

HOW TECHNOLOGY CAN SAVE TRADITIONAL RETAIL



Whitepaper

1.1 Introduction

The advancement of technology is a major opportunity for the retail market to maximise its customer engagement. For some time now, retailers have been confronted by several challenges. One of the major issues has been rising competition from eCommerce. In seeking to mitigate these challenges, retailers are changing their approach into an omnichannel one, in which retailers combine offline and online activities. This has likewise brought about a market in which retail owners that intend to maintain a bricks-and-mortar store need to start re-strategising to operate a physical store more effectively and efficiently. A foremost example of this trend is Amazon Go, but there are many others where technologies are being combined to enhance the way retail store operations work, including self-checkout apps, beacons, RFID tags, robotics, AI and more.

The current coronavirus pandemic and the associated implications in terms of health/wellness and the economy has been a major source of concern and has created an uncertain outlook for retail businesses. This whitepaper will analyse how the future of retail is being shaped by this and other trends, and what technological approaches are being leveraged.

1.1.1 Assessing the COVID-19 Impact

The retail market has been feeling major disruption from the COVID-19 pandemic, with a major shift towards the greater use of eCommerce resulting from lockdown measures. This has led to a raft of store closures and job losses in the traditional retail market.

However, this is not a new or unique challenge. The retail market has been experiencing difficulties for some time, due to strong competition from online retail and changing consumer behaviour. As such, retailers should already have digital transformation plans in place.

1.2 Future In-store Retail Technologies

There are an increasing number of technologies available to retailers and service providers with the potential to enhance both their operations and the experience they can provide customers.

Recognising that customers desire a convenient, easy, frictionless experience, prompts retailers to experiment and test new technologies which will enhance customer experience in-store on these dimensions. For example, Amazon Go stores allow consumers to simply pick up items without needing to stop at a checkout (AI and cameras capture the purchase and charge the consumer automatically); thus, greatly enhancing convenience.

1.2.1 Current Status of In-store Retail

Retail has evolved greatly in recent years, now including everything from bricks-and-mortar stores, online to mobile and voice-based search. For consumers, however, the motivating factors behind their purchases are the same. Consumers want their goods at a reasonable price as soon as possible.

Figure 1 outlines the common technologies that are changing the retail equation.

Figure 1: In-store Retail Technologies



Source: Juniper Research

i. Smart Checkouts

'Smart checkouts' is a catch-all phrase intended to cover all forms of checkout infrastructure that automate or remove elements of the payment process. This can cover a multitude of different elements and techniques:

- Totally checkout-less shopping
- Cashier-based automatic payment

- Automatic item scanning and bagging

These elements are enabled through a variety of sensor and image recognition technologies, and are the most immature of retail technology segments. As a result, most of these technologies are currently only in trial stages, with minimal presence in the retail environment.

Amazon Go has come to typify the market and, in March 2020, Amazon announced that it would begin to licence its technology to other retailers. Following the example of Amazon Go, other retailers, both in eCommerce and store based, have announced their own smart store solutions. The most prominent of these has been JD.com, which has also been marketed as a B2B technology solution for other retailers.

ii. Beacons

Beacon technology has been important since Apple introduced Bluetooth beacons to the market in 2013. Despite the initial excitement from technology industry insiders and early retail adopters, beacons have still been slow to catch on.

However, the beacons market is undergoing change. With the advent of beacon virtualisation, standalone beacons are becoming obsolete. These are already replacing physical beacons in many locations, except in environments where virtualisation through Wi-Fi infrastructure is either not present or ineffective, such as outdoors or high-ceiling interiors.

iii. RFID

RFID is a tracking technology that involves small tags that emit distinct signals. Retail business owners can use remote scanners to read RFID tags placed on individual products; enabling them to record a variety of

information, including quantities of various stock items and their precise locations.

iv. Robotics

Robotics is a new area of using technology in-store but has big potential to disrupt existing business models. In-store robotics is mainly being leveraged in two key areas, customer service and inventory checking.

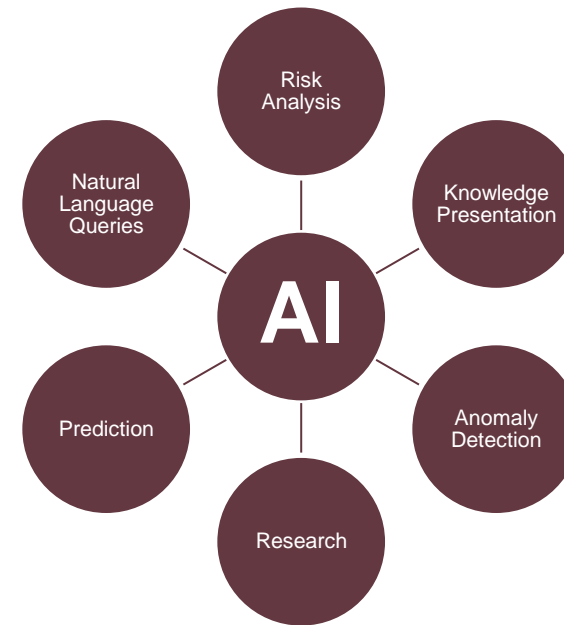
1.3 AI in Retail

Retail stores are currently going through a shift from the traditional conventions and forms associated with them, and are morphing into different shapes, partially run by AI and other innovative technologies. AI has greatly empowered retail stores, by granting them access to high-level information and analysis. This analysis, when effectively deployed, can transform the retail market.

Juniper Research defines AI as 'a computer programme that uses a combination of digital building blocks, like mathematics, algorithms, and data to solve complex problems normally performed by humans.'

In the context of the retail industry, AI must be capable of one or more of these skills, in order to deliver services which add value for retailers:

Figure 2: AI Skills in Retail



Source: Juniper Research

There are three main segments for the use of AI to be considered and they are:

- Personalisation and Marketing: Where AI is leveraged to personalise the user journey based on user data.
- Customer Service: Where the customer service experience is improved, via technologies such as chatbots.

- Demand Forecasting: Where AI is leveraged to more accurately anticipate demand levels in retail and respond to these.

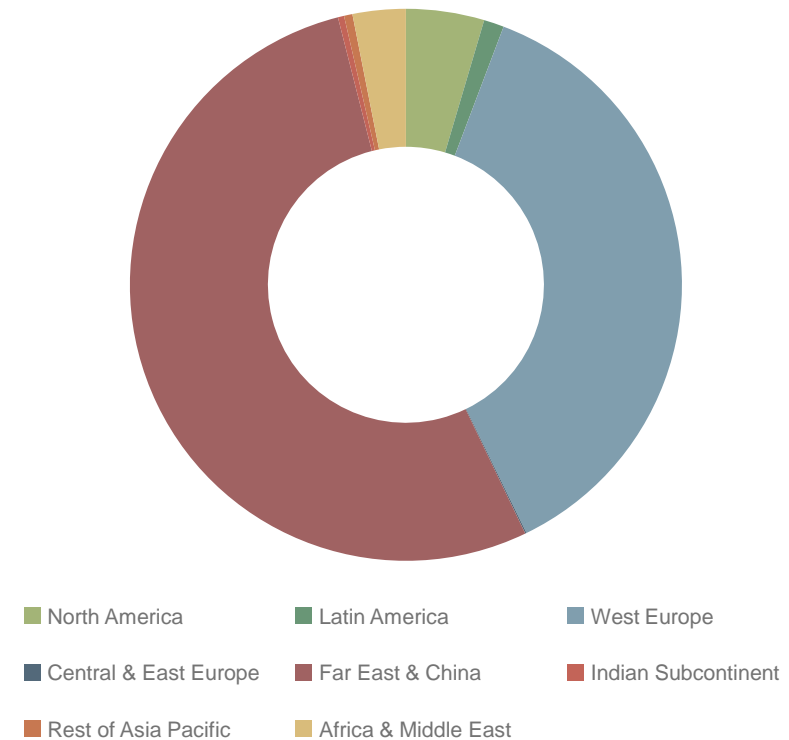
1.4 Forecast Summary

The value of transactions processed by smart checkout technologies, where the fixed checkout process is replaced by a frictionless model, will reach \$387 billion in 2025, up from just \$2 billion in 2020. Smart checkout technologies provide much simpler user experiences by removing traditional checkouts; embracing a ‘just walk out’ approach. The rapid growth will be driven by retailers seeking sustainable business models in the wake of the COVID-19 pandemic. However, the pandemic’s impact is only an acceleration of a long-term decline in the fortunes of traditional retail.

- While the growth in adoption is dramatic, innovation will be limited to the convenience segment, where product lines are simpler and implementation costs are lower. These roll-outs will also be limited to larger retail chains that can afford the significant investment costs involved.
- The use of AI by retailers, including smart checkout systems and chatbots, will be critical in ensuring that retailers can deliver a compelling omnichannel experience to consumers. The drive for efficiency will lead to investments of over \$23 billion by retailers in AI by 2025, up from just over \$5 billion in 2020.
- The use of RFID for tracking is essential to enabling analytics use within the retail supply chain. As retailers need ever greater efficiency, analytics is crucial, but is only as good as the data it is based on. This

need for standardised data for analysis will propel RFID’s deployment; driving RFID shipments for retail to over 32 billion in 2025, from 9 billion in 2020.

Figure 3: Annual Transaction Value Processed by Smart Checkout Technologies (\$m), Split by 8 Key Regions: \$387 Billion



Source: Juniper Research

Order the Full Research

Digital Retail Technologies' new research features a thorough analysis of key trends and challenges, and considers how the retail market is being disrupted by the introduction of new digital strategies. The research focuses on technologies being used to disrupt the established business models in bricks-and-mortar retail, including the use of beacons, digital signage, RFID, robotics and smart checkouts.

The report also provides detailed market forecasts with extensive country-level data. With two Juniper Research Positioning Indexes, the report is an invaluable resource for vendors and retailers in understanding the state of the market. Discover how AI is being leveraged in the retail market to enable improvement customer experience and greater retailer efficiency.

Key Features

- **Future Retail Technologies Market Dynamics:** Detailed analysis of the current state of technological adoption in the retail market and future outlook; examining a variety of technologies.
 - **AI Use in Retail Analysis:** Extensive analysis of the increasing adoption and prospects for the use of AI in the retail market, including three main areas: Customer Service, Demand Forecasting, and Personalisation & Marketing.
 - **Juniper Research AI in Retail Vendor Positioning Index:** Key player capability and capacity assessment for 15 AI in retail vendors, including Adobe, Microsoft and SAP.
- **Juniper Research Retailer Technological Innovation Index:** 15 leading retailers positioned on their use of technology including Aldi, Costco and Waitrose.
 - **Benchmark Industry Forecasts:** Forecasts for adoption and revenue provided across a variety of technology segments.

What's in this Research?

1. **Market Trends & Opportunities:** Detailed analysis and strategic recommendations for the use of technology in the retail market, including a positioning index of leading retailer use of technology.
2. **Strategic Analysis of AI Use in Retail:** Evaluation of key AI adoption challenges and trends within retail, together with the Juniper Research's Positioning Index which evaluates 15 key AI vendors within retail.
3. **Interactive Forecast Excel:** Highly granular dataset comprising of over 15,000 datapoints; allied to regional and sector analysis tools. Includes regional and key country-level analysis, together with five-year forecasts for the digital retail technologies market.
4. **harvest Digital Markets Intelligence Centre:** Visualises all the data in easy-to-use and exportable graphs, tables and charts, and features continuous data updates for 12 months.

Download a summary of the table of contents and forecasts above, or request a detailed list of every table and chart via info@juniperresearch.com.

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