

RFID & Analytics Driving Agility in Apparel Supply Chain



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Traditional mass-apparel supply chain is a lengthy process from design to retail

Design



6+ months

Production



3+ months

Logistics & Distribution



2+ months

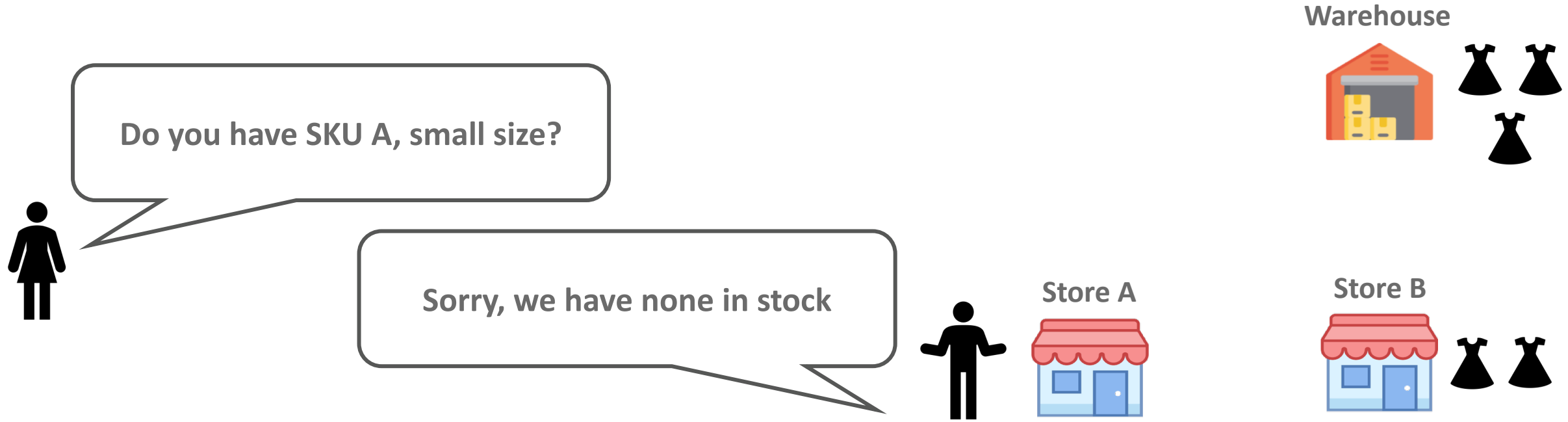
Retail



3+ months

But there is a problem...

Today's customers want products whenever and wherever they want



Consumers expect today's supply chain to be **AGILE** – it needs better **VISIBILITY**, **SPEED** and **FLEXIBILITY**

Sponsor's pilot to explore RFID's value



Research Question

In the traditional mass apparel industry, how can RFID create value by improving **AGILITY through increased **VISIBILITY**, **SPEED** and **FLEXIBILITY**?**

Hypothesis : Role of RFID driven advanced analytics

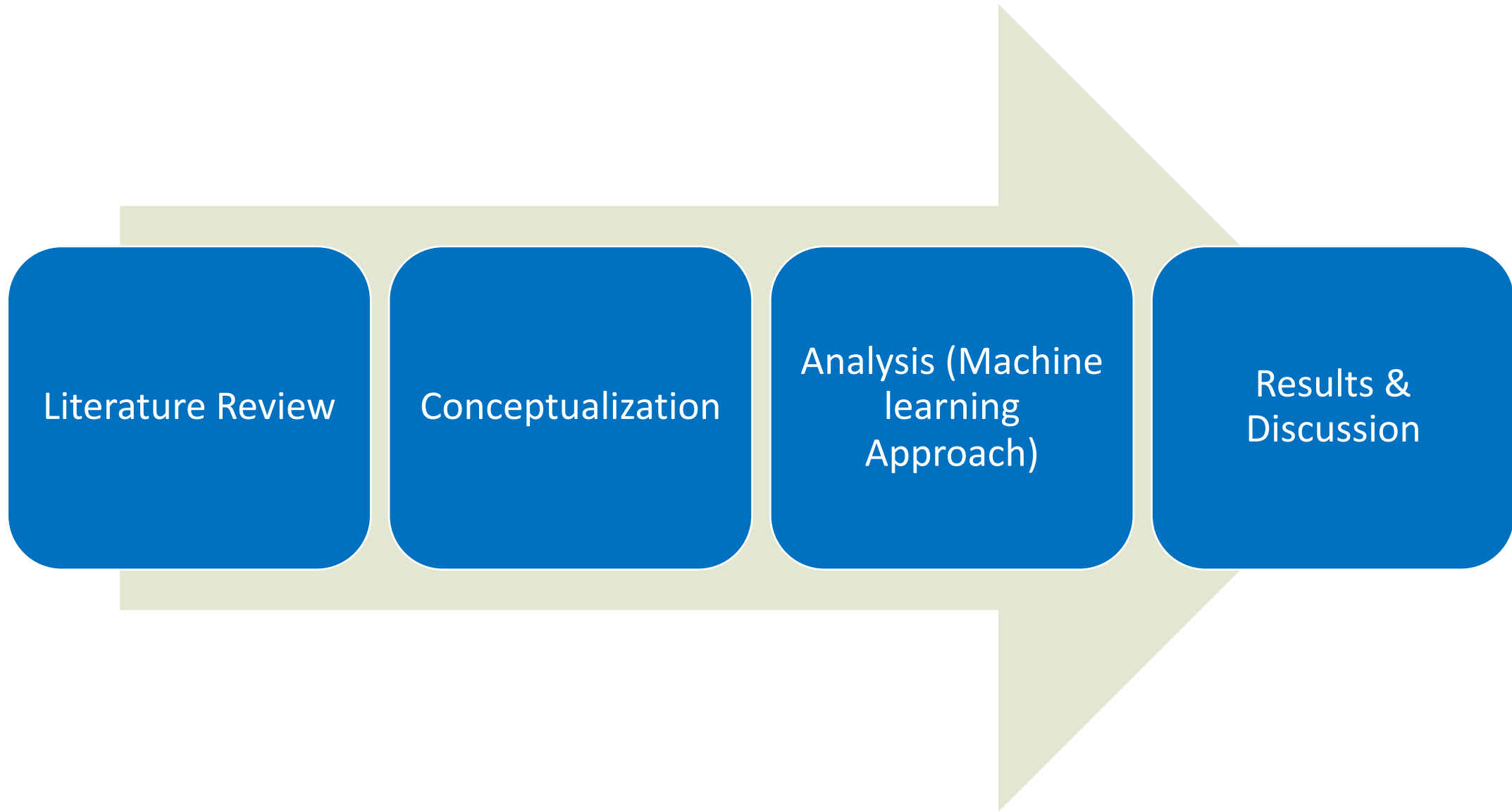
H1. Logistics & Distribution:

SKUs have different supply chain flow characteristics, RFID supported analytics help to identify right policies

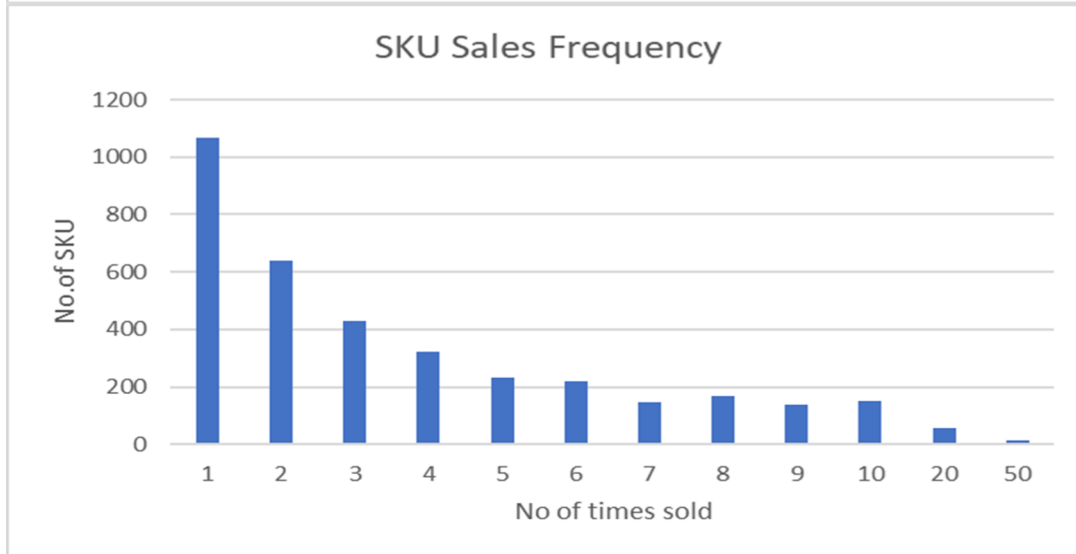
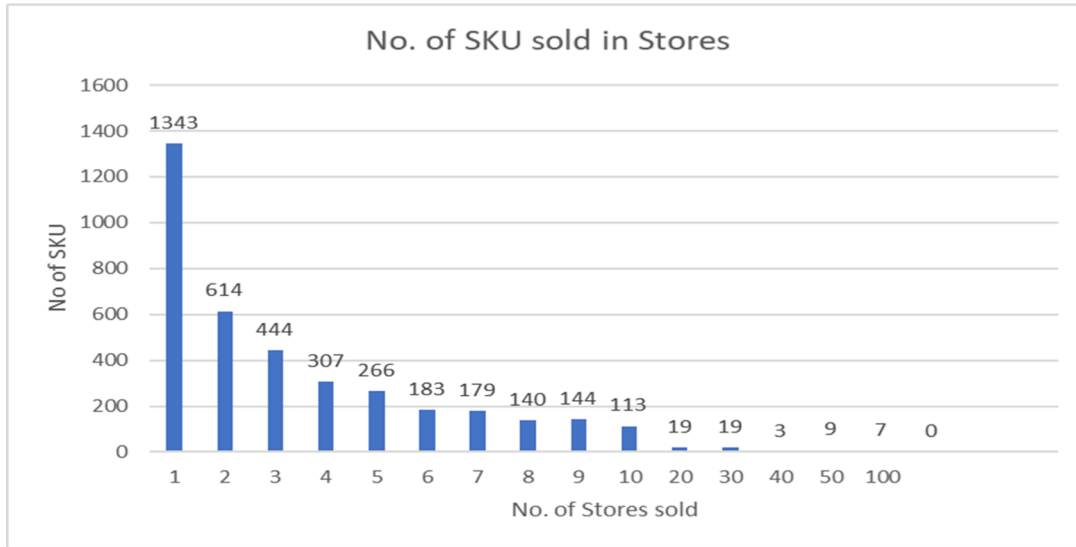
H2. Retail:

Increased visibility will enable better flexibility in meeting consumer requirements both in the retail and online channels

Our Methodology



Initial data analysis showed SKUs with different flow characteristics



Extracting relevant variables for cluster analysis

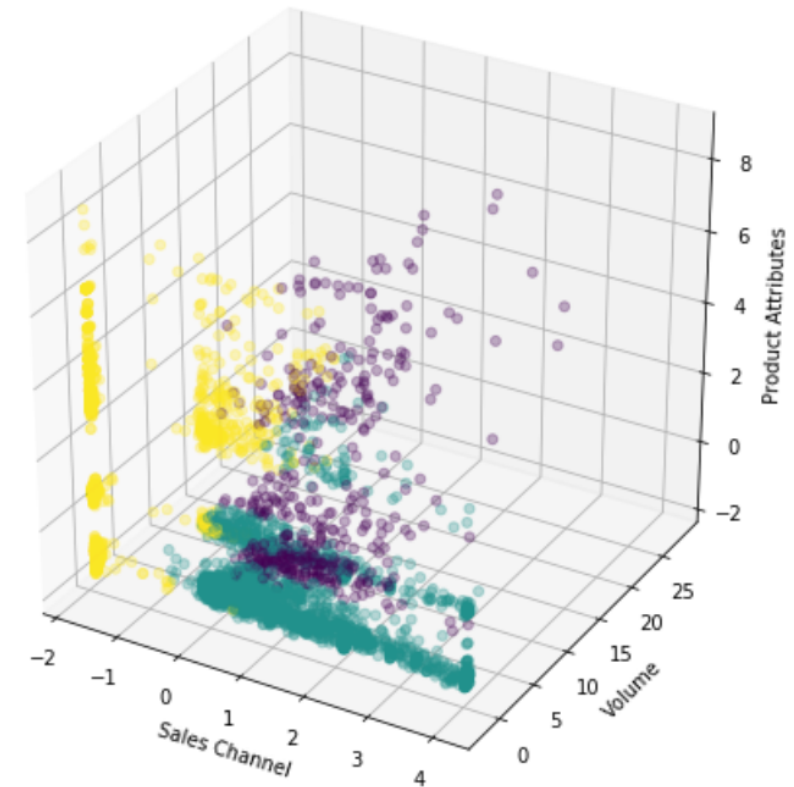
Sales Flow Density	Sales Variability	Lead Time	Product Attributes
Total_volume	Demand_variability	Average_Sales_interval	Collection_Season
Singlesday_Sales_Volume	Sales_variability_Store	Average_interval_online	Category
Volume_store	Sales_variability_online	Average_interval_store	Gender
Store_Singlesday_Volume		Sales_frequency_total	List_price
Percent_sales_online		Sales_frequency_online	Collection_year
Volume_online		Sales_frequency_store	
Percent_Singlesday_online			
Online_Singlesday_volume			
Return_total			
Return_volume_online			
Return_volume_store			
cities_sold_online			
cities_sold_store			
stores_sold			
Percentage_promo_total			
Percentage_promo_online			
Percentage_promo_store			

Final factors used for cluster analysis:

- Volume**
- Variability**
- Sales Channel**
- Product Attributes**

K-Means cluster – Identified 3 clusters with different supply chain characteristics

Cluster	Cluster Characteristics
Fast moving omnichannel	<ul style="list-style-type: none">• High sales volume and low weekly sales variability• Sold through multiple channels• Moderate to high price range
Online longtail	<ul style="list-style-type: none">• Low sales volume and moderate weekly sales variability• Sold through online channels primarily• Low price range
Retail longtail	<ul style="list-style-type: none">• Low sales volume and high weekly sales variability• Sold through offline channels primarily• Low to moderate price range



Different clusters requires different execution focus to increase agility in the logistics & distribution stage

Fast moving omnichannel

- Focus on reducing daily inventory record inaccuracy across different nodes in supply chain



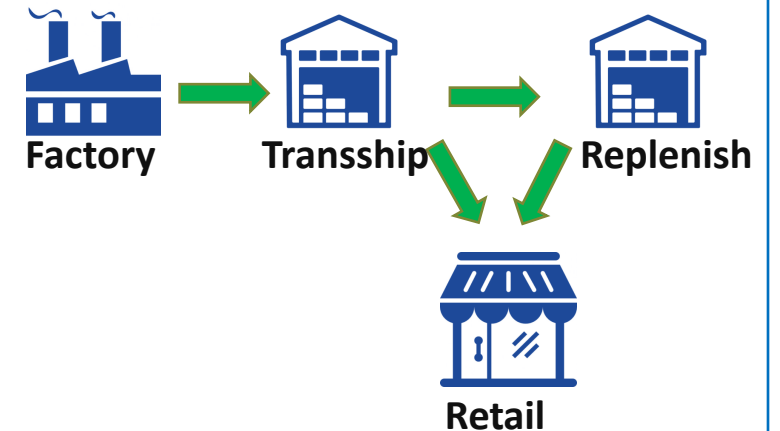
Online longtail

- Focus on optimizing product exposure lead time and reducing order fulfillment lead time



Retail longtail

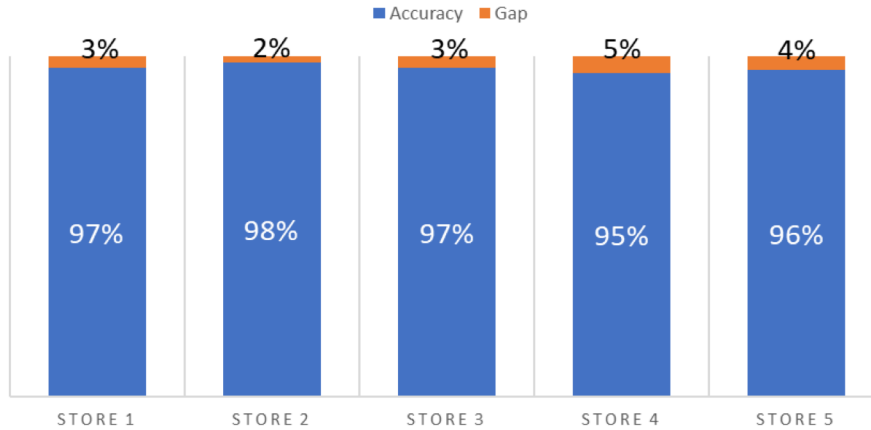
- Focus on initial allocation, replenishment and rebalancing model



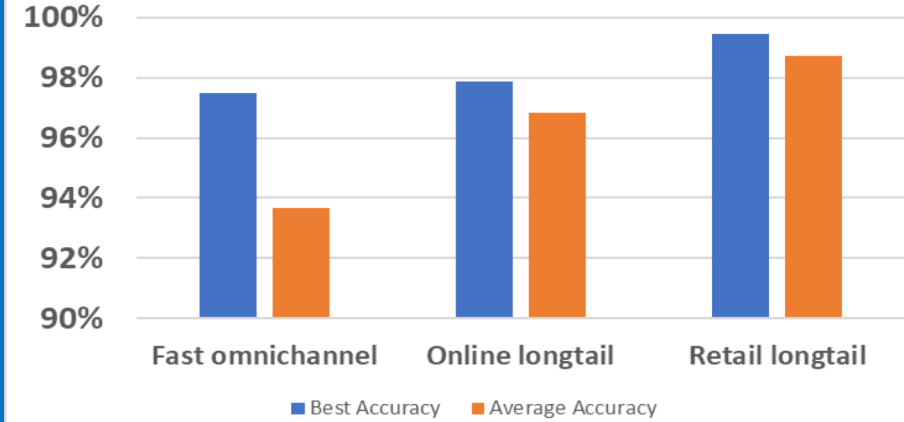
RFID system and enabled analytics offer multiple levers to improve store performance

Inventory Performance in Store

AVERAGE SYSTEM INVENTORY ACCURACY

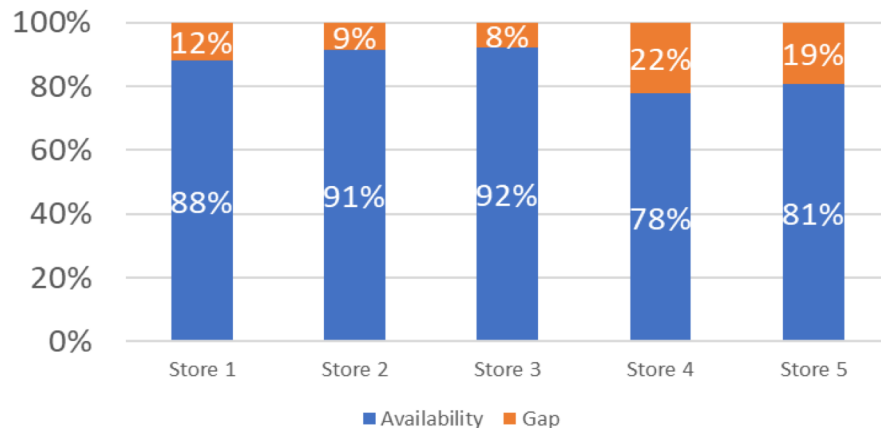


CLUSTERWISE SYSTEM INVENTORY ACCURACY

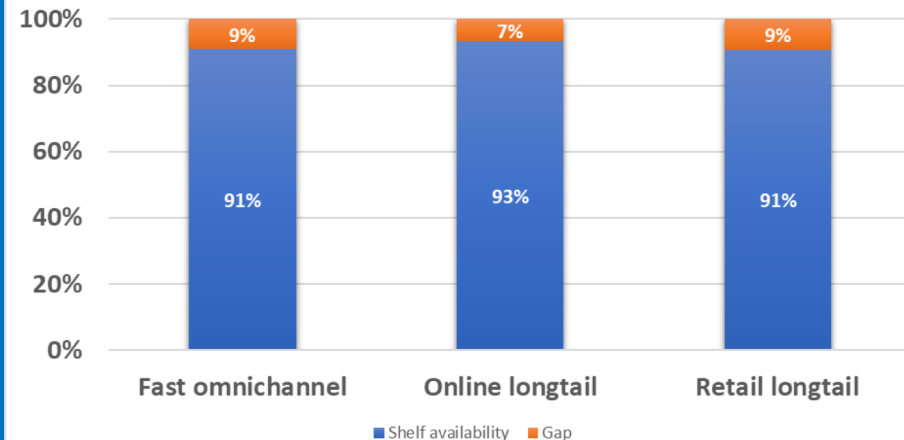


On shelf availability in store

STOREWISE ONSHELF AVAILABILITY



CLUSTERWISE ONSHELF AVAILABILITY



RFID driven analytics offers value to all stakeholders

RFID Enabled Initiatives	Value for Different Stakeholder			
	Logistics & Distribution		Store	
	Speed	Flexibility	Speed	Flexibility
Inventory Management	●	◐	●	●
Replenishment & Order Fulfillment	●	●	◐	◐
Shelf Availability and Exposure	○	○	●	●

Key Insights:

- RFID Stock take time in store reduced from 32 to 1 man-hours
- Stock-out scenario reduced from 3% to 0.5%
- Oversold inventory reduced from 2% to 0.1%
- Potential sales gain is 1.5%

Q & A