



AMAZON GO!!!! JUST WALKOUT

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Abstract: Amazon Go is a brand-new type of store that uses the most cutting-edge retail technology available. There are no lines and no checkout – simply grab and go! The innovative framework utilizes "advanced" machine learning, computer vision, and AI applications. On January 22, 2018, this new-age retail outlet opened its doors to the general public. Since then, eight new locations have opened in Seattle, San Francisco, and Chicago. This case study investigates the implications, applications, benefits, and challenges within the industry as well as in other industries. Retailers need to be concerned about the cost of establishing such retail outlets, consumer data collection, privacy risks, and job losses in the retail industry.

“Physical retail is getting high-tech, but the convenience comes with a challenge.”

TechVision, 2018

Index Terms - Amazon-Go, AI application, Retailing, Smart-retailing

Introduction

Waiting in line at the checkout counter is an unpleasant experience for everyone, regardless of whether they are queuing for a human cashier or one of the new self-service registers, which often poses difficulties for consumers using scan-and-go technology. Amazon Go, the cashier-less store concept pioneered by Jeff Bezos' company, has gained popularity and has ambitious plans to expand across the United States. With Amazon Go, customers can simply grab all the items they need and leave the store without having to go through the checkout process. To enter the store, customers must use the Amazon Go app, and they will receive a receipt for their purchases via the same app after leaving the store. Therefore, this case is an attempt to examine the potential benefits and challenges associated with Amazon Go's cashier-free service for the retail industry.

Amazon

Amazon.com is a US-based multinational company. Its headquarter is in Seattle, Washington, and specialises in e-commerce, digital streaming, cloud computing, and artificial intelligence. On July 5, 1994, Jeff Bezos founded Amazon from his garage in Bellevue, Washington (Guevara, 2020). It began as an online bookstore and has since expanded to sell electronics, software, computer games, clothing, household equipment, groceries, toys, and accessories. Amazon has a history of upending well-established industries through technological innovation and widespread extent.

After Walmart and China's Petrochemical Corporation, Amazon is the world's third-largest public company by revenue. Its revenue increased by 37.6% in 2020, the highest percentage increase since 2011, thanks in

part to the coronavirus pandemic (Curry, 2021). The contribution of Amazon's various sales businesses can be understood in figure 1.



Figure 1. Amazon's Sale from various businesses
 Source: (Richter, 2021)

Just Walk Out Technology

Amazon Go was the first to use Just Walk Out Technology. The Go shops, which are powered by Amazon's "Just Walk Out" technology, combine overhead cameras, weight sensors, and deep learning technology to recognise products that customers remove from or return to shelves, as well as to keep track of the things picked in a virtual cart (Amazon, 2021). Customers enter the shop via a turnstile using the Amazon Go smartphone app. When consumers leave the store, the Just Walk Out technology debits their Amazon account for the things they purchased and sends a receipt to the app. The same technologies used in self-driving vehicles enable our checkout-free shopping experience: computer vision, sensor fusion, and deep learning (Tillman, 2021). Just Walk Out Technology recognises when things are removed from or returned to shelves and stores them in a virtual cart. When customers are done with shopping, they can simply exit the store. Later, Amazon Go sends a receipt in an email to customers and charges their Amazon account afterward (Amazon, 2021).

Amazon established the first Amazon Go location in Seattle, Washington. The first store opened to Amazon employees on December 5, 2016, and to the general public on January 22, 2018 (Csnews, 2018). Eight new sites have since opened in Seattle, San Francisco, and Chicago. In Seattle, Amazon operates 26 Amazon Go convenience stores, including eight in Manhattan, seven in Chicago, six in Seattle, and five in San Francisco. Except for one 450-square-foot employee-only spot in Seattle's Macy's building, the locations range in size from 1,200 to 2,700 square feet (Redman, 2021).

The customer only requires an Amazon account, the free Amazon Shopping app, and an iPhone or Android phone of the recent generation. The Amazon Shopping app is available in the Apple App Store, Google Play, and Amazon Appstore. When customers get into Amazon Go stores, they just need to open the app, tap "In-Store Code," and scan the QR code with their phone. Just like any other store, customers may explore and shop as they normally would. They could be on their way once they have finished shopping. There are no line-ups and no checkout. Customers may also access the shop with a credit card linked to their Amazon account or Amazon One at select Amazon Go locations (Figure 2). Amazon One is a quick, easy, and frictionless way to input and pay for things purchased at Amazon Go using their palm (Amazon, 2021).



Figure 2: Working of Just Walk Out Technology
Source: (Pavia, 2018)

As the world grows more digital, Amazon Go and other tech-powered businesses will be a success. According to research by RBC, it was calculated that the average Amazon Go store earns between \$1.1 million and \$1.95 million in sales each year, based on an expected average range of 400 to 700 consumers per day spending around \$10 per transaction. According to the revenue predictions in that research, Amazon Go shops may produce \$4.5 billion in sales by 2021 if the firm follows through on its claimed ambition to add up to 3,000 sites in the coming years (O'Shea, 2019).

The Amazon Go Platform's Economic Benefits

Francois Chaubard, CEO Focal Systems; explained the benefits from Amazon's new retail format under two categories (Chaubard, 2019).

Savings on Direct Labour

Cashiers and out-of-stock scanners/inventory counters are no longer required with the Amazon Go platform. These advantages result in the following direct labour savings:

1. Cost of Cashier: The national average for a cashier payment today is \$12 per hour. While some supermarkets have 10 lanes and may operate all 10 during peak hours, this is highly rare. The estimation that the average supermarket shop has 5 cashiers on staff. If the store is open every day for 17 hours, this equates to a \$372,300 yearly savings per store.
2. Out-of-stock scanning/inventory counting: There is no need to scan outs, run cycle counts, or physically count inventory every quarter. With cameras watching each activity, traditional methods of inventory management could be eliminated. This results in extra direct labour savings of around \$40,000 per store each year.

Labour Savings through Indirect Means

The technology also creates large amounts of data, allowing for indirect labour and supply chain optimization. The system can use this data to figure out how many picks each stocker makes every hour and when items go out of stock. It also knows when the items are out of stock, so they know how much to assign on the shelf for the following planogram cycle to guarantee the allocation lasts the entire day. This aids in the optimization of planograms, supply chains, and in-store labour performance by management. Although assessing the indirect labour savings of such a benefit is impossible, it is believed to be \$50,000 per year per store.

Analysis:

Amazon's Go shops are an innovative and daring retail concept that has the potential to revolutionize the industry. However, this resilience comes at a cost. The implementation of Go shops requires a substantial investment in expensive equipment, computational resources, devOps tools, and other challenges. According to Morgan Stanley, Amazon would need to spend up to \$3 billion to build up its planned 3,000 Amazon Go

locations. Start-ups attempting to develop this technology on their own would be unable to sustain the significant losses long enough to make the solution cheap.

Despite these costs, Amazon's Go shops have the potential to be a multibillion-dollar business. The concept demands a larger initial investment than standard convenience stores, but it can potentially generate higher revenue. However, retailers and their consumers may be worried about data collection in their stores. Amazon has stated that its system will only collect the necessary information to provide accurate receipts to purchasers. However, retailers and their consumers may still have concerns regarding privacy.

Another issue is the impact on retail jobs. The implementation of cashier-free services may result in job loss for retail employees. Just Walk Out, according to Amazon, will make shift employees' duties easier and allow them to focus on more important responsibilities like stocking stores and greeting customers. However, the loss of retail jobs may have an impact on retailers considering automating store sales.

Conclusion

Amazon's cashier-free service Go shops, dubbed the "future of retail," are one of the most daring retail endeavours to reach the market in a long time. This resilience, however, comes at the cost of a lot of expensive equipment, computational resources, devOps tools, and a lot of other difficulties.

Despite the fact that Amazon Go has the potential to be a multibillion-dollar business, the path to get there is costly, as the concept demands a larger initial investment than standard convenience stores. According to Morgan Stanley, Amazon would need to spend up to \$3 billion to build up its planned 3,000 Amazon Go locations. Start-ups attempting to develop this technology on their own in order to sell it to retailers and make a profit would be unable to sustain the large losses long enough to make the solution cheap.

Retailers, on the other hand, and their consumers, may be worried about data collection in their stores. Amazon maintains that its system will only collect the information needed to provide accurate receipts to purchasers. Additionally, the loss of retail jobs may have an impact on retailers that are considering automating store sales. Just Walk Out, according to Amazon, will make shift employees' duties easier and allow them to focus on more important responsibilities like stocking stores and greeting customers.

Lead Questions

Q1. What is Amazon Go and why is it considered a daring retail endeavour?

Amazon Go is a cashier-free service where customers can simply grab items they need and leave the store without going through a checkout process. It is considered a daring retail endeavour because it requires a larger initial investment than standard convenience stores due to the expensive equipment, computational resources, and devOps tools required to run it.

Q2. What is the estimated cost for Amazon to build up its planned 3,000 Amazon Go locations?

According to Morgan Stanley, Amazon would need to spend up to \$3 billion to build up its planned 3,000 Amazon Go locations.

Q3. Why might start-ups attempting to develop this technology on their own struggle to make it cheap?

Start-ups attempting to develop this technology on their own in order to sell it to retailers and make a profit would be unable to sustain the large losses long enough to make the solution cheap.

Q4. What concerns might retailers and their consumers have about data collection in stores?

Retailers and their consumers may be worried about data collection in stores, as Amazon's system collects information needed to provide accurate receipts to purchasers.

Q5. According to Amazon, what is Just Walk Out, and how might it impact retail jobs?

Just Walk Out is a system that Amazon claims will make shift employees' duties easier and allow them to focus on more important responsibilities like stocking stores and greeting customers. However, the loss of retail jobs may still be a concern for retailers considering automating store sales.

Other areas open for discussion:

Q1. Discuss the various management concept that covers in this case study

Q2. Discuss the supply chain management of Amazon Go.

Q3. Is this business model succeeding in the Indian economy?

Q4. What will be the major area related to Amazon Go under different stakeholders?

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