CPG & Retail

GLOBAL AI ADOPTION REPORT 2022

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The AI in the CPG & Retail Market is expected to reach USD 30.90 billion by 2025, at a CAGR of 35% over the forecast period 2020 – 2025.

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Overview

Consumer products organizations (CPG) and Retail are entering a new phase of innovation with AI at its core. The results are profound, offering a host of previously unimaginable capabilities – from automatically rerouting shipments to bypass bad weather, to personalizing in-store services based on analysis of a customer's facial expressions.

The adoption of AI in Retail and CPG industries is expected to leap from 40% of companies currently to more than 80% by 2025. Investments in AI-powered predictive and prescriptive analytics would more than double between 2020-2025.

CPG and Retail organizations with AI investments report current benefits in five key areas: creating better consumer experiences, revenue growth, employee upskilling, improved decision-making and reducing risks.

Last five years have been highly challenging and disruptive amidst a changing competitive landscape marked by new consumer behaviors. 'Business as usual' is not enough anymore—and the organizations recognize that innovation must accelerate. The adoption of digital and analytics offers CPG and Retail companies the opportunity to drive growth, deliver productivity and stay ahead of the competition. The effort needed to take advantage of this value potential will be worth it. The companies that adopt digital technologies early and at scale outperform traditional incumbents.

In the 1990s, the eCommerce revolution initiated a fundamental change in consumer shopping behaviour, which has continued to gain momentum in the mobile and social media era. In the process, customer demands have reshaped the retail and consumer products industries. To meet these changes, retailers and brands have leveraged technologies over the past decade that enable them to stay close to local market trends, understand consumer preferences and shopping behaviours, design products, provide value-added services and engage consumers in a contextual way.

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The changing customer preference and growing competition among retailers to hold significant market share have increased the deployment of AI in the Retail industry. The growing digitalization coupled with rising internet penetration and proliferation of smart devices across the globe is rapidly increasing the use of AI by retailers.

The competitive landscape is shifting and it's no longer about just pursuing AI—it's about being among the first to adopt AI at scale to reach unprecedented levels of personalization, precision and profitability. The good news is CPG & Retail organiztions now have access to the necessary innovation, compute power, skill sets and solutions required to fully embrace AI responsibly across the enterprise to create value and fuel profitability.

Rapid growth in consumer spending, presence of young population, government initiatives towards digitization, enhanced internet and connectivity infrastructure, and growing adoption of AI-based solutions and services are helping Asia Pacific region to register the fastest growth in the global artificial intelligence in CPG & Retail market.

Business Value Chain: AI Adoption Areas

1. Product categorization
3. Product Search
5. Digitally Enabled Virtual Experience
7. Predicting & Influencing customer behavior
10. Adjusting prices
12. Product Recommendations

2. Customer Support
4. In-store Assistance
6. Tracking Customer Satisfaction
8. Cashier-free Stores
9. Trade Promotion Optimization (TPO)
11. Supply chain management and logistics
13. Consumer Goods Manufacturing

1. Product categorization

Artificial intelligence is a smart way to classify products. It is used nowadays for product categorization through optimization of sales and promotions, increasing understanding of in-store customer behaviour and better management of inventory levels.

- **LovetheSales.com** employs machine learning to categorize more than a million commodities from numerous retailers.
- **Lalafo** has made a step forward by sorting merchandise and services via AI-powered image recognition. When sellers want to market goods on Lalafo, they can just upload an image of these goods with no need to add a description. Artificial intelligence has helped Lalafo increase content relevance and improve sales.

2. Customer Support

Chatbots are one more popular application of AI in the CPG & Retail industry. Chatbots help retailers to provide great customer service, help customers find items on the site, notify them about new collections, and offer them apparel similar to things they've already chosen. Other customer support tools include Guided Search, conversational support using customer data insights and emotional response, Demand Forecasting, Optimized development and more expenditure in research and development.

- **Burberry and Tommy Hilfiger** have already launched AI-driven bots on Facebook Messenger that guide customers through their latest collections and answer their inquiries.
- **1-800 Flowers** has also launched an AI-powered concierge named Gwyn (Gifts When You Need). Gwyn emulates messaging platforms like WhatsApp and can successfully reply to customer questions, help customers find the best gifts, and assist them through the entire shopping experience.

3. Product Search

- **Voice Product Search**

  Artificial intelligence has made possible voice search for products. Many prominent brands such as Costco, Kohl's, Target, Tesco, and Walmart use either Google or Amazon AI technology and smart devices to serve customers with easy and fast search. Customers don't need to type in queries on small devices anymore; they can just ask Alexa to add carrots or new glitter shadows by MAC to their shopping bag.

- **Visual product search**

  Artificial intelligence has opened visual search to retailers as well, allowing customers to upload images and find identical or similar products. AI-powered technology scrutinizes an image and analyzes colors, shapes, and patterns to identify an item. John Lewis has added this technology to their iPad app. The Find Similar feature has gotten 90 percent positive feedback from customers. American Eagle Outfitters also offers visual search in its mobile app. American Eagle image recognition technology lets customers not only find the exact or similar clothing but also get recommendations on what goes well with it.

- **Virtual Fitting Rooms**

  A great way for customers to save time and shop from the comfort of their house. A virtual fitting kiosk from Me-Ality can scan you in 20 seconds and measure 200,000 points of your body in this period. Companies like Levi's, Gap, Brooks Brothers, Old Navy, and others installed these scanners in their stores and received massive sales increases.

4. In-store assistance

Many retailers invest in AI-driven technologies that can both assist customers while shopping in their physical stores and help their staff handle customer inquiries. Using AI, the stores can become cash-free, chatbots for customers, automatic price adjustments on goods.

Using image recognition data for Shelf Intelligence compliance monitoring stores are optimizing in-store presentation, display and shelf space use. Survey finds the global image recognition in retail market size to grow from USD 1.4 billion in 2020 to USD 3.7 billion by 2025. Increasing on-shelf availability, enhancing customer experience, and maximizing ROI are expected to majorly drive this market.

- **John Lewis** spent £4 million in 2017 on a shop floor app for its personnel. This app equips employees with information about products and stock availability so they can answer shoppers' questions right on the spot.
- ·**Kroger Edge technology** eliminates paper price tags in their stores; smart shelf tags are now used. This technology also provides video ads, nutritional info, and promotions on the displays.

- ·**Lowebot**, an autonomous in-store robot from Lowe's, helps customers find what they need in the store in different languages. At the same time, it helps with inventory management thanks to real-time monitoring capabilities
- ·**Trax's XRetail Watch** real-time shelf-monitoring and analytics platform reveals what's happening in the aisles so you can optimize operations. Poorly managed shelves result in unhappy shoppers and missed sales, but retailers don't have the manpower to spot every error as it happens. Trax automatically scans shelves, analyzes conditions, and prioritizes fixes to unlock each aisle's full potential. Inn-store cameras capture real-time shelf conditions. Images are sent to cloud servers, where deep-learning algorithms analyze with pixel-perfect accuracy to identify each SKU. Platform analyzes real-time shelf conditions and communicates insightful data through mobile- and web-based alerts and dashboards.

5. Virtual fitting rooms and mirros

The virtual fitting room is a great helper for busy shoppers as they can try out manifold apparel, find the right outfit and an accessory that perfectly matches it, and do all this in a matter of minutes. The virtual fitting room works as follows:

1. The input video is split into frames and processed with a deep learning model which estimates the position of a set of specific leg and feet keypoints.
2. A 3D model of footwear is placed according to the detected keypoints to display the orientation to a user naturally.
3. A 3D footwear model is rendered so that each frame displays realistic textures and lighting.

- **Moda Polso** lets its clients create their own avatars. These virtual avatars let Moda Polso shoppers try on an unlimited number of outfit options and make a purchasing decision quickly and easily.
- **Me-Ality**, a Canada-based tech startup, has developed a virtual fitting kiosk that can scan a shopper's whole body. A scan takes about 20 seconds and measures 200,000 different points on the body. Gap, Levi's, J.Crew, Old Navy, American Eagle, and Brooks Brothers set these scanners in their stores and saw a dramatic increase in sales.
- **Specsavers** was one of the first retailers to offer a Virtual Try On feature. With Specsavers, a customer can scan their face with the camera on their desktop, tablet, or mobile and virtually try on glasses in one click.

6. Tracking Customer Satisfaction

Apart from scrolling through social media and gathering feedback left by customers, artificial intelligence can detectthe actual mood of your customers in the store. Customer satisfaction can be increased by improving response time, having more personalized interactions, issue prioritization, proactive service and round-the-clock availability.

- **Walmart** is rolling out facial recognition cameras that can define a customer's level of satisfaction at the checkout. If a customer is frustrated, a company representative will talk to them to soften the annoyance and revive their relationship with the store.
- Multi-brand online retailer **Shop Direct** is working with IBM to develop an AI-driven chatbot that can determine customers' moods as well. The chatbot goes through the words and tone that customers use in their text messages. Once the chatbot has detected an annoyed or disappointed customer, it directs them to a representative for help via chat or a telephone customer service line.

7. Predicting and Influencing Customer Behaviour

Artificial intelligence platforms like Personali allow retailers to leverage behavioural economics and reach customers with an individual approach. Personali's Intelligent Incentive platform analyzes customer psychology and emotions to encourage purchases.

Businesses are leveraging using AI in customer behavior and predicting their needs. The prediction of trends in customer behavior helps in devising market campaigns, content marketing, enhanced communication, assisting in customer sentiment analysis and increases customer turnover.

AI also influences customer behavior by increasing their spending, increasing their loyalty towards the brand, improving expectations of the people in regards to the company and overall market dominating influence.

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Reckit Benckiser is bringing together multiple data sources to enable consumer segmentation and marketing campaign measurement. They will use machine learning capabilities to evaluate ROI and plan future campaigns more effectively. RB will also run its own ML and auto-ML models, generating insights to optimise media spend, and creating more natural digital journeys as consumers go from awareness, to purchase, to advocacy, whilst always respecting data privacy.

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8. Cashier-free Stores

Cashless shops are the new concept over-taking the pre-exisiting concept of maintaining small amounts as change. It reduces waiting time for customers and saves money for the retailers by saving money on hiring employees. A cashier-less checkout may work like this:

Before a customer enters a store, they need to download a smartphone app. Once inside the store, the app is authenticated by a QR code. If the retail store has introduced a smart shopping cart—such as the AI-powered, weight sensitive cart produced by Caper, which identifies exactly what a shopper has placed in their cart—the customer can then log into the cart, before said cart automatically scans each item with a barcode.

When the customer has finished shopping, they then need to enter a sensor-enabled lane which automatically charges their card. The process doesn't end there, however. Using big data analytics, the smartphone app is able to record, store and use data about each individual shopper so that it can
>   a) identify customer behaviour and
>   b) personalize future recommendations.

Amazon has already instigated the cashierless checkout revolution with its Amazon Go cashierless stores. Other chains, including Walmart, Kroger and Sam's Club had announced that they will soon follow suit.

The robotization of stores helps diminish lines, reduce the number of employees needed, and dramatically save operational costsfor a company.
Amazon artificial intelligence has enabled checkout-free stores. The Amazon Go app along with Just Walk Out Shopping technology automatically react to a customer's taking from and returning products to the shelf.

9. Trade Promotion Optimization (TPO)

Trade promotion optimization is a really important aspect and has the second highest expenditure after COGS for stores. AI is used in this segment to improve the efficiency and optimize the process. Artificial Intelligence improves market campaign quality, discovers which promotion provides better return on investment and forecasts a model-based predictive analysis for better adjustment to market prices.

- **Genpact** offers a software called Contract Assistant, which is a sub-product of Genpact Cora. Genpact claims Contract Assistant can help CPG companies stop overpaying retailers for carrying out promotions such as sales or in-store displays. The software uses natural language processing to match trade promotion contracts to invoices.
- **Wipro** offers Promax Optimize, which it claims can help CPG companies optimize future trade promotions using predictive analytics.

10. Adjusting prices

Artificial Intelligence is important as it can show retailers likely outcomes of different pricing strategies so they can come up with the best promotional offers, acquire more customers, and increase sales.It also improves customer relations. 4 benefits of adjusting prices through AI are raising of prices without affecting sales, factoring consumer behavior in pricing strategy, predicting impact of different prices on sales and combining data and experience to maximum effect.

- **eBay** uses AI-powered pricing and inventory algorithms to define the most appropriate prices for goods and notify sellers.
- **Kroger** applies artificial intelligence for price optimization as well. Analytics data helps the company stay flexible and change prices and promotions instantly based on shopper insights.

11. Supply chain management and logistics

An excess or short supply of products can affect a company's profitability and costs retailers worldwide $1.1 trillion each year. Leftover stock is often marked down and leads to low sales turnover. Out-of-stock situations, on the other hand, make for lost sales and dissatisfied customers who can easily switch to your competitors. AI helps retailers replenish supplies by identifying demand for a particular product based on sales history, location, weather, promotions, trends and so on. This way companies can prevent underperforming products from building up, stock what customers are likely to buy, achieve faster deliveries, reduce returns, and save lots of money.

- **H&M** uses AI to analyze store returns, receipts, and loyalty cards to predict future demand for apparel and accessories and manage inventory.
- **Morrisons** has partnered with BlueYonder, a leading AI solutions provider for retailers, to optimize stock forecasting and replenishment across its 491 stores. Use of artificial intelligence has helped the company to reduce shelf gaps in-store by up to 30 percent.

12. Product recommendations

Hanes Australasia, with the help of With Google Cloud and Recommendations AI, is delivering personalized product recommendations to customers, improving engagement and experience. This is enhancing transaction conversion rates and improving revenue. The business is now well positioned to use additional Google Cloud machine learning products to further enhance customer experiences and grow across new and existing markets.

13.   Consumer goods manufacturing

Shop floors are leveraging real-time equipment performance monitoring and analytics to measure the productivity vs planned allowing the constant tracking of productivity and performance of all equipment and assets during production.

In Kewpie's plant, the Tensorflow based AI system could detect potatoes that aren't fit for use in baby food, even as they were running at high speeds on a conveyer belt. The system was "educated" to identify the clean and healthy ingredients, by making it recognize almost 20,000 photos of potatoes, which included acceptable and useable, as well as defective and unusable potatoes.

Spending on AI

Global spending on AI by retailers is estimated to reach $12 billion by 2023, all because AI offers new ways to improve the customer experience and to optimise operational efficiency and productivity.

Digital and analytics can unlock at least $490 billion in value for CPG by 2023.

A few examples of spending & application of AI by Retail & CPG companies on AI are given as follows: -

- **LIVEPERSON- Teaching bots to help human agents**

LivePerson's Conversational AI lets organizations automate straightforward customer service tasks via online chat and text messaging, so trained agents can focus on the queries that require a human touch. In 2021, the company introduced the ability to integrate Conversational AI into commerce systems, broadening its original focus on after-purchase support.

Dunkin', for example, has added QR codes to food packaging at 9,000 stores, letting customers sign up for its loyalty program by chatting with a bot. Commerce isn't Conversational AI's only new territory: Bella Health, a COVID-19 screening bot in use at 500 locations, is helping to detect infections before employees unwittingly spread them to coworkers. A new feature called AI Annotator has allowed support reps to improve a company's bots on the fly, no deep knowledge of data science required; overall, there's been a 40% year-over-year increase in automated conversations performed on LivePerson's platform.

- **ADOBE- Photoshop wizardry within reach**

Adobe's new neural filters use AI to bring point-and-click simplicity to visual effects that would formerly have required hours of labor and years of image-editing expertise. Using them, you can quickly change a photo subject's expression from deadpan to cheerful. Or adjust the direction that someone is looking. Or colorize a black-and-white photo with surprising subtlety. Part of Adobe's portfolio of "Sensei" AI technologies, the filters use an advanced form of machine learning known as generative adversarial networks.

That lets them perform feats such as rendering parts of a face that weren't initially available as you edit a portrait. Like all new Sensei features, the neural filters were approved by an Adobe ethics committee and review board that assess AI products for problems stemming from issues such as biased data. In the case of these filters, this process identified an issue with how certain hairstyles were rendered and fixed it before the filters were released to the public.

- **McDonald's Drive - Through Smart Voice Assistant**

One of the world's favourite restaurants moved quickly to transition into the AI era. The top folks at McDonald's have done impressively well to stay on top of the latest trends over the last few decades and their recent move indicates they are not relenting any time soon. McDonalds installed a voice-based platform for complex, multilingual, multi-accent and multi-item conversational ordering. It also acquired an artificial intelligence company called Apprente, which has built this platform for them. This has made the process of ordering faster and it is cost-efficient as well.

- **H&M's Assortment Planning using Artificial Intelligence**

Big brands like H&M have realized the importance of using AI in their assortment planning. H&M aims to forecast trends months in advance. The retail giant is employing over 200 data scientists, analysts and engineers to use AI to review purchasing patterns of every item in each store. The data incorporates all the information from over five billion footfalls from last year to its stores and traction on its websites. It also considers data from external sources.

- **Pepper Robot – Nestlé's Solution to sell coffee Machines**

Nestlé Japan is using a humanoid robot to sell its coffee machines built by SoftBank Robotics. It's one of the first robots in the world that can sense and respond by feeling human emotions. It is equipped with the latest voice and emotion recognition technology. And the best part is that it can respond by understanding human facial expressions.

- **Boch Automotive's Artificial Intelligence – Powered Sales Assistant**

Boch Automotive, an England based car dealership company, has adopted a unique AI software that streamlines its sales funnel and establishes an automated sales assistant to increase service revenue via engagements.

- **Mango and Vodafone's Smart Digital Dressing Room**

The concept of a digital fitting room involves using an Internet of Things (IoT) digital mirror that was designed by Mango and developed by Vodafone in collaboration with Jogotech. These new fitting rooms are another step in the digital transformation of retail stores to create a whole new experience for the customers.

- **53 Degrees North – Automated AI for Customer Segmentation**

Data science and AI have transformed this landscape as well. Using techniques like market basket analysis, association rules, clustering and so on, businesses are able to create granular segments to enhance their marketing efforts. 53 Degrees North (53DN), an Irish lifestyle retail chain, partnered with Brandyfloss for using their automated customer segmentation software. This solution will solve the segmentation problem and propel its marketing campaigns to the corrected targeted population.

- **Domino's Pizza – Delivery by a Robot**

Domino's launched its Domino's Robotic Unit (DRU). They have built an artificial intelligence-based robot that will deliver hot piping pizza at your doorstep. This innovation marvel is like a self-driving car with a mini oven and a fridge on wheels. The vehicle itself is a collaboration between Domino's Pizza and a Sydney-based robotic company Marathon Targets.

- **Walmart Deploys Robots to Scan Shelves**

Walmart in Tampa Bay (Florida) has introduced a robot on wheels that is doing this task very effectively. The robot travels along the aisle, stretches its arm till the top of the shelves and automatically captures the required data. It takes in prices and the number of items available. That's quite a lot of time and effort saved and the company will also cut down on operational costs with this adoption. The company aims to increase its customer interaction rather than spending its customer's time on shelf alignment.

- **Olay – Using AI to Personalize Skincare**

Olay's AI-powered skin advisor, an online service that relies on artificial intelligence and proprietary deep learning, is analyzing a user's skincare needs at a very granular level.

> **CPG & Retail has one of the leading global spend on AI systems, with the category projected to invest on solutions like automated customer service agents, shopping advisers and product recommendation platforms. More than 325,000 retailers are expected to adopt AI technology by 2023.**
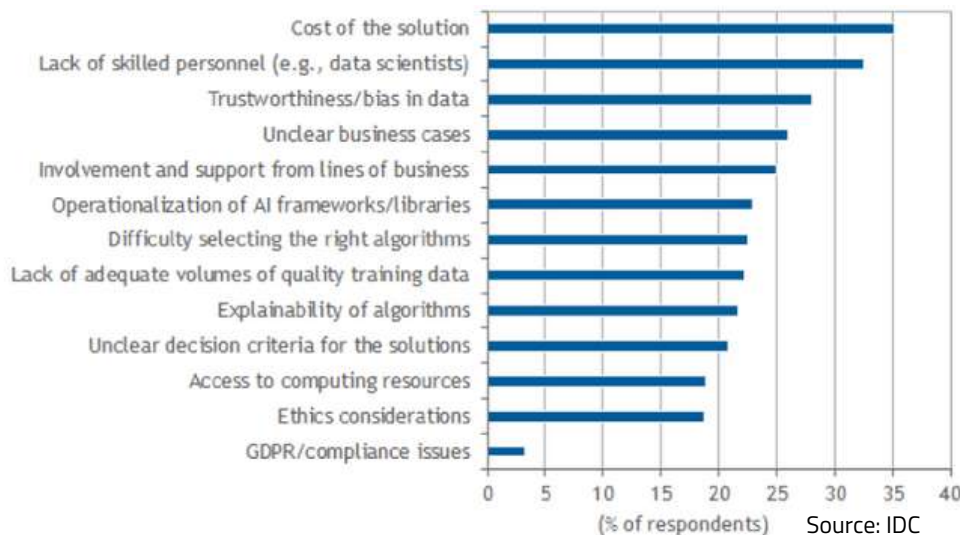
AI Adoption across Regions

Source: Mordor Intelligence

- Geographically, the global artificial intelligence in the CPG & Retail market is segmented into five major regions, namely, North America, Europe, Asia Pacific, Latin America, and the Middle East and Africa.

- At present, North America holds a dominating position in the global AI in retail market. The region has high technology adoption rate, presence of key players & start-ups, and high penetration of internet.

- The APAC region is expected to grow at the highest CAGR owing to the growing adoption of AI-based solutions and services among retailers.

- Analysis of AI Adoption in CPG & Retail market for major countries across the regions of US, Europe & Asia Pacific (APAC) is given as follows: -

Challenges in adopting AI in CPG and Retail industries

Source: IDC

AI Adoption across US

1. Warby Parker
In April 2019, Warby Parker, a US-based company started practicing innovative ways. By the use of artificial intelligence, it is providing its customer to try the virtual Try-On that allows them to try on virtual frames through augmented reality, a technology that overlays computer-generated images onto real-world images (your face).

2. Anki
Founded in 2010, this robotics and AI start-up made a huge impact by outdoing their own overdrive racetrack to release Cozmo.
Cozmo is an adorable robot toy that makes a healthy profit for Anki in sales.

3. Blue Yonder
Blue Yonder is focused on using AI to automate the process of tech industry retail. They aid retailers and pinpoint the keys to higher revenues, increased margins and fast and efficient reactions to a constantly changing market. Blue Yonder has taken a pretty scientific approach to be the leading provider of cloud-based predictive applications for retailers.

3. Infinite Analytics
Another company focused on the optimisation and growth of other companies through the power of AI, Infinite Analytics is set on maximising sales and engagement by discovering rich insights, identifying the right customers and expanding their clients' exposure across all channels.

4. Signifyd
Signifyd is the most well-funded AI start-up in the fraud detection industry for retail and eCommerce, having raised $180 million. They specialize in fraud detection for retail and eCommerce companies. Their most prominent offering is called "guaranteed fraud detection," and it likely uses anomaly detection technology to recognize fraudulent transactions and prevent chargebacks.

5. Lowe's
Lowebot, an autonomous in-store robot from Lowe's, helps customers find what they need in the store in different languages. At the same time, it helps with inventory management thanks to real-time monitoring capabilities.

AI Adoption across Europe

1. Panther Solutions

As a prominent retail AI solution provider in Europe, this company brings to the table the price optimisation silver bullet, Panther Pricing, made by retailers for retailers. Panther Solutions leverages the prowess of AI and the cloud to generate automated price recommendations that enable retailers to reduce price markdowns significantly.

2. MySales Labs

MySales Labs empowers retailers with insights that boost business growth, increase both profitability and revenue, optimise inventories without sales losses, and give a head start in tightening competition on the global markets. The company utilises data analytics, machine learning (ML), and artificial intelligence (AI), to offer retail management solutions for demand forecasting, price optimisation, stock replenishment, and promotion modelling.

3. PricingHUB

PricingHUB leverages data at scale and machine learning to help retailers implement multiple pricing strategies and action their daily trading. As one of the top retail AI companies in Europe, PricingHUB offers a dynamic pricing SaaS platform to manage P&L by utilizing solid pricing algorithms and a transparent performance measurement methodology. Governed by the mission to bring dynamic pricing to physical retail stores by leveraging a blend of real-time customer data and machine learning algorithms, PricingHUB helps retailers understand price elasticity and drive better pricing decisions.

4. Nextail

Nextail is a Spanish company that offers an automated inventory management tool, which the company claims can help retail fashion businesses balance inventory among its stores to optimize sales using predictive analytics and machine learning. Nextail claims that the application is accessible throughout the retail organization to digitize most aspects of the physical retail business.

5. Cortexica

Cortexica is a UK-based company that offers AI-driven image and video applications, which the company claims can help retail businesses offer online shoppers visual search tools of products they want to purchase using computer vision. Cortexica claims that shoppers, from their device, can upload a photo of the item they are looking for to the application. The algorithms compare the pixels in the uploaded image to images in the eCommerce database. It will then identify images that are similar or a match to the uploaded image. Once it recognizes similar items, the system returns with the recommended results in the form of curated photos of the items.

2. Metail

Metail is a UK-based company that offers MeModel, an application for eCommerce sites and smartphones, which the company claims can help retail shoppers try on clothes virtually using machine learning.

The company claims that the application could increase sales, enhance customer experience and loyalty, reduce product returns, and deepen the retailer's knowledge about shoppers, among other benefits.

AI Adoption across Asia

1. ViSenze

ViSenze is a Singapore-based company that offers a namesake software that the company claims is capable of allowing customers to search by image. Once the software is integrated into a retailer's website, customers could upload a photo to the website's search bar. The search software would then return a visually-similar item for the customer.

2. Trax

Trax is a Singapore-based company that offers a software called Trax Technology Stack, which it claims can give consumer packaged goods businesses a view of how their products compete with other brands on the retail shelf using computer vision. The company claims that this can help businesses develop strategies for where to display their products on shelves and inventory management.

3. Zenatrix

Zenatrix is an Indian company that offers software called Wattman and Wattman Lite, which the company claims can help retail chain businesses reduce their establishment's energy consumption and conducts predictive and preventive maintenance on air conditioning systems using machine learning.

4. Megvii Technologies

Megvii Technologies is a Chinese company that offers an open facial recognition software called Face++. Face++ has some retail applications. For example, Ant Financial is currently using Face++ behind their Alipay software, which the company claims allows customers at a particular KFC-offshoot store, known as KPro, to pay for their meals by smiling.

> Rapid growth in consumer spending, presence of young population, government initiatives towards digitization, developing internet and connectivity infrastructure, and growing adoption of AI-based solutions and services among retailers are helping Asia Pacific region to register the fastest growth in the global artificial intelligence in CPG & Retail market.
>
> Supportive government initiatives in the region to propel e-commerce and retail sector are proliferating the deployment of AI to increase customer engagement, improve customer experience, and enhance business-related decision making.

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Impact on Revenue and Cost

> **The Artificial Intelligence in the CPG & Retail Market was valued at USD 11.80 billion in 2019 and is expected to reach USD 30.90 billion by 2025, at a CAGR of 35% over the forecast period 2020 – 2025.**

Consumer products and Retail executives project that intelligent automation capabilities could help increase annual revenue growth by up to 10%. Retailers can save as much as $340 billion by taking AI to scale across the value chain, including operations, supply chain, planning, product development, distribution, and more.

The number of retailers using machine learning in demand forecasting is projected to more than triple between now and 2023, with associated service revenue reaching $3 billion by 2023. Also, smart checkouts, mostly powered by AI technologies such as computer vision, will grow in the convenience store segment, leading to annual transaction volumes of more than 1.4 billion by 2023.

Advanced analytics in functions such as demand forecasting and automated marketing will help retailer improve margins and become more agile. AI-equipped retailers where systems were adopted early are expected to displace slower moving retailers.

The ongoing shift by retailers from traditional retail experience to AI-driven business solutions is one of the crucial factors enabling the growth of the AI in retail market.

The growing awareness about the advantages of AI in retail operations such as quality improvement, paced up decision making, strong operational agility and enhanced customer experience will boost the AI in retail market growth in the forthcoming years.

In addition, exceptional benefits of AI-powered data analytics will further spur demand for AI in retail market in the foreseeable future.

The factors contributing to the growth of the CPG & Retail market in terms of revenue due to AI are given as follows: -

- The increasing investments in AI by retail companies and expanding e-retail industry.

- With AI, retailers have been able to automate their work processes, study consumer behaviour, and capture relevant data through the adoption of numerous advanced technologies, such as machine learning, natural language processing (NLP), and computer vision.

- The growing need among retail enterprises to provide enhanced customer experience, maintain their inventory accuracy, and improve productivity is proliferating the use of AI in retail market.

- AI is used by retailers to automate their business operations and decision-making processes to propel their transactional business.

- Additionally, AI deploys trend analysis on historical data to expedite the business process, reduce the time from ideation to sale, and improve trading decisions.

- Major retailers are investing heftily on advanced technology, such as machine learning, big data automation, and predictive analysis, to improve ROI and enhance supply chain optimization.

Changing customer preferences related to real-time engagement, differentiated personalization, relevant recommendations, and value-oriented shopping are propelling the use of AI in retail market.

Additionally, retailers are rapidly deploying AI to increase customer engagement and ease financial transactions for their customers. This will reduce the operating cost and increase revenue generation for retailers.

Challenges

Challenges in AI Adoption in the CPG & Retail Industry:

1. Lack of Vision

The organization makes only a limited effort to evaluate the impact of AI and advanced analytics, along with the associated size of the prize, and to educate senior management accordingly, which limits the willingness to invest.

2. Insufficient Prioritization

This leads to a "PoC explosion," which dilutes efforts. The organization launches multiple small tests with various vendors but performs no follow-through. It also fails to put the necessary effort into industrializing, scaling up, and rolling out the application.

3. Talent Gap

Difficulty identifying, recruiting, and retaining the right talent (data scientists, engineers, analysts) leads to an overreliance on outside vendors, which makes it hard to control the execution. Meanwhile, the organization makes multiple attempts to develop local expertise, but it often lacks critical mass.

4. Limited Data Governance

The organization has no processes in place for data management, quality, or ownership, nor does it have common (cross-division, cross-country) data taxonomies to facilitate scaling up.

5. Underestimated Impact

The organization misjudges the level of investment required in change management and in shoring up any related skills. It fails to fully anticipate the impact that AI and advanced analytics will have on existing business processes, decision-making processes, and managerial routines, as well as on employees' daily jobs and required skills.

6. Inadequate Market Specificity

The organization doesn't consider how digital ecosystems, data availability, channel dynamics, and vendor capabilities vary across markets. It also fails to recognize the differences in requirements, priorities, and constraints among different markets.

7. Fear and trust

AI done right has the potential to reduce or eliminate various roles across the retail environment. But will executives trust when the data steers them towards counter-intuitive decisions, such as identifying the best locations to open stores or which stores should be closed? Algorithms are only as good as the people who write them and the data that inform them. Teams looking at AI-generated recommendations should ensure they keep a balance between relying on technology and the inherent nuances of working with people.

8. Cost and Confidence

The biggest challenge to AI is cost and confidence. With some small steps there are a number of retailers both on and offline who have reported huge improvements in sales, but change is not something the retail sector is known for, even if a competitor is gaining ground.

9. Need for clean data

One of the most important factors to consider is the cleanliness and sorting of data which is inserted in the AI program. If we put in data that does not make sense, the output would not make sense either. And getting clean data is not a one time job and requires constant efforts in the commerce business.

10. Transparency

Transparency about the usage of the data and how it is being used is paramount in creating confidence and trust among customers. If data is abused for some other purpose, retails might lose customers and form a bad reputation in front of potential clients.

11. Staying Updated

Technology is advancing year after year. To keep up with the competition, heavy investment in R&D is both financially and laboriously cumbersome. Other than this, if the base of the technology changes, the process of teaching all the workers about the new regime takes up a lot of time and effort. This comes across as a challenge, especially among the "elder" group of workers in the company.

The Way Forward

Over the past few years, AI is being embedded into core value-generation processes in society and businesses by creating innovation. The growing number of millennials with their inclination towards AI-first approaches is putting organizations under constant pressure to innovate; thus, making artificial intelligence (AI) a top priority for CPG & Retail businesses.

Implementing artificial intelligence in retail creates new opportunities and capabilities for retailers by leveraging new possibilities, fastening processes, and making organizations adaptable to changes in the future. Realizing the fact, retail companies are investing heavily to reap benefits of AI and improve profitability of their businesses.

Various well-established retailers are struggling with increasing cost, dissatisfied customers, declining sales and upstart competition.

Going forward, CPG & Retail companies need to consider the following aspects for AI adoption: -

1. Narrow Down the Choices
CPGs need to focus on just a handful of applications. Launching 10 to 15 initiatives- simultaneously makes it more likely that those initiatives will get stuck at the PoC stage—in part because the attention of the senior managers overseeing them will be spread too thin. Companies that focus on a handful of opportunities have a better chance of delivering them at scale.

2. Get High-Level Buy-In
Before launching any application, companies need to ensure that it will get traction. Top executives should be willing to sponsor and pilot an application in their division or geography, and a senior business leader should be able to dedicate 20% to 30% of his or her time to steering its development. Brands should also work to ensure that there is significant interest among the local team members who will help launch the applications.

3. Assess Build-Versus-Buy Choices
Multiple vendors offer ways to address specific issues with off-the-shelf AI and advanced analytics software. While an off-the-shelf solution offers the advantage of speed, it comes at the expense of intellectual property ownership. It will also lack the functionality of a custom-- built solution, as well as any internal understanding that would come from building it in-house. CPGs should determine early on the areas best served by existing software and those for which it would be best to build their own solutions.

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4. Address Market-Specific Needs

Consumer behaviours, digital ecosystems, and access to data assets have evolved in significantly different ways across major markets. Any market-specific constraints or requirements need to be tackled early on, or the organization risks encountering showstoppers late in the design or implementation phase.

5. Prepare for Impact

Deploying AI and advanced analytics solutions at scale typically requires building new technology environments, adapting to the current ecosystem and standardizing efforts around data structure and taxonomy. Such actions don't need to be taken during the prototype phase, but they should be prepared for if a company wants to avoid having to scrap everything and begin anew after a first pilot has proved successful.

6. Manage the Change

Introducing AI and advanced analytics solutions systematically challenges any existing decision-making processes and, in some cases, drastically reduces or even eliminates the time it takes to complete certain tasks. For example, a luxury goods company found that an effective demand forecasting engine led to a 60% to 80% reduction in the time its supply chain department spent on daily demand planning. To avoid organizational resistance, companies need to effectively communicate to their staff the impact of AI and advanced analytics ahead of time and give teams perspective on how these applications will affect their jobs and ways of working.

7. Unlocking the full potential of the digital and analytical systems

According to a report by Forbes, AI and ML can unlock at least 490 billion dollars in CPG by 2023. 10 of the most promising verticals of CPG have the potential to reach this figure and show the importance of artificial intelligence in this sector in the future (food and beverage, personal care, home and beauty, etc).

8. Consumer Growth with Data powered insights

With increasing regulation and controls around sharing consumer data, it is now a mandate for brands to acquire first-party data and use it in a privacy-safe way. Several top use cases in this area are linked to marketing—from spend optimization and attribution modelling for ROI to personalized marketing at scale. Research shows that using advanced analytics is a major driver for top-line growth, as insights into consumer decision journeys can boost sales; as well as for cost reduction, as external marketing spend can be streamlined to focus on the highest-performing channels and reduce wasted media spend.

9. Driving connected and efficient, sustainable operations

By connecting your operations in real time with demand signals like search, trends, weather, mobility, and supercharging this data with AI and ML, one can make smarter and faster business decisions in a way that was not possible before.

For example, a dairy product, kept at the right temperature within precise tolerances throughout the production and distribution processes, can save 20% on energy costs by reducing excessive chilling. This is highly relevant for many CPG players, and especially those needing to maintain a cold chain.

10. Success- not only about technology but driving a new culture

The new normal for the CPG industry will be digital, and it will be a quick path upwards for those who are willing to boldly implement AI/ML-powered cloud digital and analytics use cases. This transition is vital for modern CPGs and retails for advancement and adaptation to modern markets.

Strong participation of industry players in leveraging AI is reshaping the technology landscape of the retail industry. The overall artificial intelligence in the retail market is witnessing a consistent penetration of smartphones & connected devices, advancements in ML for retail sector, rapid adoption of advancement in technology across the retail chain, and increasing adoption of the multi-channel or omni channelr etailing strategy.

Furthermore, the efforts from retailers to gain access to more customers, enhance business visibility, and build customer loyalty are also playing a vital role in driving adoption of AI technology in the retail industry. The increasing adoption of AI-powered voice enabled devices owing to their benefits in the form of enhanced user experience and improved productivity are also contributing to the market growth

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AIQRATE works closely with Boards, CXOs and Senior leaders advising them on navigating their Analytics to AI journey with the art of possible or making them jumpstart to AI@scale approach followed by consulting them on embedding AI as core to business strategy within business functions and augmenting the decision-making process with AI. We have proven bespoke AI advisory services to enable CXOs and Senior Leaders to curate & design building blocks of AI strategy, embed AI@scale interventions and create AI powered organizations. We have collectively executed 3000+ AI/Analytics engagements across 350+ global clients for 14 industry segments and have built & scaled 100+ AI & Analytics Center of Excellence & Development centers.

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