

THE INTERNET OF THINGS

HARMONIZING IoT FOR RETAIL

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Abstract

The Internet of Things (IoT) is transforming the Retail Industry. There is no doubt that retailers are excited about the possibilities IoT has to offer. However, when it comes to implementing IoT in their businesses, they are unsure where to begin and the tangible value it can bring. This paper explores some of the benefits, specifically to retailers and focuses on a pragmatic, cost-conscious approach to get retailers started on their IoT journey.

Introduction

The Internet revolution has profoundly impacted our lives. Not only has it fundamentally changed the way businesses operate, but also the way we live. Today, we are witnessing yet another technology and data-led transformation — Internet of Things (IoT), which is transforming almost every industry, including retail. These “Things” that are connected to the Internet — machines or devices with smart

sensors — are capable of collecting and exchanging observational and transactional data with each other, making them seamlessly interconnected. The data gathered from IoT can be utilized to provide insights, trigger actions and control outcomes — all in real time with or without any human intervention.

Where Are We Headed?

"Gartner Inc. forecasts that 4.9 billion connected things will be in use in 2015, up 30 percent from 2014, and will reach 25 billion by 2020.¹ Gartner estimates that IoT will support total services spending of \$69.5 billion in 2015 and \$263 billion by 2020."² With the number of IoT installed units expected to touch 25 billion in 2020, retailers cannot afford to ignore the impact IoT will have on their business.

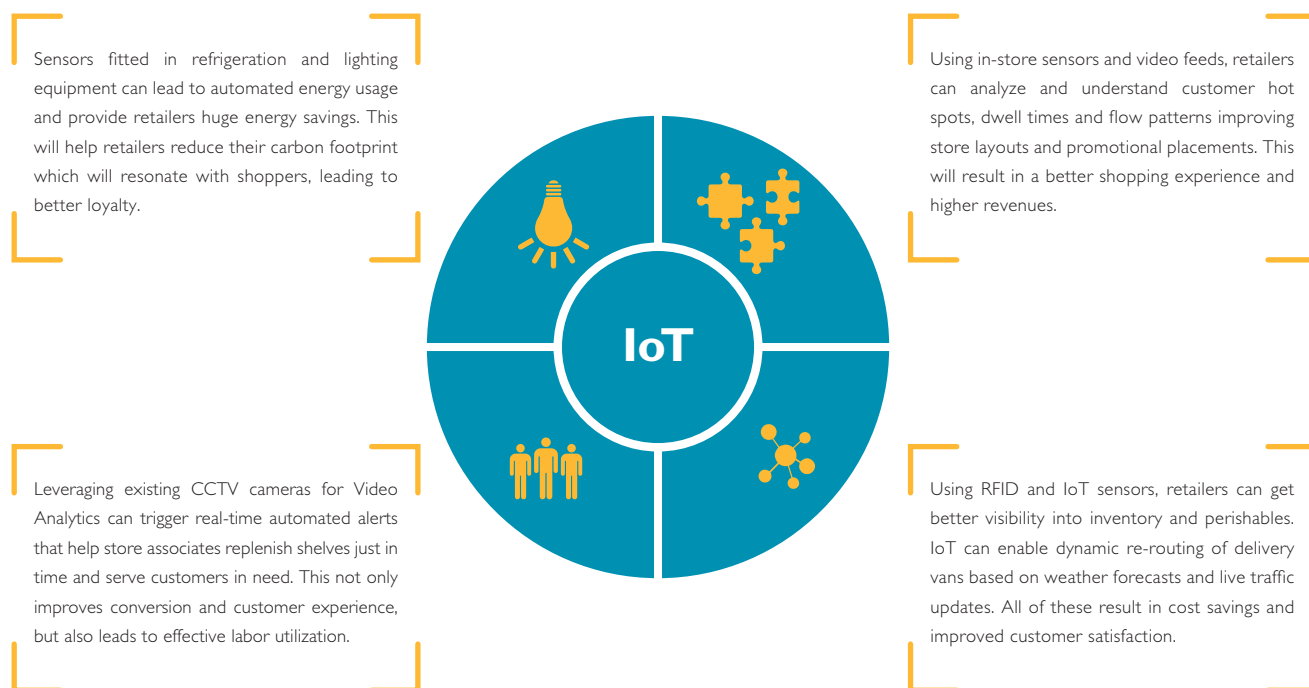
There are three foundational elements required to make IoT successful. Today, most retailers have already invested in these three initiatives.

- Cloud Infrastructure
- Big Data Analytical capabilities
- Data Security and Privacy

With the basics in place, retailers need to quickly adopt IoT to take their businesses further and gain significant first mover advantage in the industry.

What Does IoT Mean for Retailers?

There are four broad IoT application areas within retail.



To put it quite simply: IoT can help retailers reduce cost and improve revenues through smarter operations and improved shopping experience (See Figure 1).

¹Gartner Press Release, Gartner Says 4.9 Billion Connected "Things" Will Be in Use in 2015, November 11, 2014, <http://www.gartner.com/newsroom/id/2905717>

²Gartner Press Release, Gartner Says 4.9 Billion Connected "Things" Will Be in Use in 2015, November 11, 2014, <http://www.gartner.com/newsroom/id/2905717>

Smarter Operations through....

- Better inventory visibility and perishable goods monitoring
- Intelligent shelf replenishment
- Automated energy usage & monitoring
- Dynamic delivery routing
- Effective promotional placements

Better Shopping Experience through....

- Relevant Assortment
- Fresh Meat and Produce
- Food Traceability
- Improved Availability
- Customized Service

Figure 1: IoT can help retailers reduce cost and improve revenues

Getting the Strategy Right

Today when it comes to IoT, there are two questions that weigh heavily on every Retail CXO's mind:

1. How quickly can my business start to accrue the benefits of IoT?
2. How will implementing IoT impact my current business operations?

Be it better inventory and supply chain visibility or optimizing store operations, retailers must first come up with a compelling business case. This will help quantify the benefits upfront. To reap the benefits of IoT faster, retailers must reduce the cost of implementing IoT. To make IoT cost effective, retailers must leverage existing devices in stores and warehouses such as CCTV cameras, Wi-Fi and Bluetooth, in addition to installing new IoT devices and sensors.

Although one may consider IoT as a disruptive technology, for retailers it need not be about negatively disrupting today's business operations. Retailers should focus on starting small and keeping things simple, before incrementally increasing the scope and coverage of IoT (Refer Figure 3).

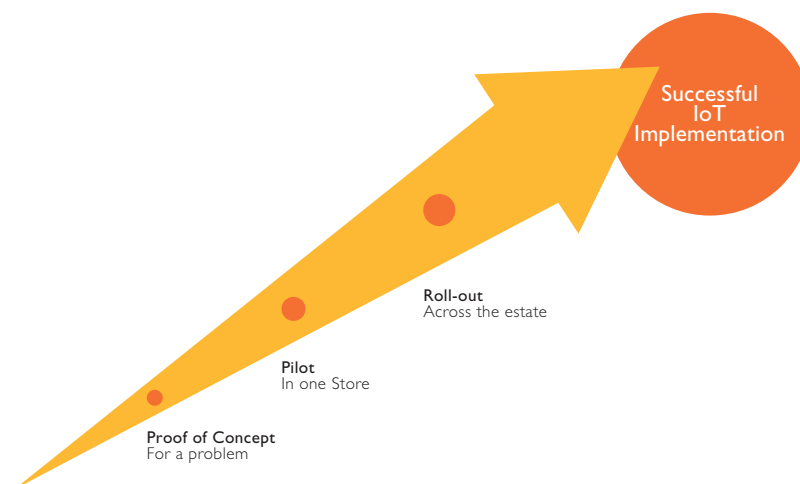


Figure 2: Incrementally increase the scope and coverage of IoT

Four Approaches to Make IoT Successful

Technological advancements in Big Data, Advanced Video Analytics, Machine Learning and Cloud Computing, coupled with the reducing size and cost of sensors and devices, will propel IoT into mainstream and make it an integral part of running a successful retail business. Here are four approaches that retailers should consider as they start their IoT journey.

1. Work collaboratively.

Avoid working in silos and partner with manufacturers and suppliers to implement IoT. This will ensure a wider coverage and better returns as everyone in the supply chain will be involved. For example, IoT can help track fresh meat and produce through the supply chain so that users know the location of their goods, expiry dates and the temperature at which the items are stored. This will help retailers get “real-time visibility” into their supply chain operations – something they have been striving to achieve for many years.



2. Target quick wins.

Identify areas that can provide the maximum returns for capital investments. A potential first could be energy management. By fitting sensors to heating, cooling and refrigeration equipment, and incorporating local weather and footfall patterns, retailers can monitor and control the usage and performance of these equipment. It is likely to provide large returns for relatively low investment as it will reduce power wastage and prevent food spoilage.



3. “Look” beyond sensors.

Consider new technologies to realize the true potential of IoT. Leveraging existing CCTV cameras for advanced video analytics will not only ensure retailers get a holistic understanding of the problem at hand, but also keep the cost of investment low and will result in providing better recommendations to customers. Advanced video analytics can be used to analyze potential stock-outs in real-time and can be used to trigger real-time alerts for in-store replenishment.



4. Address data privacy and security.

Treat data privacy and security as priority areas. As IoT becomes mainstream, households are bound to have various devices and sensors that monitor health, food consumption, etc. Ensuring data privacy and security will result in retailers getting access to valuable consumer data that may be leveraged anonymously to identify shopper patterns and behavior. Retailers must find innovative ways to use this information to provide a personalized customer experience.



As retailers start to implement IoT, they will soon begin to understand the endless possibilities and the potential for it to transform their businesses and the experiences of their customers. In order to make it successful, retailers must make all IoT initiatives customer centric – they must ask the question: “How is it going to benefit the customer?”

They Way Forward

Today, retailers are seeing complex, futuristic IoT scenarios with huge estimated benefits that change year on year, along with the number of connected devices. In addition, there is insufficient information on how to successfully implement IoT, leaving retailers both overwhelmed and confused about realizing the projected benefits. With so many uncertainties around the corner, sticking to the basics and doing the simple things right will be the best approach to move forward.

Retailers must use technology and data that will deliver the most value while keeping process changes to a minimum, without compromising data security. Working collaboratively with manufacturers and suppliers will also help retailers implement IoT end-to-end and realize benefits faster as they share their learnings with each other. When automated actions are triggered using real-time analytical insights, using data derived from IoT— that is when true innovation happens and benefits are realized.

About the Author

Kuru Subramaniam is a Managing Consultant with Wipro's Retail Domain Consulting Group and leads several business consulting engagements. He is an expert on Multi-channel Retailing, Merchandising and In-store Experience. Kuru focuses on providing Wipro's clients with innovative strategies and solutions in Internet of Things, Advanced Video Analytics and Real-time Contextual Personalization.

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