



# Redefine Retail Warehousing With Automation



**GREYORANGE**

INDIA | SINGAPORE | HONG KONG | JAPAN

# Foreword



## **Samay Kohli, CEO & CO-Founder, GreyOrange**

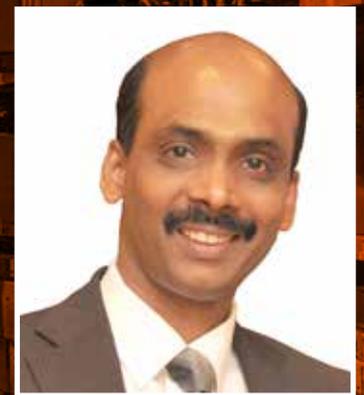
This is an exciting time for the Indian retail industry as India is one of the fastest growing retail markets in the world. However, the industry is undergoing fundamental changes mainly driven by changing consumer demographics, increasing internet penetration, rising costs, and changing regulatory environment. As offline and online retail channels converge, to manage rising customer expectations, retailers need to re-invent their supply chains to become more responsive and agile.

**GreyOrange-RAI report 'Redefine Retail Warehousing With Automation', broadly talks about the challenges Indian retailers are facing in their supply chain, specifically in distribution centers and how introducing automation can help retailers address these challenges. The report concludes with a few real-business use cases of automation in retail warehousing.**

We are privileged to work with Retail Association of India (RAI) as our partner. I thank them for their contribution and extend my hearty wishes to all those involved for their outstanding effort.

## **Kumar Rajagopalan, CEO, Retailers Association of India**

The ability of a retailer to provide a delightful customer experience today hinges on the level of supply chain augmentation. Technology has redefined various aspects of retail including supply chain. The GreyOrange-RAI report 'Redefine Retail Warehousing With Automation' is aimed at identifying and addressing real time challenges Indian retailers are facing. Automation, through technology, can certainly help retailers to fill the gaps, elevate their business and meet the demands of the 'now' customer. The question is: Is it really the answer for every retailer?



We thank our members for their time and views and GreyOrange team for their efforts and insights.

The background of the page is a photograph of a warehouse interior, showing tall metal shelving units filled with boxes. A white, curved overlay covers the right side of the image, containing the text. The lighting is warm and orange-toned.

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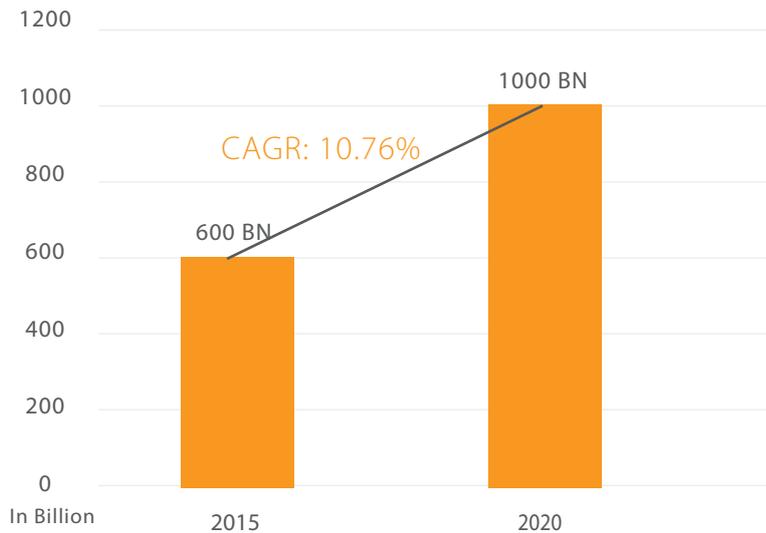
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References

# Introduction

The retail industry in India is emerging as one of the largest industries in the economy. It accounts for over 10 per cent of the country's Gross Domestic Product (GDP) and around 8 per cent of the employment.

## RETAIL MARKET SIZE



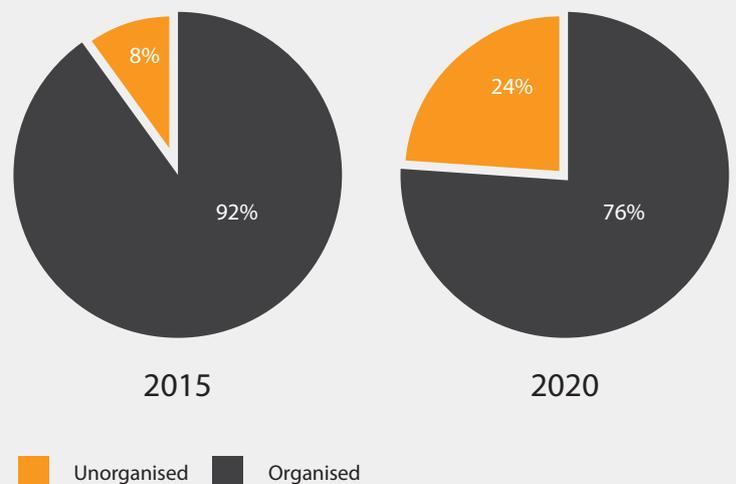
Source: RAI-BCG Report 2016

The industry is expected to reach to US\$ 1 trillion by 2020, attaining a CAGR of 10.76 per cent between 2015-2020.

India's retailing industry mostly consists of the local mom and pop store, owner manned shops and street vendors. Organised retail supermarkets are small but growing.

The retail market in India undergoing fundamental change driven by the demographic shift with more than 50% of its population below the age of 25, rising disposable income, urbanization and blurring boundaries between offline and online worlds. The retail reforms and changes in the FDI policy have opened the Indian retail market for international behemoths. With 100% FDI allowed in single-brand retail and go-ahead to start online channel without any approvals, the competition from international players to home-grown retailers has further intensified.

## Organised Vs Unorganised Retail



Source: <http://www.ibef.org/industry/retail-india.asp>

There's a growing need to reinvent the retailer's supply chain to support the changing market dynamics, specifically in warehousing with significant technological advancements happening in the automation space. Over the last two months, we met with senior supply chain leaders from leading retail organisations operating across categories such as fashion and apparel, grocery, food services, electronics, furniture and furnishings, and multi-category players. This report identifies the findings from these discussions to understand what challenges Indian retailers are facing in their supply chain. This report also discusses the key trends impacting the Indian retail industry and supply chain process in retail. The report further discusses how warehousing automation can help retailers address challenges. In the end, a couple of use cases are discussed giving overview of how retailers can address challenges using automation solutions.

## Trends in Retail

### Demand-Side

#### Smartphone Proliferation

651 MN

Smartphone users in India  
by 2019



200

MN  
New consumer  
enter India's  
middle class  
by 2020



#### Rising Income Levels

Disposable Income  
in India has risen  
30% between  
2012-2016



410 MN

People in India will  
live in a city  
by 2030



#### Internet Penetration

462 million internet  
users with

34%  
penetration



#### Young Population

Over 50% of population is under 25



Omni-Channel  
Fulfilment



Increasing awareness  
of international brands



As a retailer, having the right product in the right size at the right place is absolutely critical for us, otherwise it results in loss of sales.

- **Sumit Sharma, Chief Operating Officer, Lacoste**



### Supply-Side

Rising Labour Costs

Highly Inflationary Real Estate Costs

Increased Focus On Improving Infrastructure Including Road, Rail

Increasing Raw Material Costs

### Regulatory Environment

FDI (Foreign direct investment)

100% In Single-brand Retail

51% In Multi-brand Retail

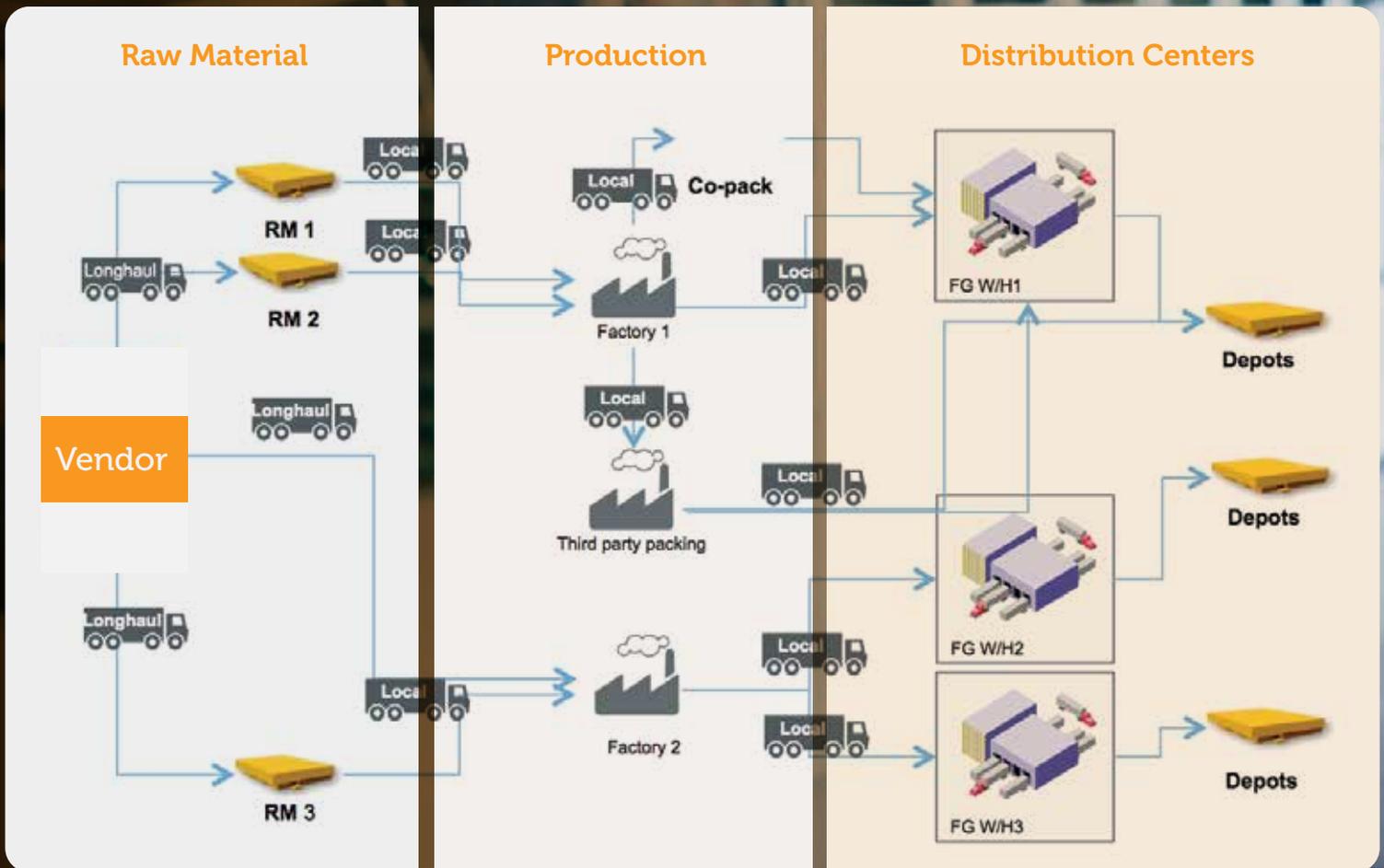
### GST (Goods And Services Tax)

Expected Implementation Of GST Will Reduce Inefficiencies In Retailers' Supply Chain



All the trends have led to highly complex supply chain and warehousing processes that have increased challenges and costs of managing supply chain for retailers.

# Typical Retail Supply chain



## Components of a typical supply chain

- **Vendor** - Supplier of raw material, semi-finished goods or finished goods
- **Factory** - Finished goods are manufactured in the factory
- **Primary Warehouse/Distribution Centre** - Finished goods are stored in this warehouse and are ready for distribution.
- **Secondary Warehouse/Depots** - Finished goods arrive at regional warehouses (through stock transfer) and are ready for sales order dispatches to distributors/stores
- **Stores** - Actual sales of finished goods happens at the store



## Scenario 1

In this case, vendors manufacture the finished goods as per the retailers specifications and supply the finished goods to the retailers (ready for sale).



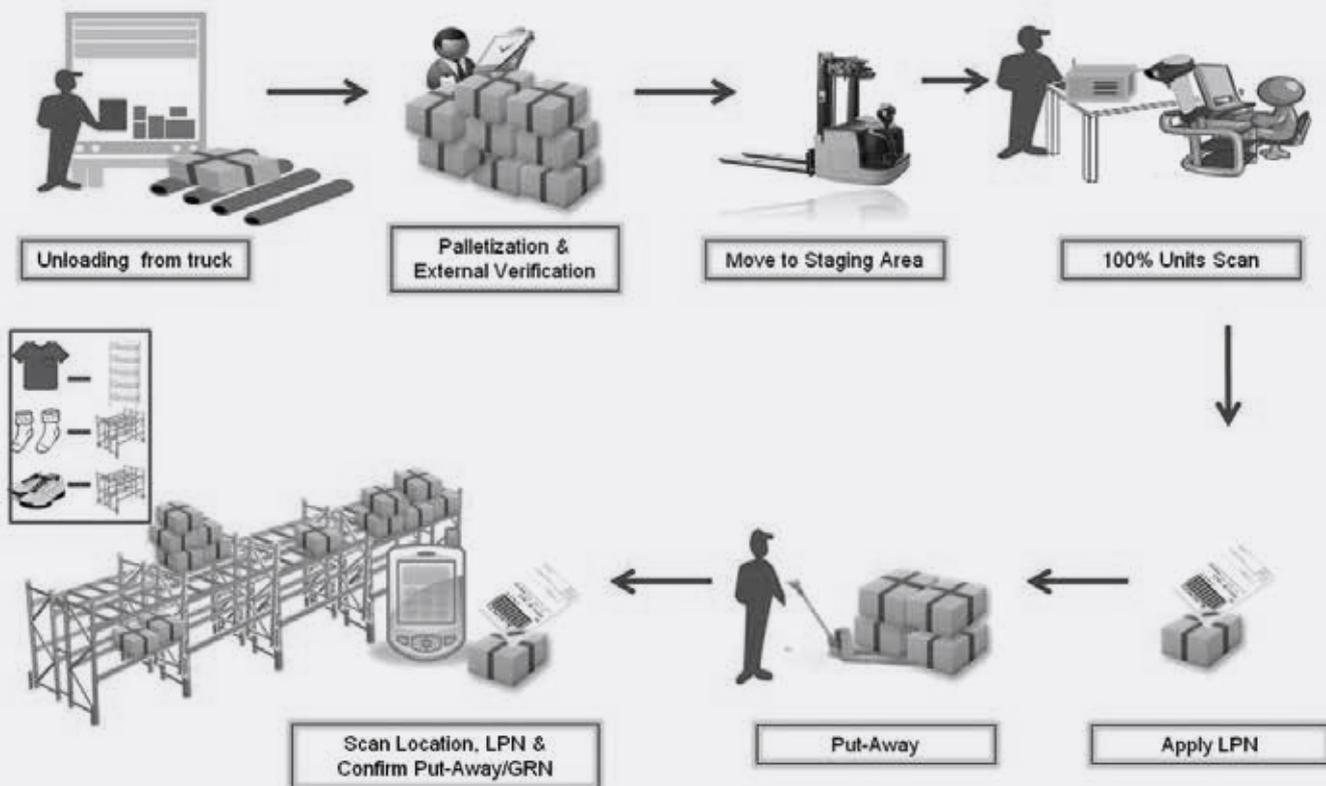
## Scenario 2

In this case, the vendors provide the raw materials for producing the finished goods to the retailers at their factory. There could be multiple vendors providing raw materials to the factory. The factories then process the raw materials and manufacture the finished goods that are ready for sale.

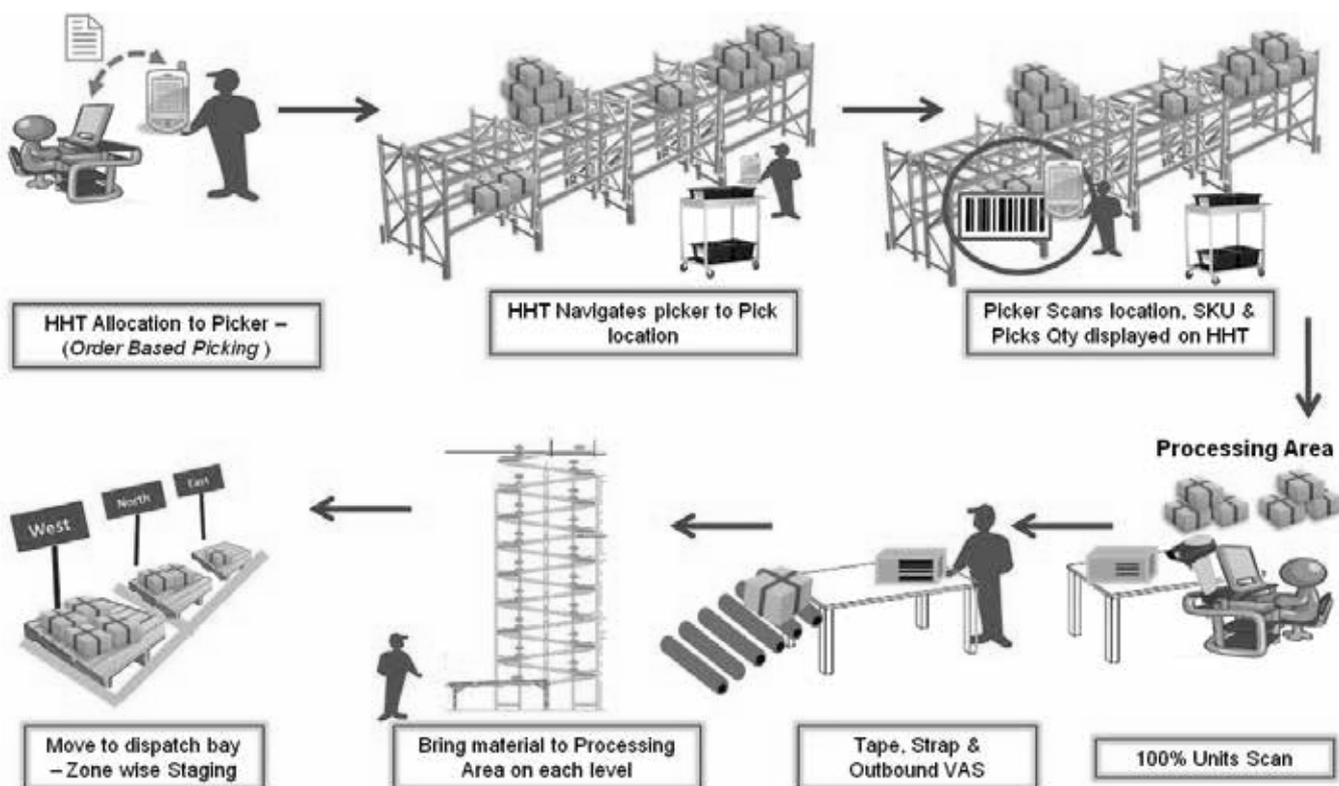


# Typical Retail Warehouse Operations

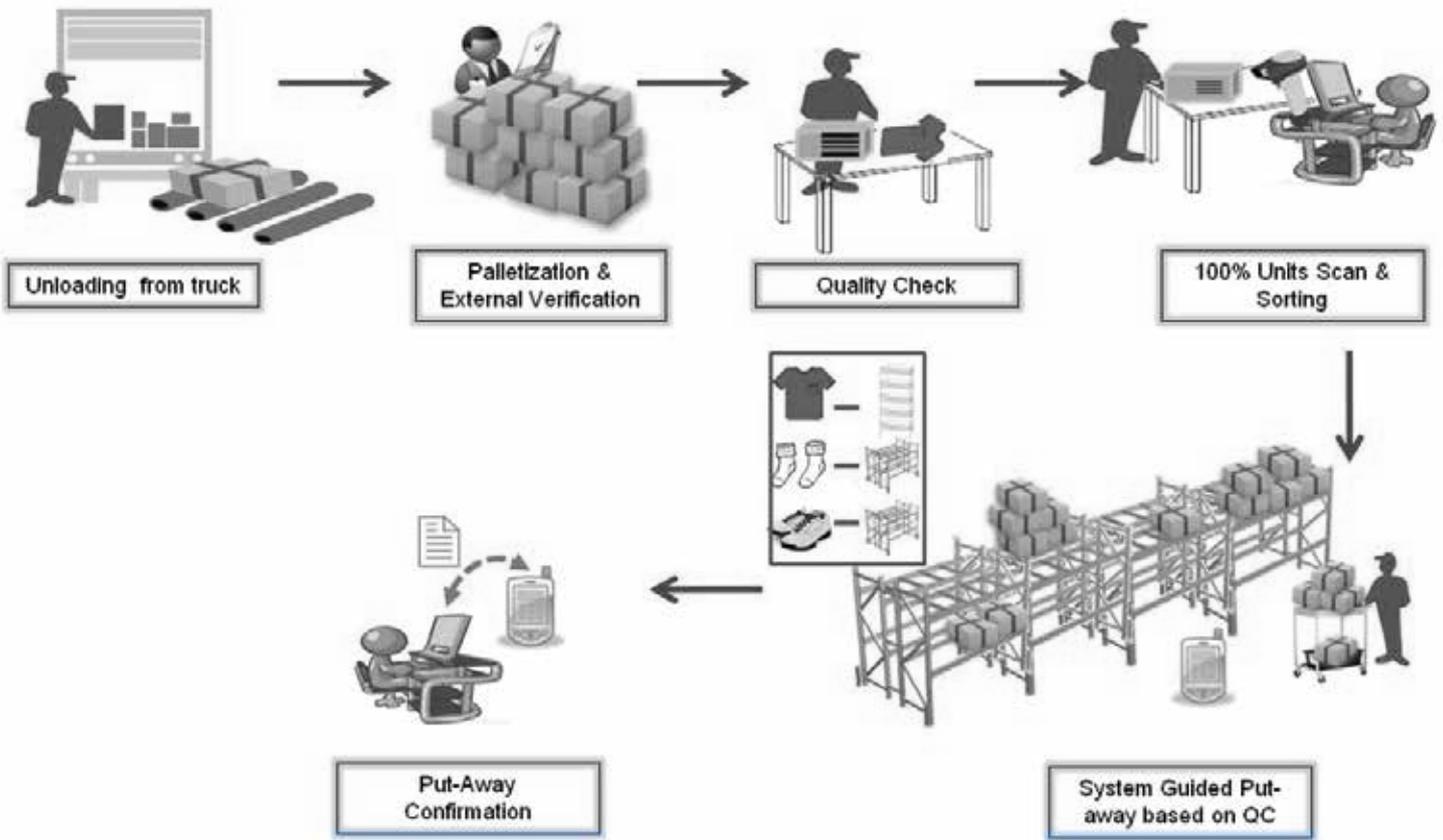
## Inbound Process



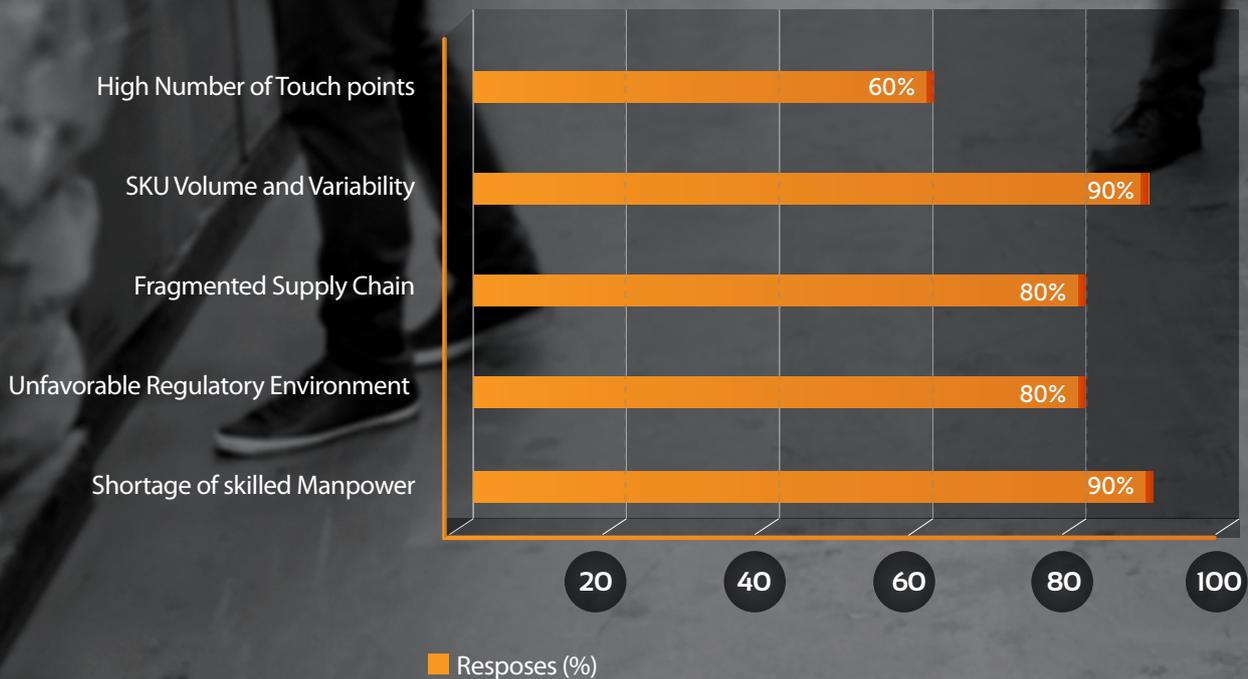
## Outbound Process



## Return Process



## Challenges in Retail Supply Chain



## Shortage of Skilled Manpower

While India is the second largest populated country in the world, shortage of skilled manpower is a big challenge for Indian retailers. The high attrition rate within the retail sector further increases problems for the retailers, as there is time and cost involved in training the manpower. The socio-cultural mindset makes a career in the retail warehouses and distribution centers an unattractive option for skilled youth. The poor working conditions within the warehouses also make it an unappealing career choice. Non-availability of niche courses and absence of institutionalized training infrastructure in retail supply chain has resulted in significant skill gap within the retail industry.



The top challenges include attrition and availability of skilled manpower and handling high volumes during peak seasons.

- **G.Kalyanasundaram - Vice President (SCM), Lifestyle International Pvt. Ltd.**

## Unfavourable Regulatory Environment

The regulatory and tax environment in India is complex and unfavorable for the retailers. Each of the 29 states in the country have their own tax rates defined, and so, as and when goods are moved between state borders, they are taxed multiple times as per the prevailing central and state tax regime, depending upon where all the goods moved through. This, in turn, also increases supply chain complexities and inefficiencies in the system, while escalating logistics and warehousing costs for retailers in India.

The proposed regulatory reforms by introduction of Goods and Services Tax (GST) aim to completely overhaul the tax structure in India and streamline the supply chain and logistics processes for retailers, though the timing for GST implementation still remains uncertain.

## Fragmented Supply Chain

The retail supply chain is highly fragmented. This leads to retailers having limited visibility over inventory and facing issues with demand forecasts and inventory management. Large number of intermediaries between manufacturers and retailers further increase complexity in managing retail supply chain. This often leads to excess inventory and stock losses, resulting in high costs of supply chain.

## SKU Volume and Variability

Most retailers have to deal with huge volumes of thousand of SKUs. Variability in SKU demand further adds to the complexity of retailers' supply chains. This leads to several challenges for the retailers including incorrect forecasts, insufficient or excessive inventory and poor customer experience due to non-availability of products at the right place at the right time. For multi-brand retailers, the problem is even more complex, requiring coordination with multiple suppliers and vendors.



Managing seasonal peaks can be a challenge in distribution management at the warehouses

- **Ranjan Sharma, Head IT and Supply Chain, Bestseller Retail India Pvt Ltd**

For a multi-brand retailer like us, number of SKUs is really large and the SKUs itself keep on changing and that makes it all the more complex.

- **Yakeen Gazi, Sr. V.P. - IT & Logistics - Hypercity Retail (India) Ltd**



## High Number of Touchpoints

Retailers' supply chain is a complex one with many intermediaries, resulting in high number of touchpoints. Each touchpoint means increased human intervention leading to increased wait time, pilferage, stock losses and inventory wastage. Supply chain automation reduces the possible number of touchpoints. It not only accelerates delivery of product to the retail store and to consumers, but also helps in reducing pilferage and picking errors in the supply chain.



## Challenges for Big Box retailers

The changes in the FDI policy have opened up retail market in India to many international retail brands. Large number of big box retailers with successful international operations have launched or are in the process of launching operations in India. They face some unique set of challenges, while setting up their stores here. IKEA is one such leading big box retailer. The IKEA Group is the first major single brand retailer to be given FDI approval to set up retail operations in India and is in the process of setting up their stores.



IKEA is obsessed with creating low prices and to be affordable for the many people. Being a single brand big format retailer that produces products globally in many countries, adding labels with country-specific requirements (eg. MRPs) manually adds to costs and is a challenge operationally and interrupts our global supply chain. Another challenge driving unnecessary cost is non-streamlined processes requiring lot of paperwork/documentation.

- **Bimal Patel** - *Distribution Establishment Manager - India, IKEA*



This requires major changes at policy level with intervention from industry bodies such as RAI and government organisations.

# How Automation will Help

## Handling Large Number of SKUs and Orders

Handling a large number of SKUs and orders is typically a manual process that requires large workforce within the warehouse premises. Absenteeism, attrition, labour unions and shortage of skilled manpower can hamper such operations, leading to shortages, put-away/picking errors and loss of profit arising from incomplete orders. Automation helps in managing large number of SKUs and fulfilling multiple orders simultaneously.

## Cutting-Down Touch Points and Picking Errors

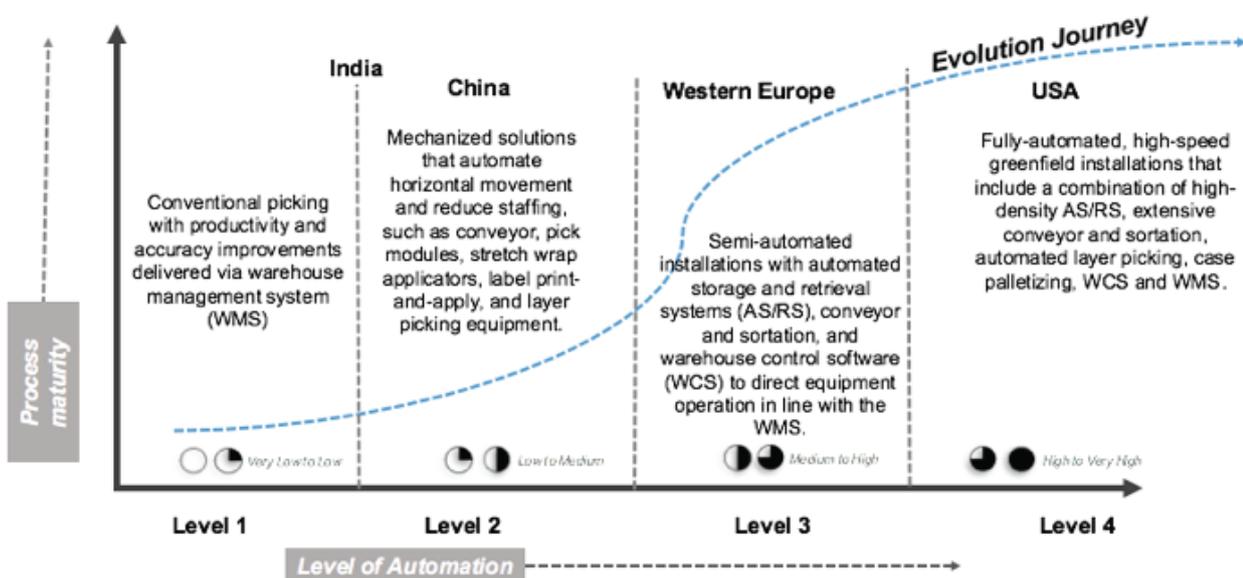
A manual warehousing operation has large number of touchpoints, and therefore, is prone to picking errors. By adding automation, the number of touch points can be reduced with less manual intervention, thereby, reducing picking errors.



One of the key challenges facing the retail supply industry is multiple touch points and handling which affects the freshness of the end-product.  
 - Nitin Agarwal, Head - Strategy and Planning, Arvind Brands Ltd.



India's retail supply chain is currently in between level 1 & 2 of automation and is expected to follow footsteps of the mature economies.



GreyOrange - Zinnov Study

“

The availability of skilled manpower is one of the key challenges the warehouse industry faces.

- *Gurpreet Sandhu, Head - Supply Chain & Replenishment, Aditya Birla Retail Limited*

”

### Increase Warehouse Efficiency

Automation helps increase the overall efficiency of the warehouse by ensuring all processes are system directed. It also enables carrying out of simultaneous tasks, while streamlining the processes inside a warehouse.

### Improve Manpower Productivity

Automation enables existing manpower to handle multiple orders efficiently thus increasing their productivity. Since all processes are system directed, highly trained manpower is not required to manage the automated processes.

### Dynamically Managing Changing Requirements

In a traditional warehouse, storage spaces are usually static and change in the configuration of the storage can lead to a complete change in warehouse zoning and in backend systems. Automation can help store goods dynamically which are managed by mobile units and a Warehouse Control System (WCS), making it easier to handle dynamically changing requirements that are typical to a retail operation.

### Reducing Warehouse Footprint

Automation helps make the storage space more efficient by better allocation of space, denser storage and lesser aisle space. It also helps manage inventory more efficiently and therefore, helps in reducing the days of inventory stored in a warehouse.

### Shortening Order Fulfilment Time

Automation can help handle multiple orders thus reducing the window of order handling and order fulfilment time and helping the warehouse increase throughput. With GST just around the corner, warehouses will typically handle a large number of orders and this can be enabled by leveraging automation.

# Automation Use Cases

## Use Case 1

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Helping a retailer with a large number of mixed SKU cartons sort units based on SKU for putaway into shelving locations.

### Typical Warehouse Profile

- **Size:** 1,00,000 sq.ft.
- **Number of Shifts:** 2 x 8 Hours
- **Put Away:** SKU-Based
- **Inbound:** Cases having multiple SKUs per case
- **Inbound Throughput:** Over 50,000 units per day
- **Mode of transportation:** FTL/LTL each having cases received from multiple vendors
- **Number of SKUs received per inbound shipment:** Approx. 200 SKUs

### Complexities

- Each case received from a vendor can contain multiple SKUs
- All units in a case have to be counted individually and sorted as per SKUs
- Only after all the units have been sorted based on SKUs can they be put away in the storage area
- This process typically requires a large number of manpower to sort the inbound shipment as per SKUs
- Due to the large number of units being handled daily, this operation is prone to errors
- Time taken for segregation can be large, stretching the time taken for warehouse operation and this gets amplified during the peaks

## How Automation Can Help - Using a Sortation Solution

- Sortation of the inbound system can be handled by primary and secondary sortation reducing manpower and time taken for the sortation process
- Since SKU profiles will change with inbounds received from different vendors, the system can be designed to be dynamic ensuring the same system can handle a large number of SKUs
- The system can also capture the weight and volume of the units handled which can later be used to ensure order is correctly picked for dispatch to stores or end-customers
- The system can handle the unit counting process which can be used to confirm the units received from the vendor so that the invoice can be confirmed accordingly

## Use Case 2

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Helping a retailer with a large number of SKUs with unit level orders management.

### Typical Warehouse Profile

- **Size:** 12000 sq.ft
- **Storage Type:** Bins
- **Manpower:** Highly skilled manpower required to do order processing
- **Average Throughput:** 4000 units per day
- **Number of SKUs:** 10000+

### Complexities

- High dependency on skilled manpower
- High variation in throughput
- Visibility and traceability of inventory
- Human-intensive audit process
- Space optimization (storage density)

### How Automation Can Help - Using a Goods-to-Person Solution

- Configurable pick-put stations and higher order picking rate in managing high throughput
- Achieve reduction in manpower by up to 50% using the goods-to-person automation system
- Reduce pilferage and stock losses with on-demand inventory audit through the put to light stations; no additional resources required
- Gain complete visibility of inventory within the warehouse
- Modular MSUs configuration to handle a variety of SKU types
- Scalable and flexible solution to increase storage or throughput dynamically to handle projected growths
- Visual-aided picking for a dumb proof process, resulting in reduction in picking errors

## Use Case 3

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Conversion of a push-based demand model to a pull-based demand model for better forecasting and control over inventory and for reducing supply chain costs.

### Typical Warehouse Profile

- **Size:** 50000 Sq.Ft
- **Number of SKUs:** 15000+
- **Storage:** Shelving
- **Throughput:** 50000 units per day
- **Outbound:** Cases + Units

### Complexities

#### Finished Goods Supply Network

- Duplication of inventory at JITs
- Increased touch points on finished goods
- Lesser control over inventory in central warehouse (inventory pushed to JITs)
- Dedicated temperature controlled areas in JITs (increased operational cost)

## How Automation Can Help - Automation Enabled Pull-Based Supply Chain Network

- Use of a goods-to-person system to automate the warehouse handling process in the centralized warehouse
- Centralized warehouse to segregate orders retailer-wise and then, ship orders directly to the distributors
- Distributor depots/JITs will only serve as cross-dock warehouses and will not hold any inventory

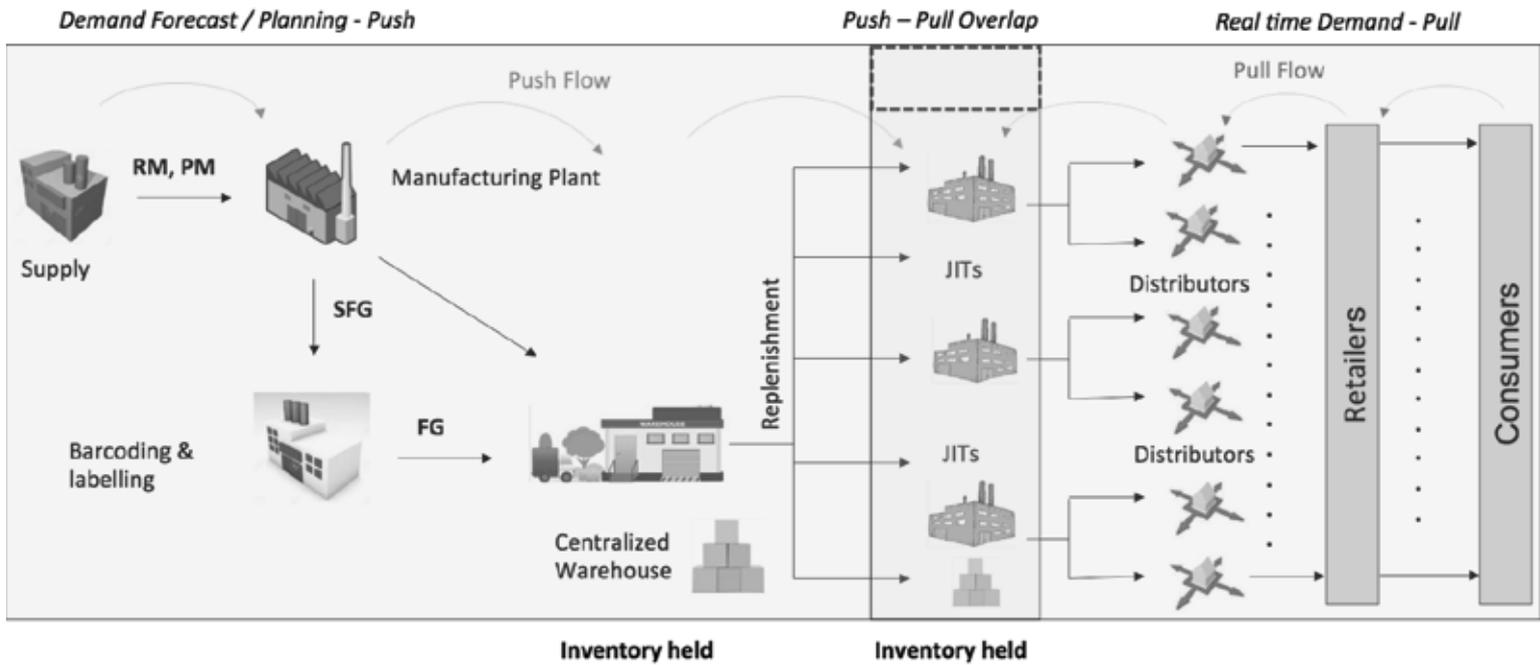


With the advent of e-commerce, the only way forward to process a high volume of orders is to implement automation in the warehouses using modern sortation systems.

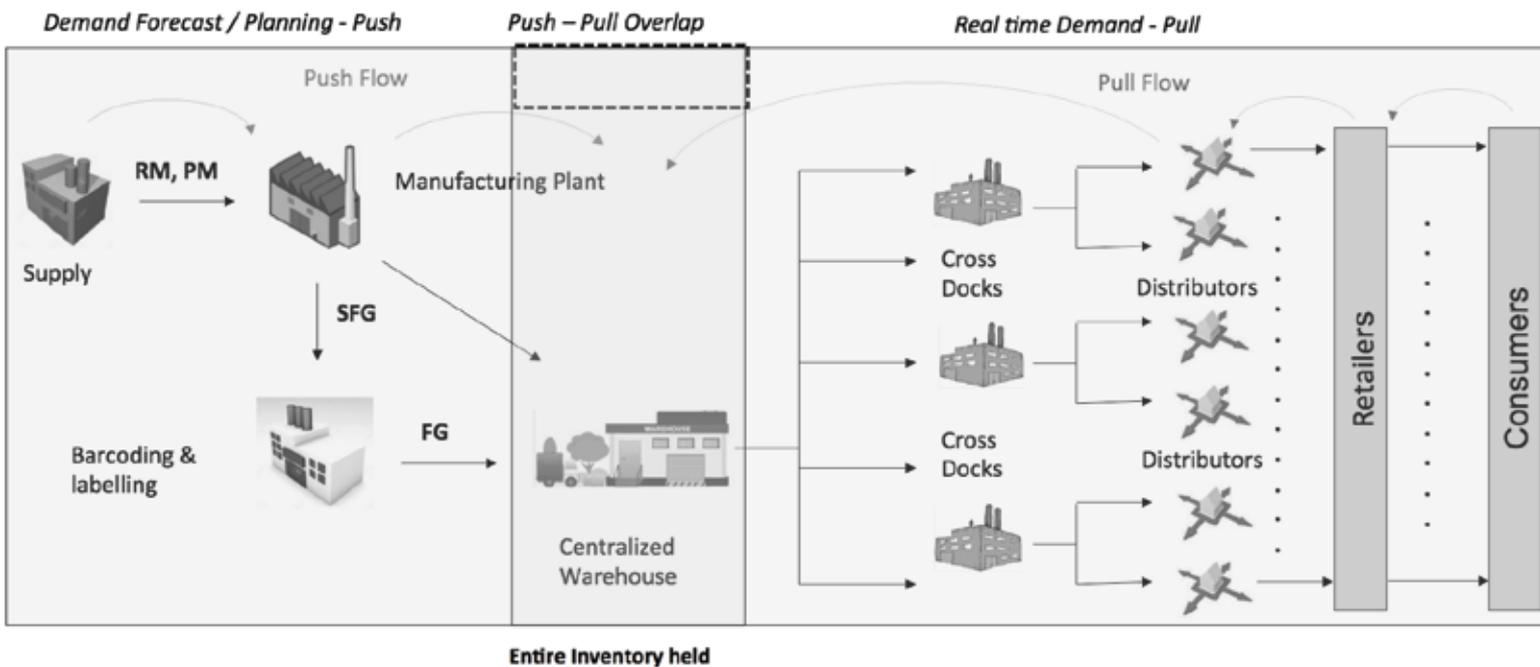
- Devdas Nair, Head - Logistics & SCM, Shoppers Stop



## Current Finished Goods Supply Network:



## Proposed Finished Goods Supply Network:



Use case 3 : Conversion of push-based demand model to pull-based demand model.

# Complexities Involved in Automation



## Lack of Awareness

Low awareness of available automation solutions is one of the primary reasons for poor automation adoption within retail supply chain industry in India. There is a strong need for companies like Grey Orange to invest in online and offline marketing channels to create awareness of such solutions and how automation solutions can help retailers overcome supply chain and warehousing challenges for retailers. Automation of repetitive tasks in warehouse allows managers and operators to focus on more complex, value-driven tasks that help organizations meet their business objective.

## Change Management

Changing people's mindset and driving them to use automation is another big challenge in adopting supply chain automation in the Indian retail industry. Many organisations face resistance from current employees, who think automation would take away their jobs. Technological change and automation solutions also bring along the cultural shift that requires people to change the way they work and train themselves to use new processes. The management needs to make the staff aware of the benefits of automation and how automation will help them overcome some their challenges.

## Return on Investment (ROI)

RoI is the most critical parameter for organisations to decide whether to go for automation. Without a compelling RoI, organisations are reluctant to invest in automation. The executives expect a payback period of less than 24-36 months for warehouse automation.

## Inflexible and Non-Expandable

Most retail organisations think that warehouse automation solutions are not scalable to support the business growth. Automation once installed in a warehouse remains fixed and cannot change dynamically, as the business requirements change. Also, automation is not flexible to support peaks in demand. However, it's a myth. Automation technologies available today are agile and scalable to meet the future demands of organisations.

## The GreyOrange Advantage

- In-house development of both hardware and software
  - Modular architecture to scale-up as per the changing customer requirements
  - 24x7 global customer support
- 

## About GreyOrange

GreyOrange is a multinational robotics firm that designs, manufactures and deploys advanced robotics systems for automation at warehouses, distribution and fulfilment centers. With deep domain expertise, world class hardware and software engineering and the passion to solve real life business problems, the company is disrupting the way logistics and supply chain processes across the world are being optimized. Founded in 2011, GreyOrange has grown rapidly from a two-man team, and today boasts of 400+ employees. Over 35% of its employees work in the state-of-the-art Research and Development centre in Gurgaon, India. GreyOrange is headquartered in Singapore with offices in India, Hong Kong and Japan, providing 24x7 customer support globally.

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## About Retailers Association of India

Retailers Association of India (RAI) is the unified voice of Indian retailers. RAI works with all the stakeholders for creating the right environment for the growth of the modern retail industry in India. It is a strong advocate for retailing in India and works with all levels of government and stakeholders with the aim to support employment growth and career opportunities in retail, to promote and sustain retail investments in communities from coast-to-coast, and to enhance consumer choice and industry competitiveness.

<http://www.rai.net.in>

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## Some of companies we interviewed

- IKEA
- Hypercity
- Arvind Brands Ltd.
- Lifestyle International Pvt. Ltd.
- Lacoste
- Bestseller Retail India Pvt. Ltd.
- Aditya Birla - More

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