



SMART RETAIL SOLUTIONS

DISC Team @ IDC
DECEMBER 2019





PACTERA IS A **GLOBAL TECHNOLOGY**
SERVICES COMPANY THAT DESIGNS,
BUILDS AND OPTIMIZES **DIGITAL**
APPLICATIONS, PRODUCTS
AND PLATFORMS.

FACTS + FIGURES

33

Global
Offices

30k+

Employees

100+

Fortune 500
Clients



REPRESENTATIVE CLIENTS ACROSS THE GLOBE

NORTH AMERICA & EUROPE



CPG, Retail + Logistics



CHINA

南瑞 NARI



ASIA PACIFIC



BFSI



Tech



Telco



Manufacturing



Travel + Hospitality



PACKTERA SMART RETAIL & CPG - POV

THE CHANGING WORLD OF RETAIL

The Retail Apocalypse Continues

12,000

Store closures projected in 2018

50%

Of shopping malls projected
to close by 2023

Getting In-Store Experiences Right is Critical

90%

Of sales still made in-store

+29%

Purchases by shoppers who had access to both
online and nearby
brick-and-mortar stores

What if you could:

- Gain in-store insights about customer dwell time, behavior and preferences that rivals your online store analytics
- Alert associates to long lines, as well as customers spending time near high-value items to increase purchases
- Provide end-to-end personalized services for returning customers and VIPs
- Recognize returning offenders on entry to reduce loss and disruption
- Alert security to intrusions and thefts to proactively address security or safety issues

PACTERA SMART RETAIL SOLUTION USE CASES

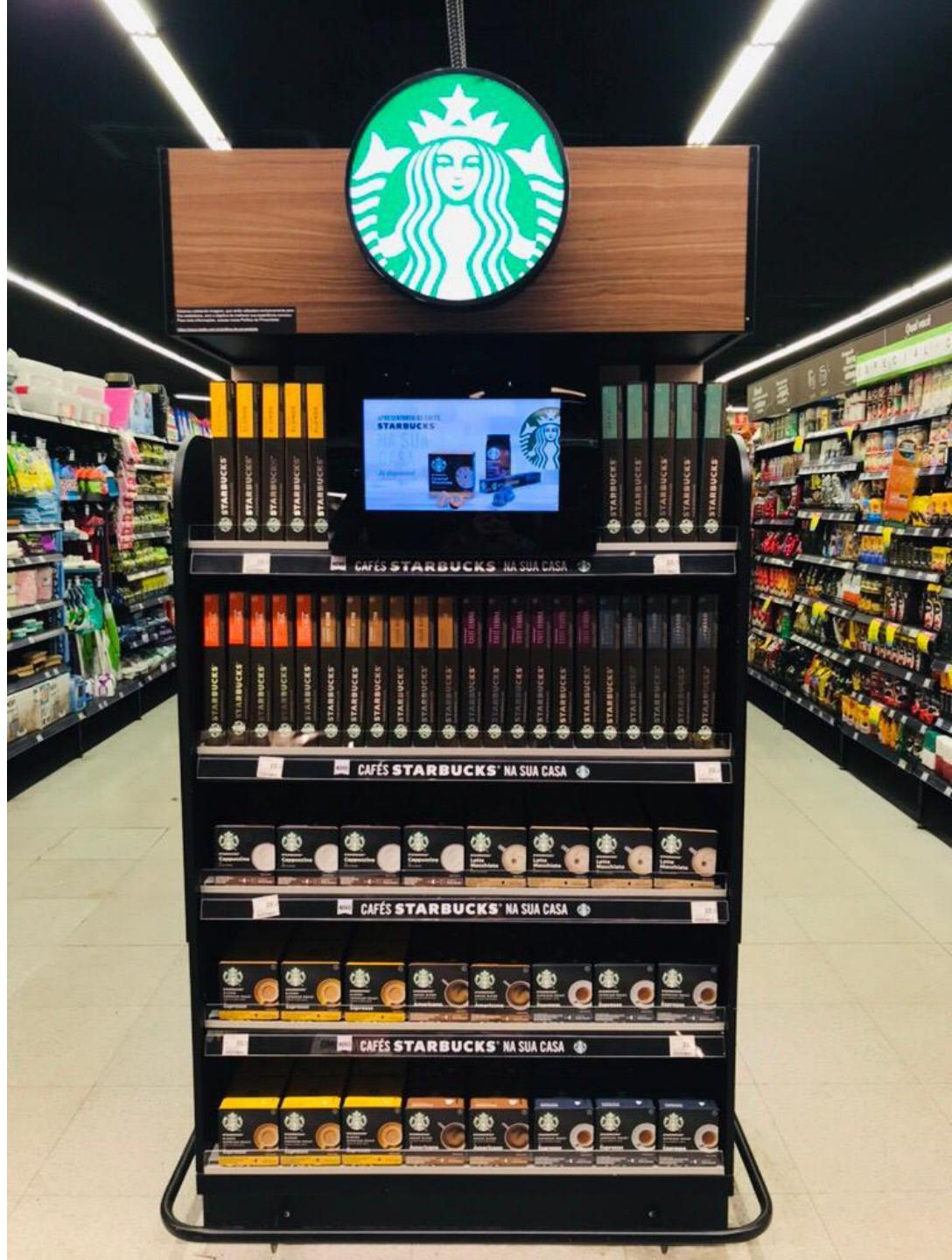
Store Optimization-SRSO	Loyalty Program Management-SRLP	Security Intelligence-SRSI
Store space optimisation	Loyalty Reward Program and Benefits	Intrusion Detection
Assortment Optimisation		Object Detection
Smart Shelves	Operational Insights-SROI	Theft Detection
Customer Insights-SRCI	Staff Scheduling	Supply Chain Insights-SRSCI
Traffic Count Analytics	Spilling/ Damage Detection	Warehouse and Logistics
Intelligent Behavioural Analytics	Aisle Blocking/Crowd Detection	Supply chain Intelligence
Performance Analytics	Queue Detection	
	Demand Forecasting	
	Sales/Revenue Insights	

STORE OPTIMISATION- SRSO

CHALLENGE: UTILIZING STORE SPACE

Often Retailers face challenges in utilizing store space judiciously .This leads them to failing at the following:

- Efficient stocking and selling of products to the customer
- Alleviate the heavy demands of limited retail space
- Promote a hassle-free customer shopping experience
- Attracting shoppers into the inner store space
- Enhancing the productivity of retail staff



SOLUTION: STORE SPACE OPTIMISATION

- **Store Space Planning(SRSO1):**Using AI/Analytics platforms using relevant store data space optimisation & merchandising can be achieved leading to better space for customers and staff making them feel at home .
- **Instore Navigation(SRSO2):**Application guiding customers and staff through the store space .Large store spaces need navigation for movement .Store mapping and proper navigation increases staff efficiency.
- **Product Placement(SRSO3):**Efficient merchandizing and right product placement with respect to relevant aisles can ease the customer journey and increase basket size.



CHALLENGE: ASSORTMENT MANAGEMENT FOR RETAIL PRODUCTS

- Increasing inventory service levels and customizing assortments and store layouts
- Maximizing profit and ROI from every product carried
- Unrecognizable fact-based, profitable product selection
- Inefficient category space allocation and inventory investment decisions
- Ineffective communication and execution of category strategy into stores



SOLUTION: ASSORTMENT OPTIMIZATION FOR CATEGORIES

- **Product Combination/Product Pairing(SRSO4)** :Using Analytics and BI through structured store data product combo can be identified and which pairings works for the customers and increases efficiency can be highlighted .
- **Product Movement(SRSO5)** :How products are moving and what are the customer choices regarding each products so that insights can be derived about profit/loss making categories.
- **Stock status monitoring(SRSO6)** through various analytics technologies for quick replenishment and valuable structured insights



SMART SHELVES

CHALLENGE: STOCK OUT(SRS07)

- It's rare for an online store to run out of stock. Even when shoppers visit a physical store, they carry this availability expectation. Disappointing for a shopper when an item is physically unavailable.
- Maintaining fully replenished shelves requires a constant surplus of products at hand, which is inefficient and costly.

Smart shelves offer a solution avoiding stock outs, which are the primary concern of 25% of retailer CEOs, according to a study by PWC (CEO viewpoint 2017: the transformation of retail).



THE SOLUTION

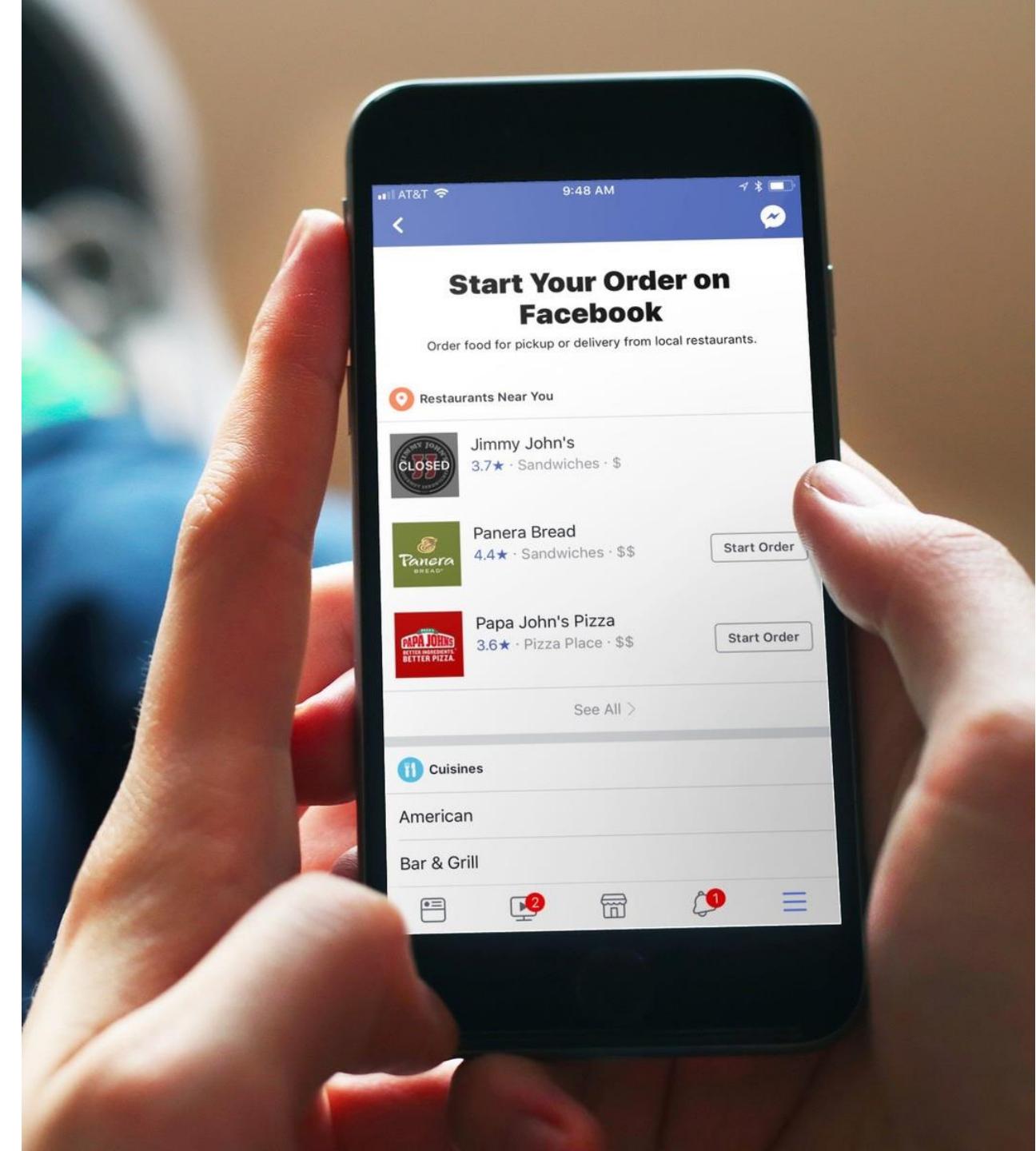
- Stock Unavailability at the shelves leaving customers looking for particular products dissapointed
- Building an infrastructure and solutions with advanced LEDs,sensors and integration with advanced cloud platforms that detect lower stock levels and trigger immediate action alerts for inventory management



CHALLENGE: TARGET ADVERTISING(SRS08)

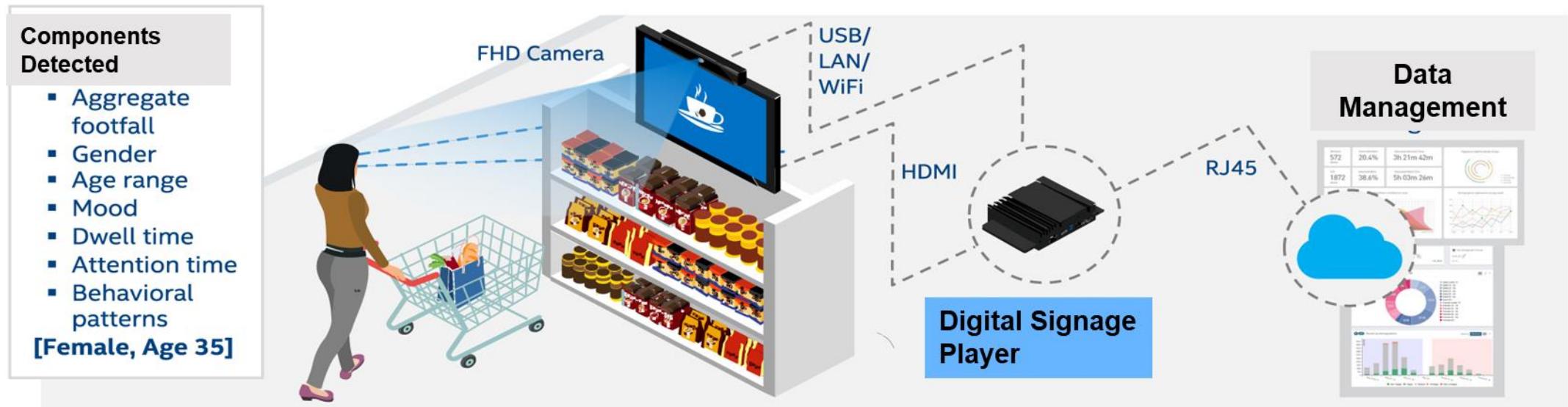
- Targeting in-store marketing and measuring its effectiveness is virtually impossible.
- Motivating shoppers to move from browsing to checkout often requires in-store salespeople, which comes with heavy operational costs.
- Micro level insights on each category is very cumbersome for retail operation managers.

Analytics—Data Management in the Cloud
Raw data from the cameras is processed on-site.
Later it is sent to the cloud, where relevant data is viewed via an application



THE SOLUTION

- Smart Shelf Solution for Targeted Advertising integrates digital signage, smart cameras, edge analytics, and reporting in an end-to-end solution.
- a)Smart Shelf Solution for Targeted Advertising integrates digital signage, Smart cameras, edge analytics, and reporting in an end-to-end solution.
- b)Smart cameras capture and identify customers' gender and age within any pre-defined ranges.
- c)System records facial expressions, giving retailers a sense of customers' moods

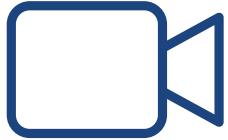


THE CHALLENGE: INSIGHTS & ANALYTICS(SRS09)

- Shelf Analytics with actionable insights for smart and efficient store management cannot be detected
- Seamless store integration with real-time updates about specific shelf issues.
- Customer trend insights
- Loss of sales from customer walk-outs, missing products.



THE SOLUTION



camera



Cloud based software



Dashboard



Mobile App

- Camera mounted on top of any standard retail shelf takes images of retail shelves which are then transferred to the cloud.
- Cloud-based advanced machine learning and image processing algorithm analyzes the shelf images.
- Missing/misplaced products and labels are identified. Once the event is detected the data is sent to the dashboard and mobile app as a real-time notification.
- Seamless store application integration with real-time updates about specific shelf issues, Customer trend insights, Loss of sales from customer walk-outs, missing products are sometimes difficult to manage and detect.



LOYALTY PROGRAM MANAGEMENT-SRLP

THE CHALLENGE: CUSTOMER LOYALTY BENEFITS

- Keeping track of loyal customers and make their experience better with unique benefits. (SRLP10)
- Improving customer experience using face recognition technology. (SRLP11)
- Identify the key customers right after they enter your store and deliver them a unique service. (SRLP12)

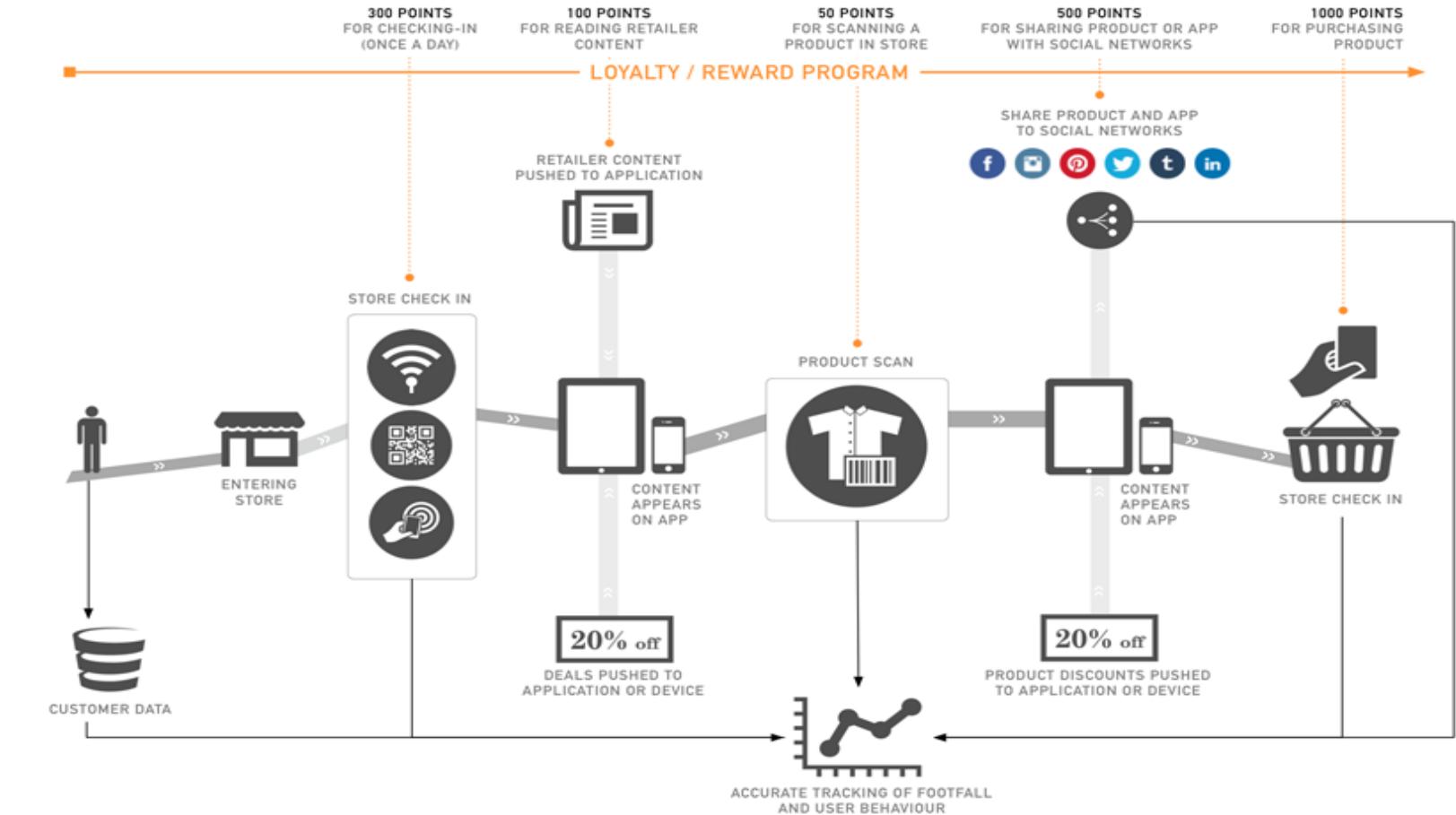


THE SOLUTION

- Facial recognition technology to identify loyal customers entering the store. Also detecting blacklisted customers
- Proactive recommendation according to each loyal customers on their mobile applications and assigning store agents to them.
- Important dates notification for example anniversary ,birthday and related offers.



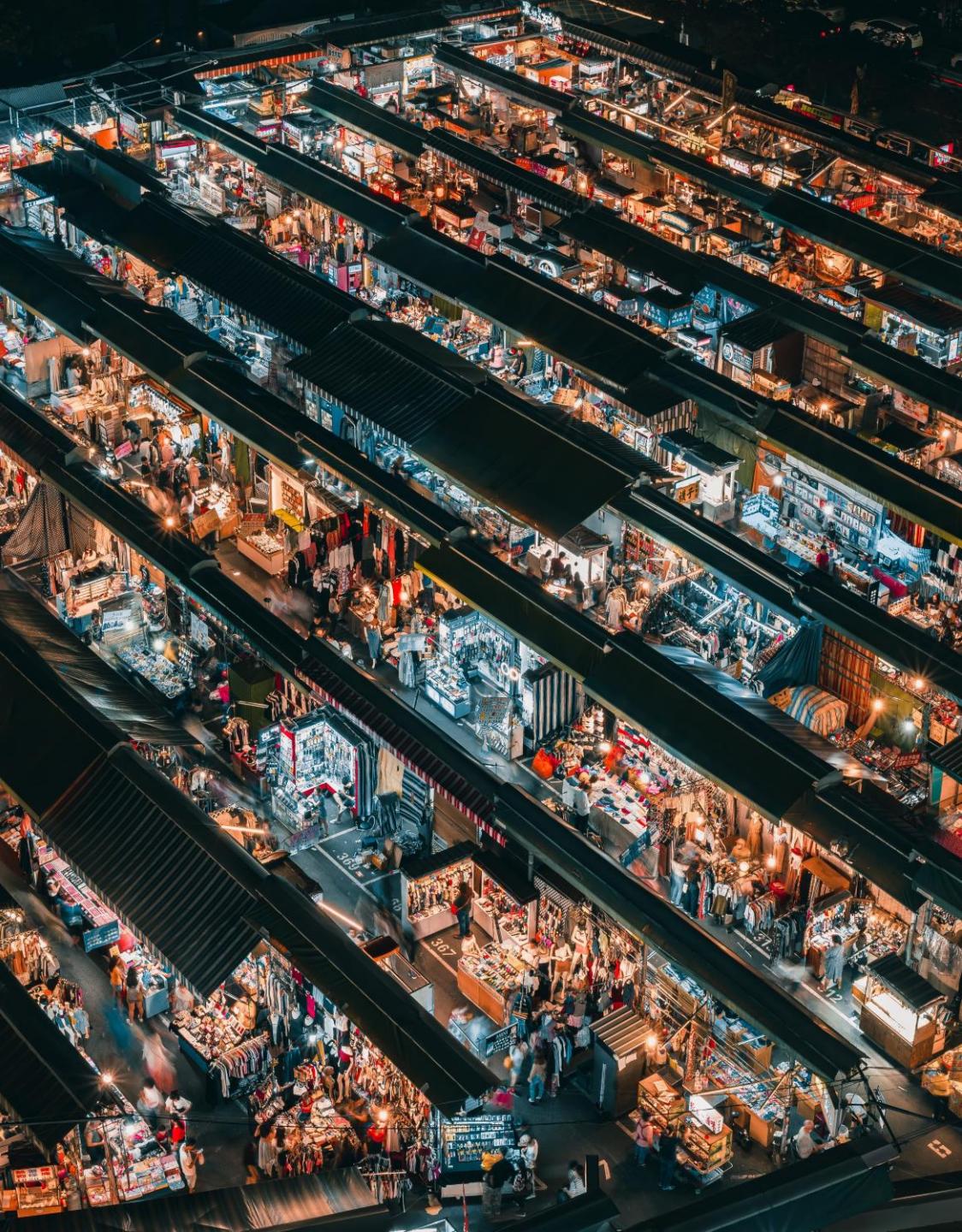
REWARD / LOYALTY PROGRAM WORKFLOW OVERVIEW



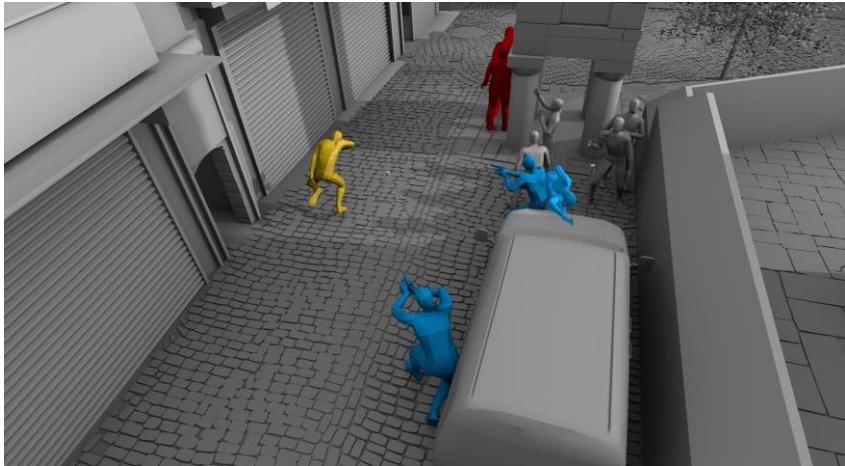
SECURITY INTELLIGENCE-SRSI

THE CHALLENGE: SECURITY BREACH AND THEFT

- 1. Shrink, Shoplifting and theft at the point of sale**
- 2. Theft after hours**
- 3. Theft from the back door during business hours**
- 4. Slip and fall lawsuits**



SOLUTION– INTRUSION DETECTION



Intrusion Detection (SRSI13)

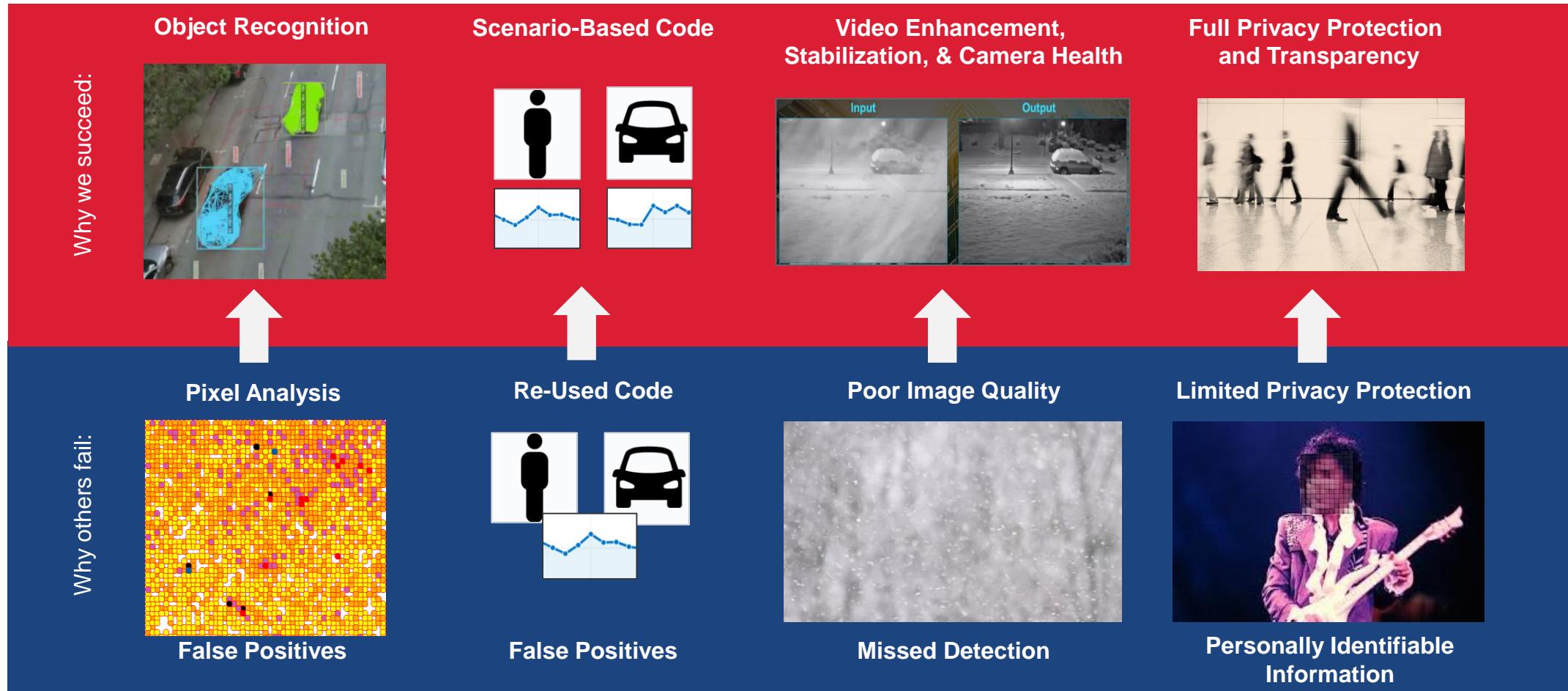
- Real-time alerts for the protection of critical properties. Facial Detection and identifying personnel in restricted areas and 'Staff only, regions of buildings
- Back Ally suspicious behavior alert.
- Using advanced Video analytics software algorithms such intrusion activities can be detected.



Object Detection (SRSI14)

- Alerts for left behind or suspicious objects in mall public areas, restaurants areas, and shops
- Detect obstructions on high-volume pathways
- Quickly recover items for lost and found

PACKTERA VIDEO ANALYTICS: OBJECT DETECTION AND REDUCING FALSE POSITIVES



THEFT DETECTION -VIDEO ANALYTICS

Theft Detection (SRSI15)

- Detects missing objects through video analytics software systems .
- Immediate alerts for faster response
- Force multiplier for loss prevention and security
- Enables proactive response to theft or restricted area intrusion



CUSTOMER INSIGHTS-SRCI

THE CHALLENGE: CONSUMER INSIGHTS AND ANALYTICS

1. Getting a reliable count on retail traffic is difficult.
2. **In-depth Insights** on performance of successful aisles in stores are somewhat difficult to generate.
3. **Customer activity metrics** are often challenging to produce with traditional retail methods.



THE SOLUTION: IMPROVE RETAIL INTELLIGENCE

Traffic Counting (SRCI16)



25 / 500

Entrances / Walk-by
Entrance Rate

5%

Product Interest Index per Customer

Behavioral Analytics (SRCI17)



0.25

Purchases per Entrance

Insight: Retailers in terminals can leverage new insights to enhance their marketing, customer service, and promotions. Heatmap is specifically designed to calculate the occupancy of certain areas within your stores. The device does this by tracking the number of visitors coming in and out of a particular area. They are retailers' most preferred choice to calculate the number of visitors that spend time in a predefined area in your store or in a mall.

PERFORMANCE ANALYTICS (SRCI18)

Face Recognition



Highlighting Instore Activity & Metrics



Highlighting Customer Paths



Insight: Understand foot traffic patterns and walking behavior in the store and product interactions with video analytics and heatmapping along with loyal customers and their preferences using facial recognition.

OPERATIONAL INSIGHTS-SROI

THE CHALLENGE: STAFF SCHEDULING

- Employee retention is one of the biggest problems the retail sector faces.
- Employees have issues where they don't know their work schedule
- Improper staff scheduling can lead to lower employee retention and create inconvenient work environments.



THE SOLUTION: APPLICATION STAFF SCHEDULING (SROI19)

A solution to the staff scheduling problem can be developing a 360-degree application that enables :

- Seamless generation of conflict-free schedules
- Management of last-minute scheduling changes in real-time
- Syncing of relevant employee data for optimized monitoring, reporting, and transparency
- Creation of error-free schedules
- Assigning of custom roles, skills, and certifications to ensure the right staff is always in the right place.



THE CHALLENGE: SPILLAGE/DAMAGE DETECTION

- Spillage and aisle damages that go undetected and can lead to accidents ,spoilage and unnecessary chaos.
- May result in accidents, compromising the occupants' safety and may also lead to hefty lawsuits at times.
- Store agents may always not be present to detect or report spoilages.



THE SOLUTION: DETECTION (SROI20)

- Advanced video analytics features that come with video surveillance today to ensure flawless security
- Video analytics software can detect spills and damages on aisles using AI/analytics algorithms
- The video analytics algorithm can detect such scenarios and help prevent losses.
- Helps in maintaining the effectiveness and cleanliness of the store and warehouse.
- Heatmapping too can detect product spillage or unusual aisle activities.



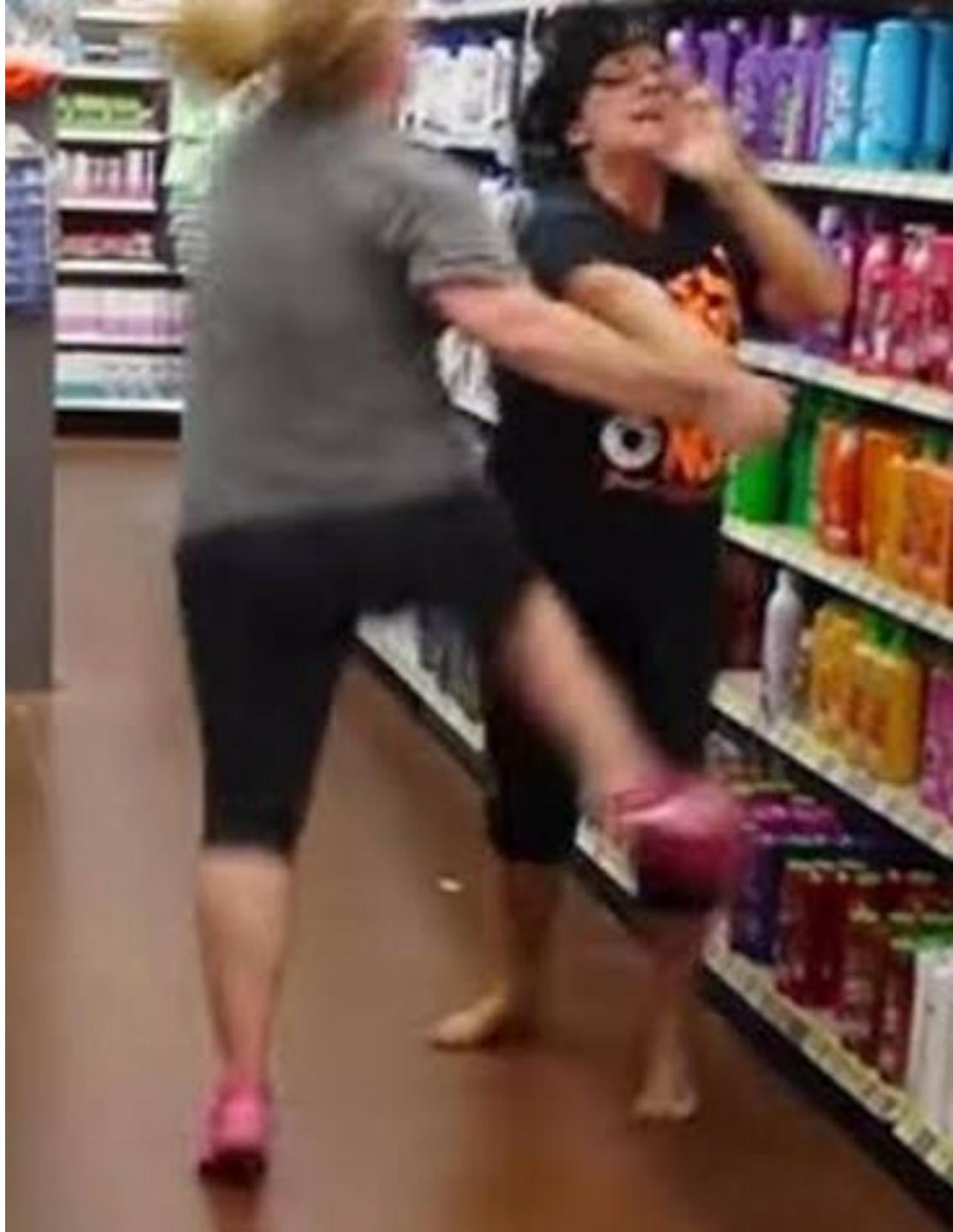
THE CHALLENGE: AISLE BLOCKING/ CROWD DETECTION

- Human elements can create aisle blockages and damages.
- Retailers are often not able to detect human falls or injuries on aisles
- Fights inside the store and unnecessary quarrels are sometimes missed by the retailers



THE SOLUTION: AISLE BLOCKING/ CROWD DETECTION(SROI21)

- **Fall Detection:** Fall detection algorithm in Video analytics systems can generate a quick alert, enabling store operators to provide a quick assistance that may be required.
- **Crowd Behavior Monitoring:** Crowd behavior analysis is one of the most important sets of video analytics features integrated with applications that help ensure effective security and surveillance of a retail chain. Below are some key features in this category:
- **Crowd scattering:** Sudden scattering of the crowd is detected and responded as it can be a security threat
- **Crowd gathering:** Crowd gathering may is tracked using crowd behavior analytics algorithms.
- **High-speed alerts:** A person who suddenly starts running at a high velocity is tracked for the further activities to ensure he/she is not involved in any security incidents.
- **Fights and chasing:** Algorithms, specifically to track physical altercations and chasing so as to safeguard the store and employees as well as consumers.



THE CHALLENGE: QUEUE MANAGEMENT

- Bad queue experience, more waiting times leads to the gradual decrease in customer satisfaction levels and brand loyalty.
- Retail chains may quite frequently lose customer when they don't have proper queue management solution in place .
- Queue Insights can actually build staff productivity and higher efficiency.



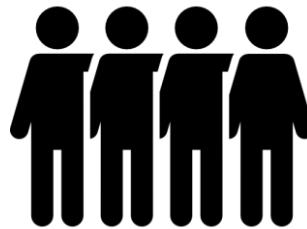
THE SOLUTION :QUEUE DETECTION(SROI22)



Queue Detection and Activity Analysis through Video Analytics

- Quickly deploy cashiers or staff to improve wait times
- Increase customer satisfaction
- Detect long dwell times near high-ticket merchandise
- Build smarter operations and understand patterns
- Build Applications/platforms for store managers to monitor and get insights on queues for better operational efficiency

SOLUTION FRAMEWORK



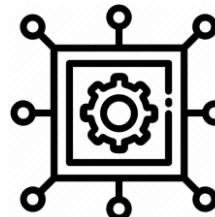
Using the existing IP camera
Infrastructure of the facility

We shall count entering and exit
visitors, number of checkouts
open and people already
queuing

The backend AI Algo(s) predict
'Heat-Maps' and Congestion
patterns

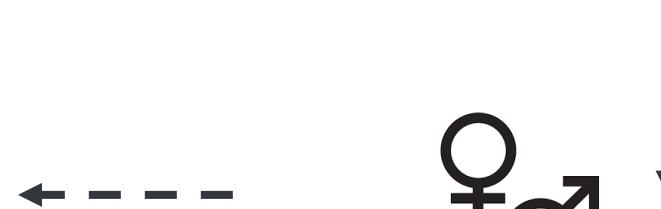


Tesco mandated customer app for
loyalty management & queue guidance



And send real-time alerts to
open a new cash desk, through
mobile alerts based on threshold
levels of customer congestion

Using the AI based system, we
predict queues and cluster-
patterns



Not just congestion, we also look
forward to provide analytics
around demographics of
customers

CHALLENGE: FORECASTING

Many retailers find forecasting challenging but they prioritize it because better demand forecasting helps improve cost effectiveness and availability in the supply chain.

Challenges often faced by retailers are :-

- Forecasting new product introductions
- Coping with challenges related to sales volumes
- Forecasting promotions and promotional lift

If you do not get the forecasting of product introductions right, you can forecast only a small fraction of your business.



SOLUTION: DEMAND FORECASTING (SROI23)

- **Retail-specific demand forecasting**

Demand forecasting solution considers the past, present and future. Pulls in external variables and contextual data such as calendar of events, seasonality and even the weather to deliver accurate forecasts.

- **Managing Forecasts**

Automating the forecasting process without adding more resources. Solution delivers significant improvements in forecasting speed, accuracy and efficiency.

- **New Product Forecasting**

Managing fresh item forecasting, as well as producing daily and intra-day forecasts to support in-store food production services, giving an unprecedented level of accuracy



CHALLENGE: SALES / REVENUE INSIGHTS

- Today's retail executives are facing mounting pressure to evolve business models that make sense in a global marketplace characterized by disruptive technological innovations and fierce competition for consumer dollars.
- Retail executives understand that data flowing through their companies daily represents an asset they can use to solve pressing business problems, making sense of how to use it can be a challenge.
- The challenges lie in misinterpreting the sales /revenue data and leading to wrong executive decisions.
- These challenges need to be curbed at the store front.



SOLUTION: INSIGHTS ON SALES/REVENUE(SROI24)

- AI/Analytics based platforms with well structured user dashboards and reports retailers can understand the customer more deeply with reporting, trade competition, price analysis etc
- **Reporting for actions and results:** Staff access detailed reports customer profiles, migration, basket analysis, item analysis, event analysis, switching behavior, distribution, new product introduction, etc
- **Trade competition analysis:** The solution enables proximity impact insights, sales and growth for stores facing each competitor. This gives fact-based context for users to make key decisions.
- **Price analysis:** Customer insight solution is designed with access to customer segmentations with a segment strategy overlap for the 4 Ps.



SUPPLY CHAIN INSIGHTS-SRScl

THE CHALLENGE: WAREHOUSING & LOGISTICS

Business Challenge

Some of the business challenges with respect to inventory management

- Lack of end-to-end visibility on inventory
- Mismatch between inventory data in ERP and actual inventory in warehouse
- Daily stock taking is virtually impossible
- Errors in order processing resulting in missing items
- Wasted warehouse space due to lack of oversight into space allocation
- Longer turnaround time for the picking and packing process
- Inefficient allocation of resources and equipment due to non-standardized processes

Solution Benefits

Benefits of IoT enabled Inventory & warehouse Management

- End-to-End visibility on Warehouse & Inventory reducing Inventory losses
- Real-time updates on inventory count enabling better management of stock and analysis.
- Real-time alerts for mismatch between inventory data in ERP and actual inventory in warehouse increasing structural clarity and better growth
- Real time data received from sensors/beacons ensure that actual inventory levels are measured giving actual insights for profit/loss analysis
- Restocking process becomes more efficient and stock out losses are avoided

THE PACTERA SMART INVENTORY MANAGEMENT OVERVIEW

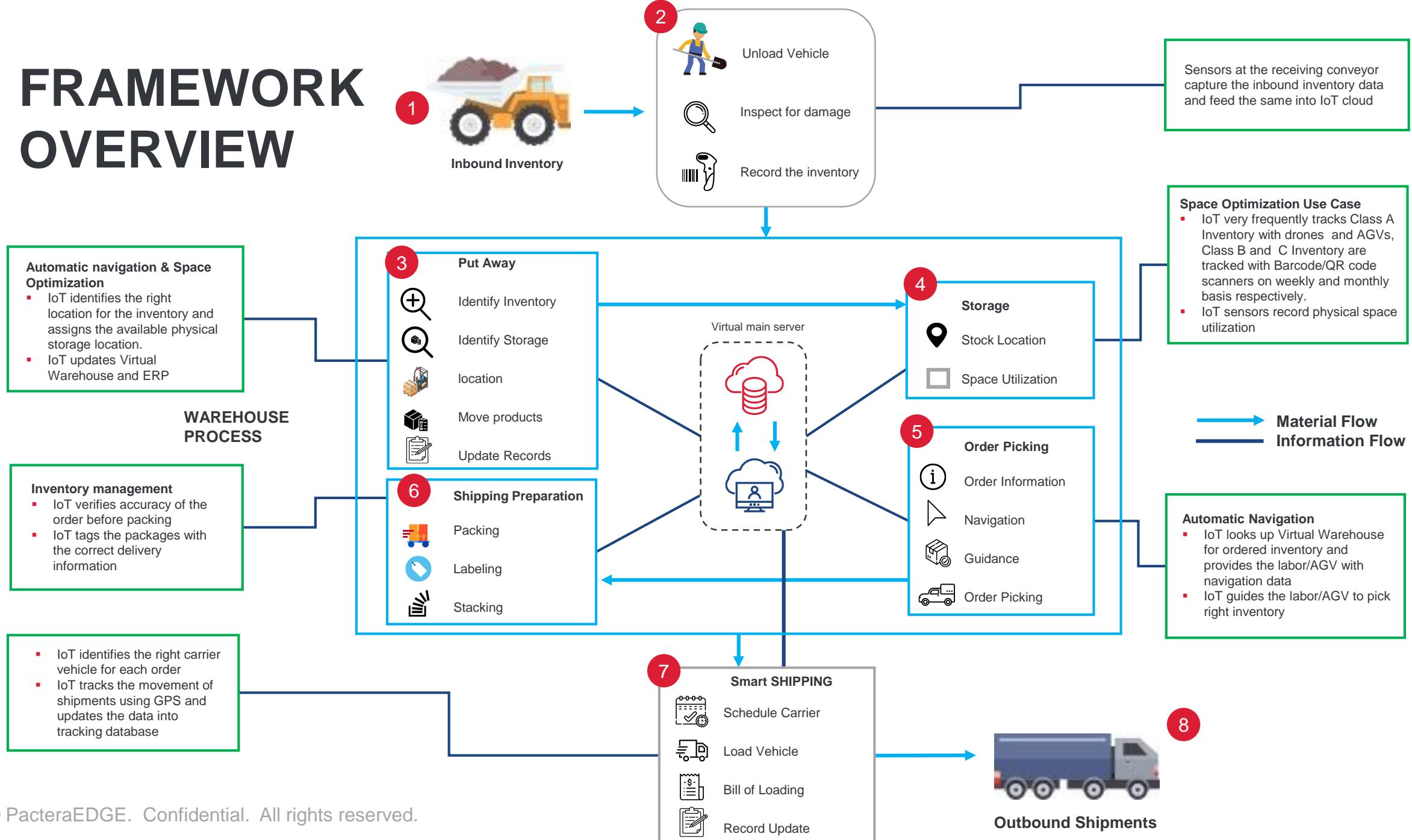
Smart Warehouse and Inventory Management solution platforms can be built as a holistic portfolio of services powered by one IoT platform, that enables you to optimize the end-to-end utilization of your warehouses and inventory.

- Tracks information such as location, condition and temperature down to the SKU level, based on your specifications
- Collates sensor data to employ at SKUs, warehouses and store shelves
- Built-in analytical tools to slice and dice data, generate reports and provide predictive insights and recommendations for better inventory planning

BENEFITS:

- Enable better control of inventory management and warehouse space planning with our comprehensive IoT-based solution
- Built-in dashboards to provide insights such as real-time inventory data, possible stock outs, overstocking situations, shrinkage of goods and optimization of warehouse space utilization
- Integrates with your existing systems and supports both legacy and new solutions
- Robust partnership ecosystem to support end-to-end IoT implementations and innovative new IoT solutions that meet your dynamic business needs

FRAMEWORK OVERVIEW



THE CHALLENGE: SUPPLY CHAIN OPERATIONAL EFFICIENCY

Retailers often fail at Supply chain efficiency and lack proper understanding of the following areas:

- a) Errors in order processing resulting in missing items(SRScl25)
- b) Wasted warehouse space due to lack of oversight into space allocation(SRScl26)
- c) Longer turnaround time for the picking and packing process(SRScl27)
- d) Inefficient allocation of resources and equipment due to non-standardized processes and lack of visibility in inventory management(SRScl28)



THE SOLUTION: SUPPLY CHAIN INTELLIGENCE

- Enables real-time, desktop and mobile updates on sales and inventory to prevent errors in order processing
- Enables full store and channel insights for more informed decisions, from sales and margin, sales comparisons, in-stock rates to stock levels.
- Improves retail operations and gives managers instant visibility into global warehouse operations and resource allocation.
- Helps supply chain managers monitor all buying order proposals, adjustments, right forecasts, and forecast quality to measure performance.



THANK YOU