass personalizing to individual customer requirements, will gain a definitive market advantage. This requires a solution which includes:

- Subscription management for service activation, assurance, and metering
- Accelerators to shorten the time-to-market
- Support during management of sales, customer onboarding, and service activation
- Revenue models tailored to IoT offerings, leveraging unique revenue management approaches
- Partner management capabilities to simplify technology and IT service alliances
- Automated device management with capabilities to discover, activate, configure, and diagnose
- Data analytics to cross- or up-sell IoT services

Let's consider an example. IoT services like track-and-trace, route optimization, geofencing, safety alerts, IC4 bi-directional communication, and passenger overload alerts could all be delivered as a monetized fleet management catalog. For identifying a specific customer base (given the nascent nature of the IoT industry) companies need a robust product lifecycle management solution designed specifically for IoT offerings or service catalogs. There are several implications --

the fleet management catalog could also be integrated with an insurance database linking premium plans to driver behavior. All of these partners must be seamlessly onboarded, packaging their products and services with a company’s core IT offerings. To achieve this, a unified subscription management platform is required along with device management competencies and support operations (see Figure 2).

Platform Based Managed Services Solution, Modular Capabilities based on needs.

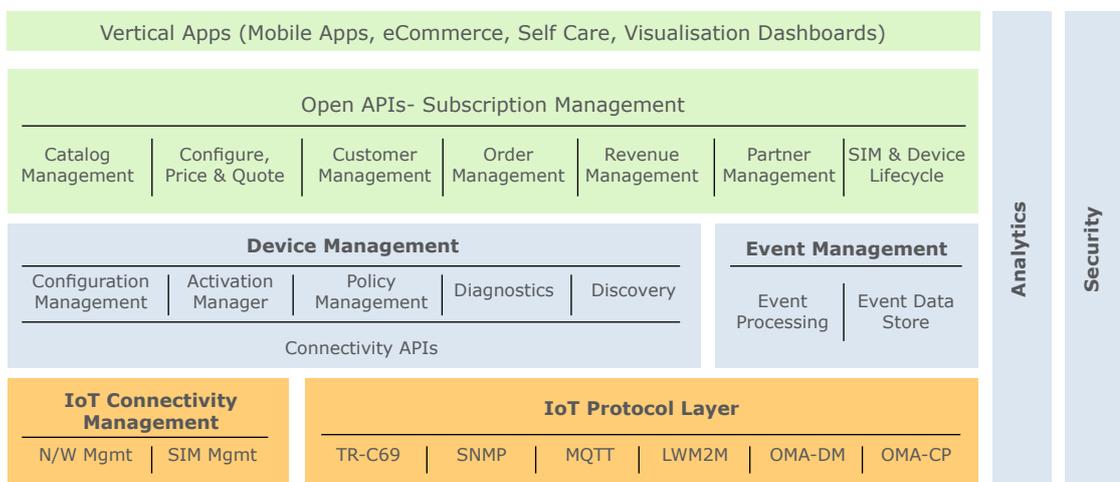


Figure 2: Platform based managed services solution

With a unified solution as illustrated in Figure 2, companies can achieve the following outcomes:

- Take advantage of an end-to-end ecosystem to speed up market entry
- Convert from a connectivity provider positioning into ‘system orchestrators’
- Boost subscription rates and revenues from data traffic

Success Will Hinge on Strengthening Foundational Capabilities

The path to progress is clearly marked with several complexities as well as milestones. By utilizing current IoT

practices, enterprises can look forward to extensive operational gains -- this can be complemented by the ability to monetize these services. Interestingly, the challenges that will inevitably arise can be solved not by fine-tuning the IoT technology, but by strengthening foundational digital capabilities.

The key to success, therefore, lies in improved device management, tighter integrations with a wide network of partners, and revenue or subscription models built for the as-a-service era. Finally, any solution employed must be industry-agnostic (facilitating the broadest possible end customer base) and rapidly scalable. As IoT evolves and becomes integral to the technology backbone across industries and sectors, this will prove critical to ensuring providers retain their differentiated market position and stand out ahead of competitors in the long-term.

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