

TCS Future Stores: AI-Powered Store Optimization Suite

Experiences. Connections. Opportunities.

Retail



Grocery retailing has just become more complex. Even as retailers continue to contend with fundamental issues such as shrinkage, wastage, inventory accuracy, and labor productivity, they are being pulled in all directions by macro environment changes. The pressure is on to bring in supplier diversity, enable glocal sourcing to deliver on customer promise, cater to channel preferences, offer safe and convenient fulfillment options, and yet remain profitable enterprises. All of this requires redefining the role of stores, recalibrating the store cost structure, exploring new business models, and preparing the workforce to adapt to the new beginning.

TCS Future Stores is a suite of AI-powered solutions that empowers retailers to reimagine store operations, optimize operational costs, improve productivity, and enhance the customer experience.

Overview

TCS Future Stores solutions are built using the TCS Algo Retail™ framework. The solutions can evaluate multitudes of cross-impacts in a complex environment in near real time with assured levels of accuracy. The microservices-based architecture gives retailers the flexibility to choose one or more Future Stores solutions (ref figure), with the added advantage of easy integration and a non-intrusive deployment with virtually no downtime.

- **TCS OmniStore™:** Orchestrates unified journey experience of carts, orders, and contextual checkouts with a future commerce platform
- **TCS OmniStore Till Optimizer:** Optimizes till labor hours by accurately forecasting intraday sales and customer distribution
- **Food Waste Predictor:** Predicts inventory break-up by expiration date and gross wastage with machine learning models
- **Image and Video Analytics Toolkit™ (iVTK™) and IoT:** Reduces loss at self-checkout and improves safety and efficiency, optimizes energy consumption, and creates connected stores with self-aware devices and systems network
- **ignio™:** Ensures always on stores with a cognitive operations platform that monitors, preempts, and self-heals IT issues
- **TCS Optunique™:** Delivers unified, hyper-personalized experiences and contextual messaging in real time based on 720-degree customer profiles
- **Conversational AI:** Understands customer intent and sentiments with self-learning bots deployed with an NLP platform

Our Solution

Powered by robust machine learning algorithms, deep learning techniques and AI models, the Future Stores solutions are scalable and can be trained with large datasets in a short period of time. With TCS Future Stores, retailers can:

- Get real-time insights and alerts with recommendations on next-best actions
- Optimize cost of operations by leveraging simulations and predictive recommendations
- Enhance customer experience through personalization, unified journey across channels, frictionless and contactless checkout, and uninterrupted operations
- Optimize store operations through digitalization and cognitive automation
- Improve productivity through focused learning, continuous improvement, and closed-loop execution

 Customer Engagement and Experience <ul style="list-style-type: none"> Smart guided navigation Interactive product discovery Assisted selling Contextual, personalized rewards Personalized nutrition and health recommendation 	 Intelligent Operations <ul style="list-style-type: none"> Intraday labor prediction Smart task management and workforce collaboration Digitized store operations Intelligent receiving, filling, auditing 	 Food Waste and Freshness <ul style="list-style-type: none"> Predict wastage by best before date Simulation to study impact of gross waste Computer vision-based freshness monitoring 	 Future Payment and Checkout <ul style="list-style-type: none"> Build unified customer journeys across multiple channels Future ready headless commerce Multi-device fluidity Safe, contactless checkout
 Inventory Accuracy and Shrinkage <ul style="list-style-type: none"> Behavior analytics paired with POS log to detect theft Computer vision-based SCO loss prevention 	 Always On Stores <ul style="list-style-type: none"> Cognitive automation platform Contextual learning of IT and business landscape Self-healing of IT issues 	 Safety and Compliance <ul style="list-style-type: none"> Computer vision-based safe shopping compliance Computer vision-based spill detection and proximity alerts Compliance checks – PPE, POG, Price 	 Omnichannel Orchestration <ul style="list-style-type: none"> Curbside pickup Intelligent in-store picking Automated picking and fulfillment Last mile delivery orchestration

TCS OmniStore™	TCS OmniStore Till Optimizer	Food Waste Predictor	iVTK™ and IoT	ignio™	TCS Optunique™	Conversational AI (Chatbots)	TCS COIN™ Solutions
Machine/Deep Learning	Artificial Intelligence	Image and Video Analytics/IoT	Indoor Positioning System	Natural Language Processing	Augmented Reality		

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Benefits

- 
100% always on stores for uninterrupted experiences driven by our cognitive self-healing platform
- 
15% increase in store productivity through smart task management
- 
15% average labor savings through event-based intraday labor demand forecasting
- 
20% reduction in shrinkage through video and behavior analytics
- 
10% reduction in food wastage through prediction of food waste and residual inventory
- 
97% adherence to compliances and 18% reduction of non-compliance litigation costs through intelligent, and safe and compliant operations

The TCS Advantage

TCS Retail partners with over 100 global retailers, driving their growth and digital transformation journeys. We are helping retailers become digital first businesses with:

- Future ready business models:** TCS is enabling retailers to transform customer experience and drive growth by building differentiating capabilities through a business-centric product-based operating model; enterprise-wide adoption of agile; technology transformation through a Machine First™ approach and cloud-first modernized platforms; and building ecosystems and new models.
- Products and platforms:** TCS solutions and offerings leverage the combinatorial power of new-age technologies and the interplay of art and science to make businesses intelligent, responsive, and agile. Retailers worldwide are adopting [TCS Algo Retail](#), a framework for integrating data and algorithms across the retail value chain. Our product portfolio powering the future of retail includes [TCS Optumera™](#), an AI-powered retail optimization suite; [TCS OmniStore](#), an API-based future commerce platform; and [TCS Optunique](#), an AI-powered enterprise personalization solution.
- Strategic partnerships:** Strategic investments in TCS Pace Ports™—creative hubs for co-innovation (COIN)—are helping retailers establish competitive differentiation through collaboration with top universities; curated startup ecosystems; and TCS data scientists and domain consultants. Our cognitive workbenches are helping global retailers accelerate adoption as they transform into automated, intelligent, and autonomous enterprises.

Awards and Recognition



To know more

Visit the [Retail](#) page on [tcs.com](#)

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About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 50 years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique Location Independent Agile™ delivery model, recognized as a benchmark of excellence in software development.

A part of the Tata group, India's largest multinational business group, TCS has over 4,43,000 of the world's best-trained consultants in 46 countries. The company generated consolidated revenues of US \$22 billion in the fiscal year ended March 31, 2020 and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National Stock Exchange) in India. TCS' proactive stance on climate change and award-winning work with communities across the world have earned it a place in leading sustainability indices such as the Dow Jones Sustainability Index (DJSI), MSCI Global Sustainability Index and the FTSE4Good Emerging Index.

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