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40+ YEARS SINCE 1982



AI is actually for the right brain p. 60

No tech phroggers in this Den p. 56



Magic tills, no scanning, no checkout and no queues p. 72

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DATAQUEST

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TECHCELERATION TO POWER AHEAD

- The technological acceleration unleashed by the pandemic continues in India.
- Looking at Gen AI, cybersecurity, FinTech, HealthTech, HRTech, sustainability, digital printing and GCCs.
- How can companies score in 2024?

DATAQUEST CONTINUES TO TRACK INDIA'S TECH PATH TO

2047

AS PART OF THE #DQ40+YEARS CAMPAIGN.



INDIA ON ITS WAY TO LEADING THE WORLD ON TECH KNOWLEDGE & SKILLS

- Mike Cannon-Brookes
Co-founder and Co-CEO, Atlassian



GEN AI— ONE THING WE NEED TO ASK OURSELVES IS: HOW DO WE EVOLVE?

- Sanjay Poonen
CEO and President of Cohesity



Magic tills, no scanning, no checkout and no queues

Also less food wastage, better control on shrinkage, use of IoT in refrigeration and fast-tracking, use of AI in truck loading and lot's more. **Prakash Mall, Director of Engineering, Tesco Technology** takes us down some aisles of retail where technology is sitting on just the right shelf. Neither too up or nor too down. Up for grabs!

By Pratima H

Has technology affected the retail vertical as sharply during the pandemic as it did for travel and BFSI?

The global retail landscape has undergone significant upheaval for over a decade, primarily driven by technological advancements such as the rise of e-commerce. Throughout the past ten years, a substantial



IN THE CONCEPT OF “PHYGITAL”, THE FUSION ACKNOWLEDGES THAT TO EFFECTIVELY ENGAGE CUSTOMERS ACROSS ALL TOUCHPOINTS, A BALANCED COMBINATION OF PHYSICAL AND DIGITAL STRATEGIES IS IMPERATIVE.



PRAKASH MALL
Director of Engineering, Tesco Technology



WITH THE ADVANCEMENT OF AI AND COMPUTER VISION, SOPHISTICATED LOSS PREVENTION MODELS CAN BE DEPLOYED INCLUDING THE USE OF VIDEO STREAMS FROM CCTV IN ALMOST NEAR REAL-TIME TO DETECT AND PREVENT STORE THEFT.

discourse has unfolded between the realms of physical and digital retail, ultimately revealing that a successful retailer must integrate both approaches, commonly referred to as “Phygital.” This fusion acknowledges that to effectively engage customers across all touchpoints, a balanced combination of physical and digital strategies is imperative.

There are further dynamics within the mix itself connected with different fulfilment options like click and collect, curbside delivery, quick and fast delivery (30 mins, 10 mins, etc) and many retailers have been dabbling with different options for many years. During the pandemic, the major impact was on the scale of digital operations since the footfall at the stores was reduced to a trickle.

Digital Commerce 360 estimates that the pandemic contributed to a staggering US\$218 billion gain for e-commerce in the past couple of years. Within retail, a few categories saw major advancements and digital push, especially in fresh and grocery. The prevailing priority during lockdowns was securing an ample food supply to sustain families. Consequently, individuals turned to online channels to purchase groceries. Unsurprisingly, online grocery sales witnessed a remarkable year-over-year increase of 103 per cent, as reported by the Adobe Digital Economy Index.

Any latest work or solution being done at India centre—which is significant for Tesco? Does the India centre also offer capabilities to other retailers?

Tesco India Centre is primarily focussed on building capabilities to advance Tesco’s Purpose which is ‘Serving our Customers, Communities and Planet a little better every day’. The team in India has functional ownership for capabilities across the retail value chain – from Commercials (what and where to buy), Supply chain and fulfilment (movement), Stores and Online Web,

App and Social (Sell), Data capabilities and AI Products, and Services. A few specific examples of capabilities delivered from the India centre include Product and Supplier Management, Demand Forecasting, Tesco Tills, Trade Planning, Fulfilment services, Online capabilities like Web and App and associated capabilities like Search, Product Listing, Basket, as well as Data, Data Science and ML Engineering capabilities across these areas. India Centre also provides capabilities on finance and people management. A big part of service and operations is managed from the India centre.

How can technology help in addressing concerns like store theft, Black Friday cybersecurity issues, fast customer churn in e-commerce, and frauds?
Technology is critical to safe operations online and in-store. In retail, it is attributed to shrinkage, a big part of which comes from theft. As per Grocer, UK retailers are losing almost £11bn every year due to shrinkage which is a little over one per cent of annual retail turnover according to Checkpoint System. The same report also cites that the most common cause of shrinkage within UK retail businesses is shoplifting, followed by robberies and burglaries.

CCTV has been around for some time as a deterrent and sometimes to find/stop shoplifting. However, it is quite manual. Also, it is widely used for investigation. With the advancement of AI and computer vision, sophisticated loss prevention models can be deployed including the use of video streams from CCTV in almost near real-time to detect and prevent store theft. A big part of shrinkage that happens on self-service checkout counters is attributed to organised crime but mostly customer errors. Technology is a big enabler here whereby it can detect and inform customers when a product isn’t scanned properly



ROBOTIC FULFILMENT CENTRES ACCELERATE PICKING OPERATION FOR STORE DELIVERY AS WELL AS 'DIRECT TO HOME' DELIVERY. AI ENABLED SUPPLY CHAIN ENSURES OPTIMISED ROUTING WITH FULL TRUCK LOAD AND CAGE LOAD.

or the price doesn't match (with tampering with the barcode, etc). Technologies like RFID have been widely used to detect products leaving stores without being paid for.

With touchless, robo-assisted, human-free, checkout-free shopping getting stronger (at places like Amazon) and algorithms being used (like Eden at Walmart)—what's Tesco's outlook and roadmap towards AI, AR, 3D, blockchain, biometrics, self-service tech and bots?

We believe Tesco is at the forefront of the retail technology revolution. Tesco uses cutting-edge technologies in its core business processes and operations like demand forecasting, price and promo optimisation, clearance, optimised range, optimisation of the transport and fulfilment operations, or providing a personalised experience to customers. This is underpinned by a broad and deep portfolio of AI, optimisation and simulation technology products that automate and optimise our operations. Tesco has many stores with checkout-free shopping experiences called GetGo - No scanning, No checkout, No queues, and has recently launched the first 'magic tills' in the UK that use computer vision technology to save customers the time to scan products without the need to download an app or register at the entry gate.

Tesco also uses IoT in its picking operations mix with barcode scanning and PDA handheld task tracker, IoT-enabled refrigeration and store operations to help with reduced carbon footprint while timely maintenance. Robotic fulfilment centres accelerate picking operation for store delivery as well as 'direct to home' delivery. AI-enabled supply chain ensures optimised routing with full truck load and cage load. Again, Retail is at the forefront of technology adoption and driving new innovations every day.

What's going to be exciting about retail engineering ahead? Any examples from your cart?

We have ambitious sustainability targets. We continuously reduce, using our AI and optimisation models, the miles our lorries and vans travel, as well as the food waste we generate. This includes not only forecasting demand with very high precision to avoid having unnecessary products in the first place but also automating our reduction process using advanced algorithms for fresh products, saving a phenomenal amount of CO₂. Automating the reduction process (Automate clear as you go) also helps with reducing landfills by enabling 89 per cent of food surplus donations to 7K+ charities. This is equivalent to donating 2 million meals a month.

Can you share something about your work on algorithms, demand forecasting and personalisation.

On personalisation, we have years of experience in optimising the online customer journey for our core product range, but we have also pushed the boundary to use reinforcement learning and Generative AI methods that will soon be enjoyed by our customers.

Know your Customer (KYC) is a mandator in financial services. Similarly, in retail, technology is a big enabler for personalisation with capabilities like personalised rewards, loyalty programmes and recommendations. The entire experience online can be personalised, but the use of in-store devices and in-store app features have made personalisation available across all stages of the shopping journey—from recipe discovery or shopping list building, across all channels. This is very important for the customer experience, creating a smooth shopper experience and driving greater engagement. ¹⁰⁰

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