

Enterprise IoT Implementation: Making the Build vs. Buy Decision

Abstract

2018 has been an inflection point in the evolution of enterprise IoT as it moves from trial to business scale. However, IoT implementation brings back the classic enterprise IT dilemma that has existed since the early days of software: Build versus Buy.

This paper outlines the importance of having a sound implementation strategy for IoT and recommends a structured eight-step framework to address this dilemma. We also discuss the optimal approach that enterprises can adopt to build the platform, should they choose to do so, and how they can select the right components. Finally, we highlight how companies can achieve differentiation with an IoT platform – a key challenge for enterprises across verticals – and end up creating exponential value for their customers.

As IoT Moves to Business Scale, Enterprises Face Key Challenges

Forrester predicts that enterprise IoT will move from trial to business scale in 2018¹. This significant move, however, brings with it certain key challenges. First, enterprises have to define and apply the right strategy for IoT implementation. Second, businesses are typically short of critical expertise in IoT's multilayer architecture as well as its functions, protocols, value chain, and ecosystem.

Notwithstanding the challenges, businesses are expected to ramp up IoT adoption. Gartner predicts that by 2020, 65% of enterprises will adopt IoT products - up from 30% in 2017².

The question C-suite executives need to answer is: Do we address the IoT implementation challenges using the build or the buy option? Fact is, regardless of the industry, the decision needs deep thought and due diligence, as it lays the foundation for one of the key pillars of digital transformation.

The Cheat Sheet for IoT Implementation

Each enterprise faces a unique set of implementation challenges - typically related to their goals, strengths, requirements, geographical footprint, segments and target customers. On the one hand, a number of manufacturing, oil and gas, and utility companies have progressed beyond the pilot stage and enhanced operations with IoT. On the other, automobile original equipment manufacturers (OEMs) that use off-the-shelf (OTS) IoT solutions are finding it hard to drive differentiation.

If we talk about the communications industry, while some industry players have come up with basic IoT connectivity solutions with some small vertical applications, but the market expectation now for them to introduce a versatile platform that can integrate at any layer and cover diverse applications under a single platform. These examples emphasize the importance of making the right decision with regard to build vs. buy. Leveraging a structured framework can help businesses make accurate decisions for optimal results.

An Eight-step Structured Framework to Address the Build vs. Buy Dilemma

Based on our interactions with global enterprises, we have developed an eight-step process to help businesses decide whether they should build an IoT solution in-house or buy it. Here's how it works:

1. Define a digital-first vision: To begin with, define a digital-first vision that flows from the top of the organization. Typically, the vision is defined by one or many goals such as enhancing operational efficiency user experience or revenue growth, and how Big Data, Machine Learning (ML), IoT, and advanced analytics play a key role in achieving these goals. For cross-organizational relevance and appeal, this vision should capture how digital is expected to deliver value to each stakeholder.

2. Create an IoT strategy team: Build a strong team comprising experts from security, network, operations, finance, and HR, in addition to technology architects and product owners, to implement the IoT strategy. Ideally, business strategy experts should lead the team and define the agenda. This team is responsible for developing a schema to assess the various aspects of IoT business, use cases, technology, architecture, and operations. To maintain industry relevance and future proof use cases, it is recommended to validate the thought process with top industry analysts.

3. Formalize the data collection approach: The strategy team then shares the schema with product owners and heads of operations to collect information on relevant use cases, categorize them as short and long term, and clearly identify the attributes they are looking for in the system. The strategy team should standardize information collection across the organization, using a two-part structure to classify the information into generic and unique use cases. This information helps to further prioritize and select use cases for implementation strategy.

4. Understand the product ecosystem and vendors

Next, the strategy team should assess the solution ecosystem and identify the components for both build and buy, focusing on two aspects:

- Different components of the platform, their features, and ball park costs for perpetual, subscription, and hosted services models

- Open source components available in the market and their maturity

Since security is one of the biggest threats for IoT based businesses, it is important to clearly identify the security vulnerabilities at different layers and use this information to select vendors or to build the solution. At this stage, with the help of technology architects and use case owners, identify the components required for each use case.

5. Understand internal organizational capabilities: An assessment of internal capabilities can help understand the skill depth and experience of in-house resources and partners. At this point, along with the assessment of capabilities, stakeholders should also assess the level of complexity they can handle. The next logical step is to interview program owners and the human resources team to understand the availability of talent, and understand an acquisition process to hire the right talent. This step is critical to mapping the internal capabilities with ecosystem development and integration capabilities.

6. Study the competition and industry: To arrive at a calibrated strategy that is in tune with the realities of the market, it is important to understand where each organization's competitors stand with regard to their ability to leverage IoT. Industry research helps understand the value chain for a particular industry, as well as the IoT adoptions and standardizations at each stage of the value chain. Finally, each use case is analyzed competitively using the outcomes of similar use cases deployed by the competitors. Such an exercise helps in identifying proven use cases to achieve low risk deployments as well as clearly identifying unique use cases that can act as market differentiators.

7. Identify components for specific services models: As the penultimate step, it is essential to study each use case from the perspective of the model that the organization plans to offer. In case the organization is launching the use case in a service model, it is important to study the use cases from a services perspective to identify the following:

- Who is the target customer?
- How will the service be marketed, sold, consumed and monitored?
- How will the security requirements be handled?

Answers to these questions will help identify additional components required – in addition to the core IoT platform ecosystem. For instance, a subscription management system is essential to offering subscription model based use cases.

8. Analyze and assess the data collected: Once all the data is collected, the team should thoroughly assess and analyze the information, and use the above listed steps to shortlist use cases for implementation. Thereafter, they should check the time-to-market attribute for the shortlisted use cases to categorize them as short-term, mid-term, or long-term. If a majority of use cases fall in the short-term or mid-term category and are marked for immediate launch, the case to build an IoT platform might not exist. On the other hand, if the majority of use cases are to be launched over the mid to long-term, it provides an opportunity for companies to build part or whole of the IoT platform. However, this decision further depends on other factors such as internal capabilities and the need for offering differentiation. Based on the extent of internal capabilities and comfort level with different layers of IoT, enterprises may opt to build selective layers in-house, while procuring the rest from vendors.

For communications service providers (CSPs), in addition to the points mentioned, extra caution will need to be exercised while building the platform so that it is open and easily compatible with different kind of components already available at the customer end. It shall be modularized to a level where customers can pick and choose different components and easily integrate with their components to realize the intended benefits.

Prioritization of Use Cases will Drive Decision Making

From lowering costs to boosting efficiency, the benefits of IoT are hard to ignore for businesses looking to build competitive advantage and create exponential value for customers. The value of the eight-step structured framework lies in its ability to help enterprises avoid pitfalls by identifying and prioritizing high impact IoT-based use cases. The framework also helps in measuring the use cases on different parameters across the enterprise, using the same scale. It further enables businesses to understand the different components and layers to be procured from third-party vendors and those that can be built in-house. The key to successful IoT implementations lies in

using the structured framework to identify and build components that drive differentiation and buy non-differentiating components for which the enterprise might not have competency to build solutions in-house.

References

1. Forrester, Predictions 2018: IoT Will Move From Experimentation to Business Scale, November 16, 2017, accessed March 2018, <https://go.forrester.com/blogs/predictions-2018-iot-will-move-from-experimentation-to-business-scale/>
2. Gartner, Leading the IoT, October 2017, accessed March 2018, https://www.gartner.com/imagesrv/books/iot/iotEbook_digital.pdf

About The Authors

Paresh Jain

Paresh Jain is a Senior Domain Consultant and heads the Network Operations and OSS Products group within TCS' Communication, Media, and Information Services (CMI) business unit. With nearly 20 years of experience, he is responsible for defining the product strategy for telcom operations. Prior to his current role, Jain worked with major equipment and solution vendors in product engineering, predominantly in IP and wireless technologies. His area of expertise and interests include service and network orchestration and IoT device management. Jain has a Master's in Engineering in Systems and Information from BITS, Pilani, India.

Tarun Goswami

Tarun Goswami is the Product Engineering Lead for the Network Operations and OSS Products group within TCS' Communication, Media, and Information Services (CMI) business unit. With nearly 18 years of experience, he develops solution roadmaps, and the architecture and design of products and solutions for telco operations. Goswami has worked with leading telcom companies around the globe in the network assurance and automation domain. His areas of expertise include network assurance, service and network orchestration, and IoT device management. He has a Master's in Engineering in Software Systems from BITS, Pilani, India, and is a PSM certified Agile coach.

Experience certainty. IT Services
Business Solutions
Consulting

Contact

Visit the [Communications, Media & Technology](#) page on www.tcs.com

Email: global.cmi@tcs.com

Blog: [Next Gen CMI](#)

Subscribe to TCS White Papers

TCS.com RSS: http://www.tcs.com/rss_feeds/Pages/feed.aspx?f=w

Feedburner: <http://feeds2.feedburner.com/tcswhitepapers>

About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled, infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at www.tcs.com

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties. Copyright © 2018 Tata Consultancy Services Limited