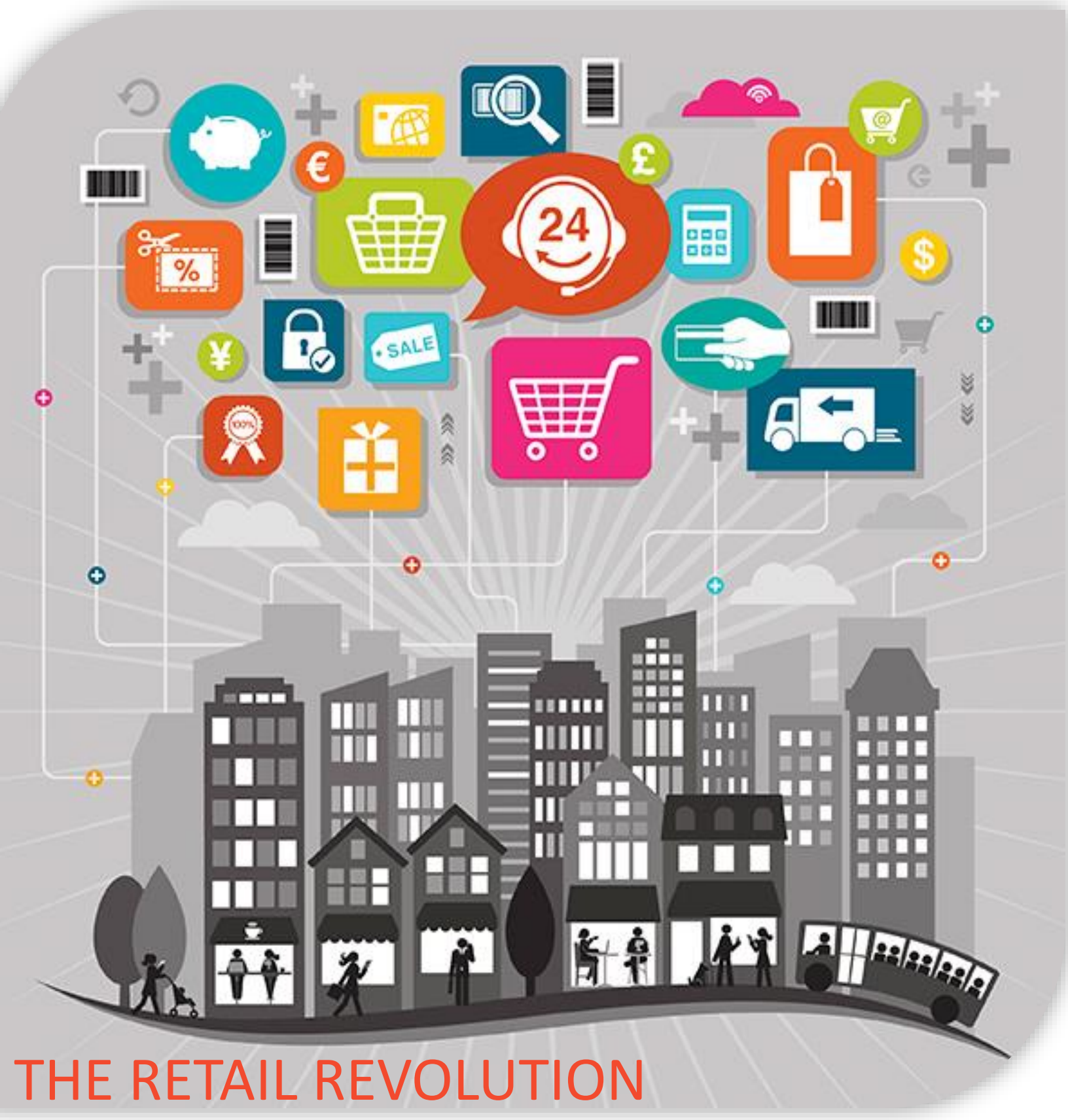


# THE RETAIL REVOLUTION

MLB FINANCIALGROUP
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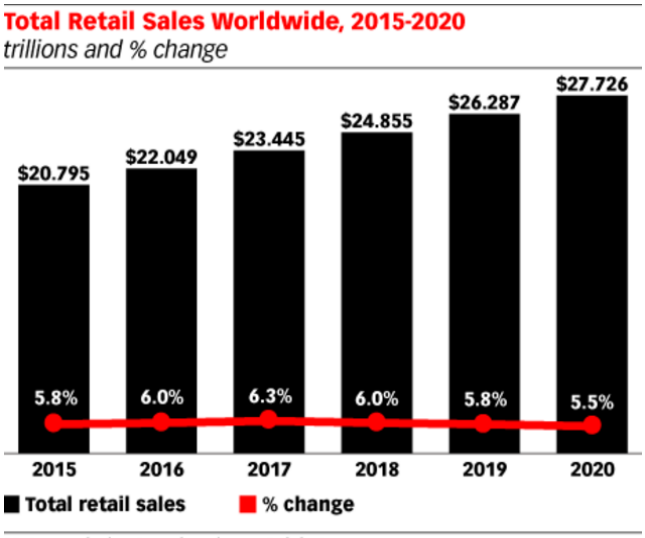
# SUMMARY

Technological innovations will be the critical driver of the retail transformation. Ecommerce saw an increase of tools and segments to push online shopping to its full potential. Consumers will still be central to directing the industry. However, the traditional retail models are being replaced by brick-and-mortar stores with evolved value propositions and transformative business models in the online space. Amazon's push to open the brick-and-mortar space in Seattle and the San Francisco Bay Area, and expansions from Walmart are offering consumers with more attractive options for online grocery. Alongside with the growth of ecommerce, the physical store will keep contributing the most revenue for the large multichannel retailers through differentiation of customer experiences and using technology to increase the value added to consumers.

The link between online and offline will blur in the future. Digital disruption continues to revolutionize the industry, creating unprecedented changes. Businesses will have no choice but to change their business strategies and operating models.

## FUTURE TRENDS OF RETAIL

- **Ecommerce is expanding at a fast pace**

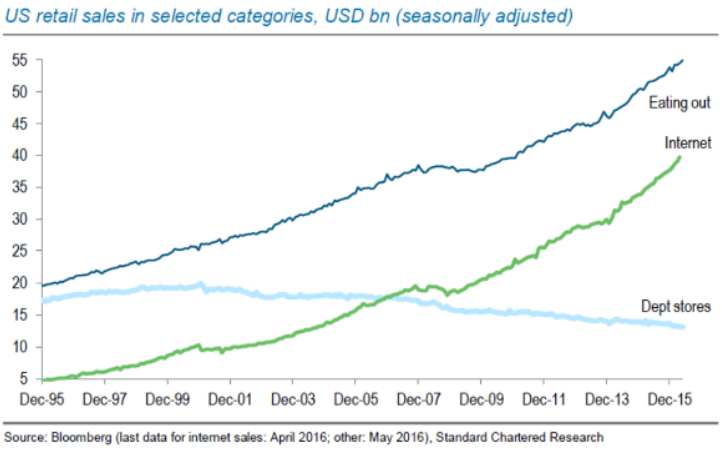


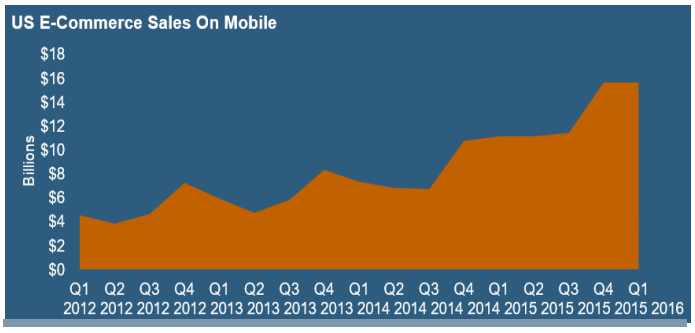

The total amount of ecommerce which include products and services ordered via the internet over any device accounted for 8.7% of all retail sales in 2016. According to the study by eMarketer[1], retail ecommerce sales worldwide will surge to USD 4.058 trillion and make up 14.6% of all retail purchases by 2020. The majority of sales will come from China, reaching 47% of sales worldwide.

The study also predicts that online sales growth will outpace brick-and-mortar sales growth by a more than 3-to-1 margin over the period.

A survey from The Harris Poll also supports the growing trend of ecommerce that 31% of U.S. shoppers had purchased grocery products online in the past six months as of late June 2016, suggesting the expansion of online grocery shopping.

- **Reduction and evolution in physical retail footprint**




Source: comScore

The shift to ecommerce will diminish the need for physical retail stores. With the rise of ecommerce, in particular mobile ecommerce, most new retail businesses prefer first starting online and then later opening some physical retail or showcasing space. However, demand for large physical retail spaces continues to drop. Traditional retailers and online retailers are struggling with the integration of online and brick-and-mortar commerce. The distinction between online and offline is blurring rapidly.

Source: Vantive Media

In fact, more retailers are omni-channel commerce businesses, meaning they have both online and brick-and-mortar stores. Physical retail spaces will be focused on community building and communal experiences. The physical retail spaces will be utilized to offer personalized services with high levels of interaction with products and staff. However, most human interactions will be replaced by a digital workforce, such as robotics-enabled shopping assistants and payment processing.

- **Incorporation of new technologies**

Technology has wholly-disrupted the retail industry. New technology-driven business models will widely evolve and change the industry dramatically to create effective and efficient logistics ecosystems.

Amazon launched its new Amazon Go grocery store in Seattle in December 2016[2].

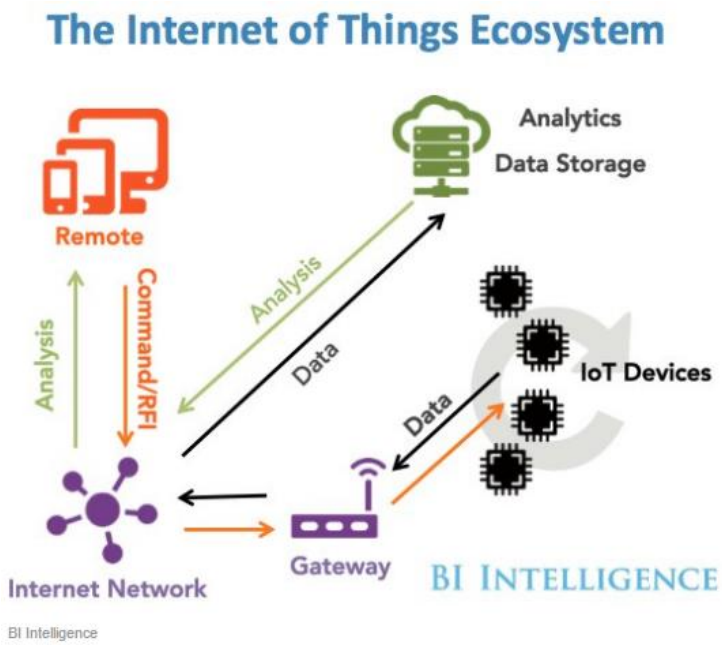

The store is enabled with their "Just Walk Out" shopping experience. Customers walk in, select items, and walk out. Customers simply use their Amazon app loaded cell phones upon entry into the store. With Amazon's "Just Walk Out" technology, customers simply leave the store once done shopping and the system will charge customers' Amazon.com accounts automatically.

| | RETAIL AND CPG INDUSTRIES VALUE CHAIN | | | |
|---|---|---|---|---|
| TECHNOLOGY | MANUFACTURE / PLAN AND BUY | DISTRIBUTE / MOVE | SELL | AFTER SALES |
| INTERNET OF THINGS (IOT) | Automated reordering via sensors; connected clothing | In-transit visibility | Automated ordering; connected devices | |
| | • Enhanced customer experience via personalized service offerings that adapt to individual needs<br>• Device data can provide a 360-degree view of the customer<br>• Revenue-generating opportunities by selling data as a third-party vendor through partnerships with companies that desire a rich and deep understanding of customers<br>• Enabling new purchasing channels by automating product purchase via subscription refill and/or providing new channels to discover, research and purchase products directly | | | |
| AUTONOMOUS VEHICLES / DRONES | | Self-driving trucks | Last-mile delivery: self-driving trucks / drones | |
| | • Reduced operating costs in transporting people and goods<br>• Enhanced productivity from continuous operations<br>• Increased fuel efficiency and use of alternate energy sources, specifically for autonomous vehicles | | | |
| ARTIFICIAL INTELLIGENCE / MACHINE LEARNING | Trend and volume forecasting | Predictive staging | Predictive recommendations; predictive deliveries | After-sales service |
| | • Foundational technology for disruptive trends (e.g. autonomous vehicles)<br>• Removes need for human involvement in routine and predictable tasks<br>• Greater precision, accuracy and speed when conducting tasks | | | |
| ROBOTICS | Robotic manufacturing | Robotic picking | Robotic picking; automated sales assistants | Automated customer support |
| | • Reduced operating costs through the automation and optimization of commoditized tasks<br>• Increased utilization by operating up to 24 hours a day, seven days a week<br>• Enhanced customer-service experience by allowing store staff to focus on customers<br>• Speed in performing simple and structurally repetitive tasks at faster rates via software bots | | | |
| DIGITAL TRACEABILITY | Product source tracking; inventory replenishment | Supply-chain product traceability | Merchandise tracking; product authenticity mapping | Product usage and warranty |
| | • Increased accountability on supplier quality, as all product elements are traced back to suppliers<br>• Quicker responses to food-safety situations, drastically reducing the risk of consumer backlash<br>• Real-time analytics enables timed offers and circumstantial pricing, which can lead to revenue uplift | | | |
| 3D PRINTING | Prototyping | | In-store product printing; real-time manufacturing | |
| | • Moves production closer to the end consumer, minimizing movement of commonly available raw materials and increasing product customization<br>• Reduces response time to shifting consumer preferences by enabling on-demand production<br>• Creates new retail and at-home business models based on capability to manufacture flexibly at a small scale<br>• Enables product customization, from appearance and packaging to flavour and nutritional content | | | |
| AUGMENTED REALITY / VIRTUAL REALITY | Planogramming; product design | | Virtual retail locations; VR demos | AR / VR engagement |
| | • Alternative purchase channels provide a new way for customers to discover and evaluate products<br>• Ease of access for customers via on-demand shopping, helping them avoid physical-store trips<br>• Limitless access for experiencing products through 'endless aisles' | | | |
| BLOCKCHAIN | Authenticity verification | Supply-chain verification | Online wallet | Transaction verification |
| | • Secure, decentralized digitization of assets and transactions<br>• Complete audit trail for purchased products and/or materials<br>• Process digitization/automation, e.g. instantaneous settlement<br>• Risk mitigation in settlements, counterparties, operations and points of failure | | | |

Source: Accenture/World Economic Forum analysis

According to the figure from "Eight disruptive technologies: Value chain applications and key benefits" from Accenture/World Economic Forum analysis, eight technologies could be applied in the value chain and create benefits to the retail businesses. Each technology will drive improvements and efficiencies to varying degrees across organizations. The research pointed out four technologies which create the biggest impact on the retail businesses:

**Internet of Things**



BI Intelligence

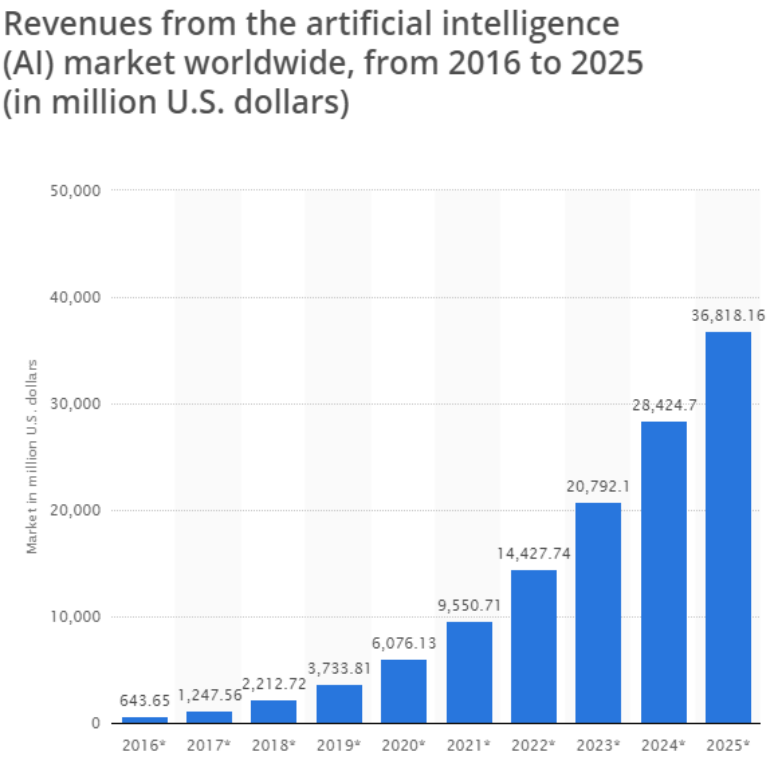
IoT technology is already revolutionizing the retail industry. The report "Internet of Things (IoT) in Retail Market" predicts that global IoT in retail market would grow from USD 14,280 million in 2015 to USD 35,640 million by 2020, at a Compound Annual Growth Rate (CAGR) of 20.0%. North America is expected to be the top contributor in the IoT in retail market as the high internet penetration and usage of mobiles.

A recent report titled 'The Internet of Things Ecosystem Research' from Business Insider (BI) projects that 34 billion devices will be connected to the internet by 2020 from 10 billion in 2015, while IoT devices will account for 24 billion. With the connection with data-generating IoT-enabled devices, IoT could be widely adopted in every process of retailing, such as vending machines, inventory management, and customer payments, contributing to a high business value and an enhanced customer experience. Retailers are already using iBeacon technology worldwide to study customer behavior. Automating and optimizing the supply chain is one of the key uses of IoT among retailers.

**Autonomous vehicles/drones**


Traditionally, military applications have dominated sales of drones. Military uses accounted for more than 75% of sales in the U.S. in 2015. However, it is expected that civilian uses will take significant growth and will overtake government uses. The use of drones in retail and wholesale distribution is still small. However, it is expected to grow dramatically over the next decade. Drone industry experts say that it will take a few years before autonomous drones are making deliveries in and around U.S. cities due to competitive pressures pushing retailers to make their supply chains more efficient. DHL Parcel started delivering medications via drone to the remote German island in 2014, while UPS is also testing a drone delivery system in Florida, trying to use new technologies to improve deliveries. Drones could also be used to track movement and shopping patterns, increasing energy efficiency and reducing the number of staff. Walmart is trying to use flying drones to handle inventory at its large warehouses, suggesting the popularity and importance of drones in the retail industry.

**Artificial Intelligence/machine learning**



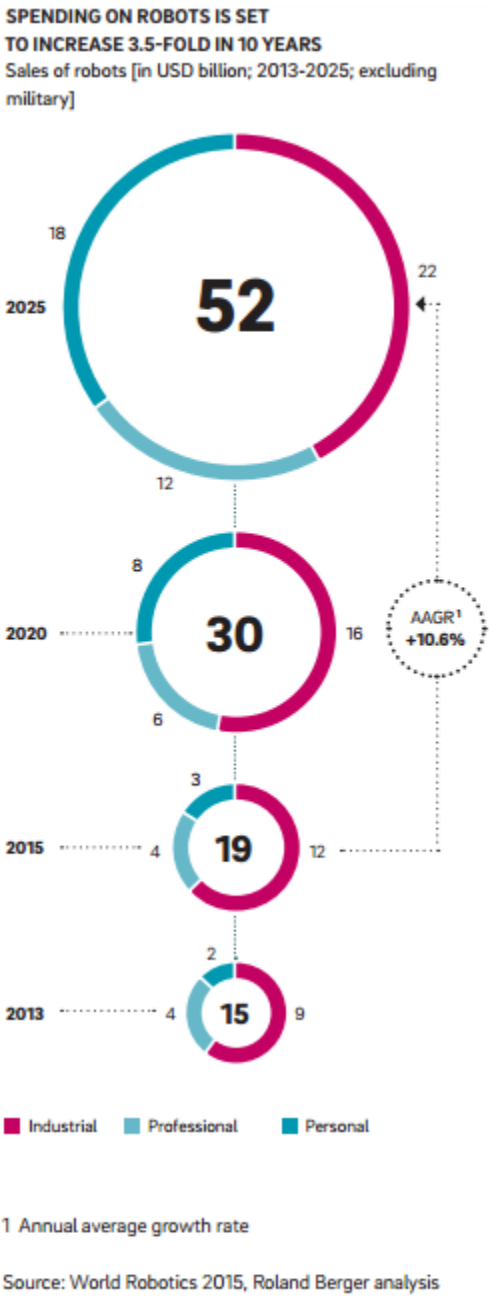

Source: Statista

Statista predicts the size of the artificial intelligence market worldwide will expand from 2016 to 2025. AI market revenues are expected to grow by approximately USD 644 million in 2016 to USD 37 billion in 2025. This growth can be attributed to diversified application areas, improved productivity, and increased customer satisfaction.

Under a research from IDC, the banking and retail industries are expected to invest the most in AI systems. North America will be the biggest investor in AI over the next several years.

According to Gartner, 85% of customer interactions in retail will be managed by artificial intelligence by 2020. Not only the retail industry, most sectors will also enjoy benefits from the application. Artificial Intelligence can improve the customer experience by a combination of using big-data with natural language processing capabilities and machine learning. Ecommerce platforms are able to turn massive numbers of failed experiences into successful conversions by using AI. Retailers could record the buying behavior of customers and offer “real personalization” and customized solutions via AI apps, which provide customers with their own personal virtual shopping assistant. It enables retailers to engage in deeper interactions with the specific customers.

## Robotics

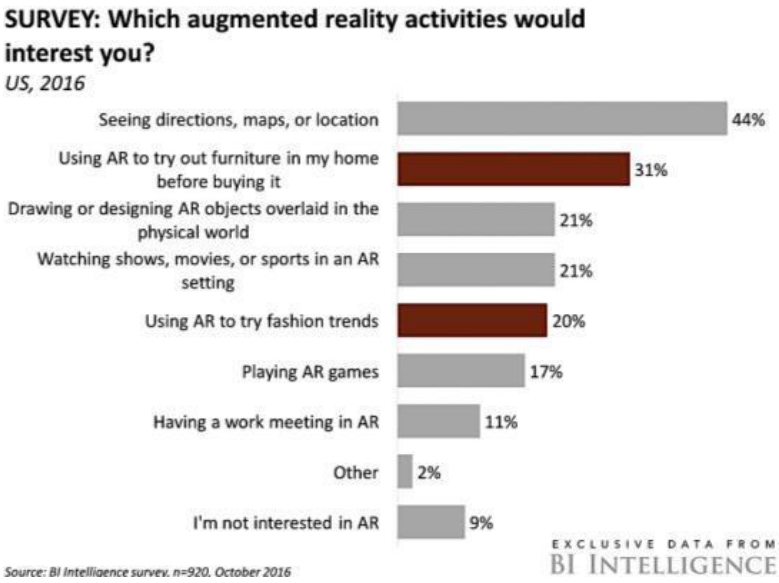



The global robotics market is expected to have significant growth from USD 19 billion in 2015 to USD 52 billion in 2025. According to the "World Robotics 2015 report", cost reduction and increasing commercialization of services robots in Europe are the key contributors of growth, with an expected average growth rate at around 11% per year between 2015 and 2025.

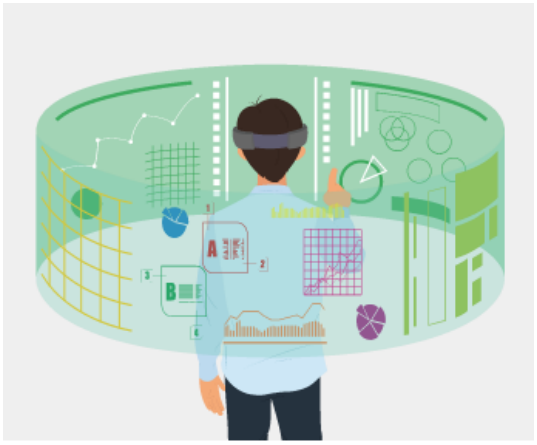
Facing wage growth, retailers are trying to increase their margins by replacing workers with robots. Robots have already started to infiltrate some retailers, like LoweBot3 in Lowe's stores in the San Francisco Bay area; Target's Tally4 travelling through aisles to take inventory. Amazon also dramatically enlarged its army of warehouse robot in 2016[5], with 25,000 robots across 20 centres. Amazon has been adding about 15,000 robots year-on-year, a 50% increase from the same period of the previous year. The widespread of integration of robots into retail businesses allows retailers to deliver personalized engagement. Robots can capture data and examine customers' facial expressions, providing real-time insights to help customers.

According to research from the University of Oxford and a "Robot Revolution" report from Bank of America Merrill Lynch, around 50% of jobs could be replaced in 20 years by robots, and jobs in the retail sector are at risk.

## VR/AR




Apart from the main four technologies mentioned above, VR/AR certainly played a major role in retail as a marketing and sales tool for retailers. AR was adopted particularly in the furniture and beauty categories, allowing shoppers to see how a piece of furniture would fit in their home or show how makeup would look on a user's face.

More consumers prefer an authentic and enhanced digital shopping experience. AR could upgrade and provide users with an in-store shopping experience, regardless of their location. The global VR market is expected to reach USD 33.9 billion by 2022, at a CAGR of 57.84%. The global AR market is expected to achieve USD 14.07 billion by 2020 growing at yearly rate of 96.9% according to report by MarketsandMarkets. Some projections put AR and VR investment in retail at close to USD 30 billion by 2020 as the new technologies bring new mixed inspiration for retailers. More retailers are expected to use the new technologies to develop a greater competitive advantage and increase customer affinity for the brand. This new retail model has been called Frontierless, as the boundaries between the layers of reality merge and the omni-channel shopping experience becomes "omni-reality."

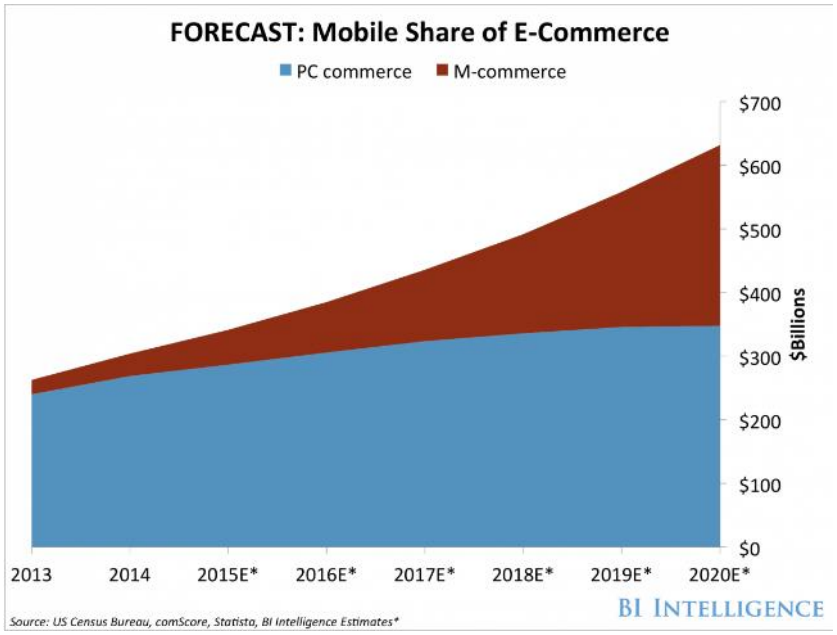
- **The rise of Mobile commerce**

Consumers are no longer loyal to a single brand or type of shopping. More consumers prefer searching on smartphones and tablets but complete purchases on desktop computers.


Source: Alliance Data

Alliance Data pointed out that 65% of millennials use their mobile while shopping in-store. Sometimes consumers are buying on a mobile while in a brick-and-mortar store. A report from Criteo shows 35% of all online purchases coming from a mobile device in the second quarter of 2016, marking 17% year-over-year growth.

It's not just U.S. users eager to buy on mobile devices. U.K online users are also quick to adapt to on-the-go purchases. The Centre for Economics & Business Research shows that 5.6 million people in the UK use mobiles to purchase goods and services. The number is expected to surge to 20 million by 2020. The value of purchases using a mobile device is predicted to nearly triple from £4.8 billion in 2013 to £14.2 billion in 2018.




Data from the U.S. Census Bureau and comScore indicates an upward trend of mobile share of e-commerce. Mobile commerce accounted for 11.6% of the USD 303 billion U.S. e-commerce total. By using this figure, BI Intelligence, Business Insider's premium research service predicts mobile commerce to hit USD 284 billion, or 45% of the total U.S. ecommerce by 2020.

We expect mobile commerce to enter the ecommerce mainstream and have a greater shift to mobile in 2017 as more users and retailers adopt tools. Shopping via apps will continue to rise. The selling process is becoming more streamlined and efficient. Retailers could see a positive return on investment from their mobile platforms and tools. Mobile fraud prevention becomes more important.

# CONCLUSION

The consumer will still be the main focus in the future. New technologies are significantly delivering a premium retail experience to consumers from branding to distribution. Digital growth is forcing companies to take a different approach to retail which is shaping the sector's future. Technologies will break down barriers to allow consumers to buy anything from anywhere. To win the battle, flexibility will be an important factor as retailers continue to experiment and adapt technologies and new challenges across all channels. Meanwhile, personalization increases consumer engagement. Retailers have to build one-to one relationships with their consumers to improve shopping experience and boost revenues.

# Endnotes

[1] eMarker, "Worldwide Ecommerce Sales Will Reach $1.915 Trillion This Year "August 22, 2016, https://www.emarketer.com/Article/Worldwide-Retail-Ecommerce-Sales-Will-Reach-1915-Trillion-This-Year/1014369#sthash.YtCizwsV.dpuf

[2] Amazon Go, https://www.amazon.com/b?node=16008589011

[3] LoweBot, http://www.lowesinnovationlabs.com/lowebot/

[4] Tally, http://fortune.com/2016/04/28/target-testing-robot-inventory-simbe/

[5] Amazon now has 45,000 robots in its warehouses, http://www.businessinsider.com/amazons-robot-army-has-grown-by-50-2017-1



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MLB Financial Group manages a substantial amount of assets for a broad range of institutional and private clients including funds and family offices. We offer comprehensive finance, asset management, and wealth management solutions to achieve the unique goals of every client. Our team of over 30 financial experts spot the best investment opportunities by leveraging on our insight, experience, and global presence.

***Contact***

Tel: (852) 2117 3482 Fax: (852) 2117 3486 Email: info@mlb-financial.com

Prepared by Bess Chau
Assistant Operations Manager