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Proposal for Maximizing E-commerce Sales in the 4th Industrial Revolution

4차 산업혁명 시대 기술을 활용한 전자상거래 비즈니스 확대 전략

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Executive Summary (English)

Purpose

The purpose of this paper is to examine the trends in e-commerce, technologies that are applied to e-commerce and retail, and to propose strategies for businesses, especially small and medium sized businesses as well as startups to maximize revenue utilizing e-commerce.

Key Findings

Through various literature review and case studies, some of the key findings on the trend and technologies applied to e-commerce are as follows:

1. The widespread of e-commerce was catapulted by two major factors, the internet and the smartphone. Although the internet kick started the move towards online shopping, the introduction of smartphones was the key factor for e-commerce becoming the mainstream way of shopping for consumable goods.
2. Millennials and Gen Zs, also known as ‘digital natives’, are the ones behind the growth of e-commerce, and will continue to be the generation that fuels the growth in e-commerce.
3. Big data and artificial intelligence are primarily used to help companies understand their customers, to make new products, to improve existing products, and to market their products efficiently. On the other hand, big data and artificial intelligence is used by consumers in discovering/finding new products.
4. Experience is one of the key components in shopping. In order to enhance the shopping experience, brands and e-commerce companies use augmented reality and virtual reality.
5. Offline retail is not dead, but rather online and offline retail are complementing each other to make the shopping experience whole for the consumers. Therefore, e-commerce companies such as Amazon are getting into offline retail business. Also, companies that were traditionally offline such as Walmart and Nike are working to improve their online presence.
6. The metaverse will add an additional element to the future of e-commerce and retail. The metaverse is expected to be the new place on top of the offline and online retail space to discover, experience, and buy products.
7. Startups can grow their business very rapidly in just a few years and can unseat well established companies from their top market position, as seen in the case study of Dollar Shave Club.

Recommendations

Based on the key findings of the paper, the proposal for small and medium sized companies (and even well-established companies) to succeed in the e-commerce space are as follows:

1. Companies must gather data on every virtual touch point of the customers' shopping journey. Some of the touch points are e-commerce websites, blogs, SNS pages, and more.
2. Going direct-to-customer (D2C) is no longer an option, but a necessity. With so many tools and services available, any company can easily set up an online store (or get onboard to large e-commerce marketplaces such as Amazon.com and Walmart.com), hire a marketing agency to run digital marketing campaigns, and use third party logistics to fulfill orders directly to customers.
3. Make new products as well as improve existing products based on data. Companies can get direct and fast feedback in the digital space, and the companies should use this data to quickly make new products or improve their existing products to meet customer demands.
4. Companies must be willing to personalize the shopping and product experience for the customers based on data. Changing products as well as running customized marketing campaigns will improve customer's experience.
5. The future is closer than everyone thought. Before the Covid-19 pandemic, the metaverse and NFTs were considered fairly futuristic. However, the pandemic has made people worldwide to stay inside, leading people to spend more time online. This has sped up the metaverse and NFTs to become a part of people's lives faster. Although the metaverse may be a fad (still need to see more data and trends to have the final word), the companies must be prepared to implement the metaverse to the overall e-commerce and digital marketing strategies.

Executive Summary (Korean)

목적

이 논문은 전자상거래의 동향 전자상거래에 적용되는 주요 기술을 검토하여 스타트업, 중소기업, 중견기업, 대기업 등에게 전자상거래를 활용한 매출 확대 전략을 제시하고자 하였다.

주요 연구 결과

전자상거래 관련 주요 문헌과 기업의 사례를 분석하여 아래와 같은 전자상거래의 트렌드 및 적용되는 기술에 대해서 결과를 도출하였다.

1. 전자상거래의 발달은 크게 두가지로부터 시작되었다. 인터넷과 스마트폰. 인터넷이 도입되면서 온라인 쇼핑이 활발해지기 시작하였으며, 스마트폰이 도입되면서 전자상거래는 쇼핑의 주요 수단이 되었다.
2. ‘디지털 네이티브’ 라고 불리는 밀레니얼과 Z세대가 전자상거래 발전에 크게 기여한 세대이며 미래에도 지속적으로 발전을 시킬 세대라는 것이다.
3. 빅데이터와 인공지능은 기업들에게는 고객을 이해하고, 새로운 상품 개발을 위한 데이터 제공, 현재 상품 보완을 위한 고객의 소리 제공, 상품 홍보를 더 효율적으로 하는데 주요한 역할은 하고 있다. 또한, 빅데이터와 인공지능은 고객들에게는 나에게 맞는 상품을 찾는 데 유용하게 쓰이고 있다.
4. 고객에게 쇼핑을 할 때의 경험이 매우 중요하다. 기업들은 고객의 쇼핑 경험을 극대화 하기 위해서 AR이나 VR같은 기술을 적극적으로 도입하고 있다.
5. 오프라인 유통은 사양산업이 아니다. 오프라인과 온라인은 고객의 쇼핑 경험에서 상호 보완적인 존재로 더 자리 잡고 있으며, 아마존과 같은 전통적인 온라인 유통 기업이 오프라인에 투자를 강화하고 있고, 역으로 오프라인 중심으로 사업을 하던 미국의 월마트나 나이키는 온라인 투자를 적극적으로 확대하고 있다.
6. 메타버스는 전자상거래와 유통의 미래에 한 축으로 자리 잡을 것으로 예상된다. 메타버스는 온라인과 오프라인의 쇼핑 공간 이외에 가상의 쇼핑 경험의 공간으로 발전할 것으로 예상된다.
7. 스타트업도 전자상거래를 기반으로 짧은 시간에 고속 성장할 수 있으며 기존의 거대기업의 시장점유율을 쉽게 빼앗을 수 있다. 이런 경우는 달러 웨이브 클럽 사례를 통해서 볼 수 있었다.

전략적 제언

주요 연구결과를 바탕으로 중소기업, 중견기업 (대기업까지도)에게 전자상거래를 활용해 사업확장을 위한 전략을 아래와 같이 제시한다.

1. 기업들은 고객의 쇼핑 여정의 모든 단계에서 데이터를 수집하고자 노력을 해야한다. 데이터는 전자상거래를 위한 자사몰, 블로그, 소셜미디어 페이지 등에서 수집이 가능하도록 구축 및 운영해야한다.
2. D2C는 이제 더 이상 선택지가 아닌 필수 요건이 되었다. 많은 새로운 톨로 인해 기업들은 자사몰을 쉽게 제작할 수 있고 (대형 온라인 마켓플레이스인 아마존이나 월마트 입점도 간단) 전문 디지털 마케팅 기업과 계약을 통해 디지털 환경에 최적화된 마케팅을 할 수 있으며, 제 3자 물류 서비스를 이용해 고객에게 직접 상품을 배송할 수도 있다.
3. 디지털 환경에서는 고객의 소리 및 판매 관련 정확한 데이터를 거의 실시간으로 확보할 수 있으므로 데이터를 사용하여 신속하게 기존 상품을 개선하고 신상품 개발에 적용해야 한다.
4. 기업들은 데이터 분석을 통해 고객별로 개인화 된 쇼핑 경험 및 상품을 제공해야 한다. 상품의 개인화뿐만 아니라 마케팅도 개인화 할 수 있도록 최적화 해야 한다.
5. 미래는 생각보다 가까이에 있다. 코로나 19로 인해 많은 사람들이 재택근무를 하게 되었고, 더 많은 시간을 온라인에서 보내게 되면서 메타버스와 NFT의 활용도가 급격하게 증가하였다. 메타버스가 단순 잠시 유행하는 기술일 수도 있으나 (아직 더 많은 데이터와 동향을 분석 필요) 기업들은 메타버스를 기업의 전자상거래와 디지털 마케팅 전략에 반드시 포함시켜야 한다.

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I. Introduction

1. Motivation for Research

E-commerce has been steadily growing for the past 10-15 years becoming one of the most popular ways consumers shop for products. And according to ReportLinker, the global e-commerce market size is expected to grow by \$10.87 trillion during 2021-2025 at a CAGR of 29%.

Many SMEs and start-ups have been able to successfully launch their products not only in the local market but also in the global market. However, many SMEs and start-ups still struggle to find success in implementing e-commerce to their overall marketing and business strategy.

COVID-19 has forced many people to make online shopping a necessity and the upward trend in e-commerce transactions is expected to continue. Therefore, it is critical for SMEs and start-ups to use the most up-to-date technology to become more competitive in the global market.

Suggesting strategies to increase global e-commerce sales will not only help SMEs and start-ups succeed in the global field but also will create many new jobs as the strategies can be used for those who want to start an e-commerce business.

Thanks to the internet, smartphones, and technology, it has become very easy for SMEs to reach customers globally with limited resources (i.e. employees and funds). By proposing strategies for SMEs and start-ups to utilize e-commerce and technology (big data, AI, e-commerce, digital marketing) to have their products get discovered by potential customers worldwide, it is expected that many more businesses will come into the market bringing more products to the world as well as creating many new jobs.

Therefore, it is the goal of this paper to propose strategies for companies to utilize e-commerce in their overall business strategy to find new markets, find new products, and expand their business globally.

2. Research Method

Since the primary goal of this paper is to propose strategies that companies can implement in their overall marketing and sales plan, the research will focus on the following:

- (1) General trends and overview of e-commerce and technology
- (2) Case studies to understand how technology is applied to e-commerce
 - (a) How innovative e-commerce marketplaces utilize technology
 - (b) How technology improves the customer's experience
 - (c) How technology can increase e-commerce revenue
- (3) Propose strategies for expanding business via e-commerce

Various literature and case studies from academic institutions and research institutes are reviewed to better understand the industry and technology.

II. Literature Review: E-commerce Trends and Technology

1. How Technology Disrupted Retail

On January 9, 2007, the late Steve Jobs, unveiled Apple Inc.'s latest technology, the iPhone. At that time, many people believed that this was just going to be a fancy cellular phone with a camera and internet access. However, what most people did not realize was that this little device was going to disrupt many industries and change the world.

Fast forward to 2022, almost everyone above the age of 16 owns a smartphone although the smartphone market is shared by many multinational companies such as the aforementioned Apple, Samsung, Huawei, and etc.

The smartphone has brought changes to just about every industry that touches people's everyday lives. The little device that fits into people's pockets has changed how people catch a cab, order food, read a book, watch TV, email, communicate (via messenger apps), and etc.

One of the industries that has been most disrupted and has seen the landscape completely change is retail. Macy's, Circuit City, and Toys R'Us, some of the most prominent retail giants have gone out of business and Amazon, eBay, Etsy, and Shopify, strictly e-commerce retailers have become the mainstay of retail.

Not only has the way people buy things changed, but also the way companies and brands advertise their products to potential customers have also completely changed. Advertising revenues of newspapers, television, radio, and billboards have gone down, while advertising dollars have been poured into online platforms such as Google, Facebook, Instagram, and etc.

Consumers these days are comfortable with buying things without actually touching, testing, or seeing them in person. And because of this new behavior, many brands and e-commerce marketplaces have adopted the newest technologies such as augmented reality (AR), virtual reality (VR), big data, machine learning, and artificial intelligence (AI).

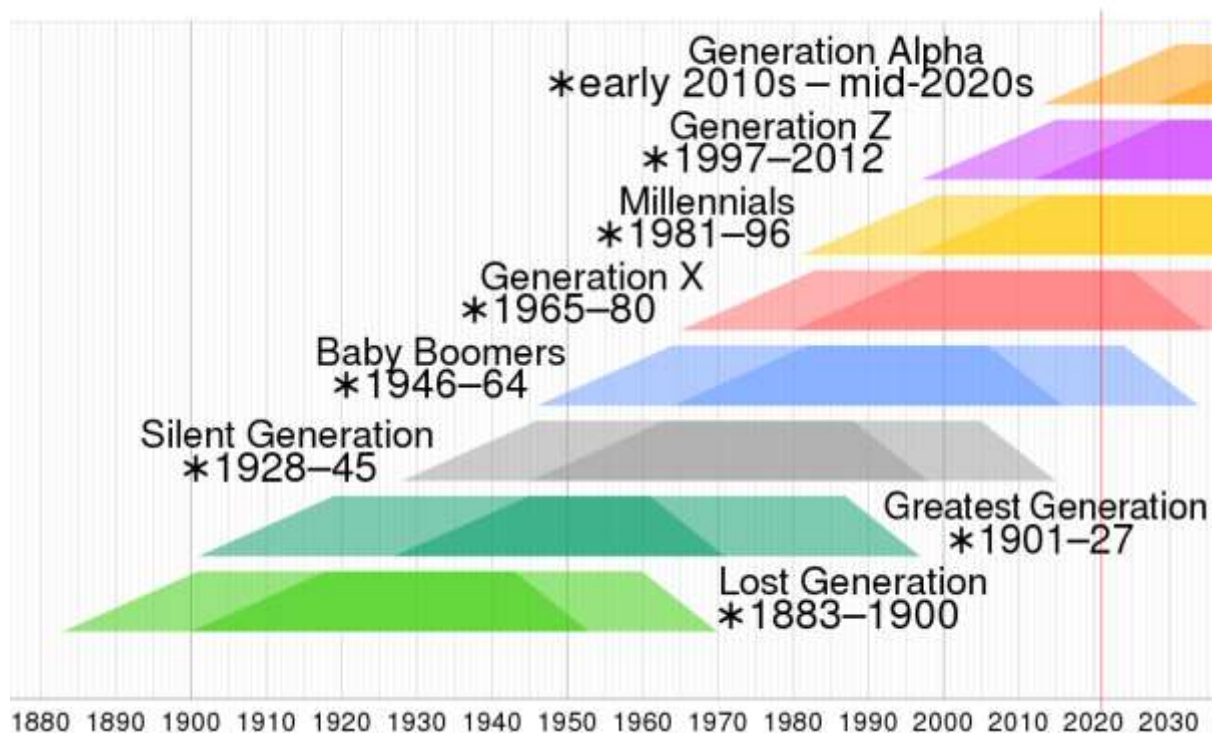
Although the current e-commerce market is full of the latest technologies, the next generation of technologies such as the Metaverse, blockchain, non-fungible tokens (NFTs) is expected to make new splashes in the retail world.

As technologies evolve so should businesses that utilize these technologies. Thanks to technology, it has become very easy for small and medium-sized businesses, start-ups, and even solopreneurs (a business run by a single person, usually the founder) to not only start their businesses quickly but also scale their business rapidly targeting the global market.

2. Millennials and Gen Z are Changing Retail

According to Wikipedia, Millennials, also known as Generation Y or Gen Y, are the demographic born in the 1980s to mid-1990s. Generation Z or Gen Z are the demographic born in the mid-1990s and later. These two generations are now becoming one of the biggest buying generations and will continue to get bigger.

< Figure 1. Generations of the World >



* Source: <https://en.wikipedia.org/wiki/Generation>

The baby boomers, previously the largest group of consumers, were born from 1946 to 1964. The baby boomers are the ones behind the growth of traditional offline, brick-and-mortar retail stores, buying food and daily necessities from traditional supermarkets, hypermarkets, and large malls. Also, this generation of buyers discovered new products from advertisements on television, radio, newspaper, billboards, etc., more traditional media, and offline outlets.

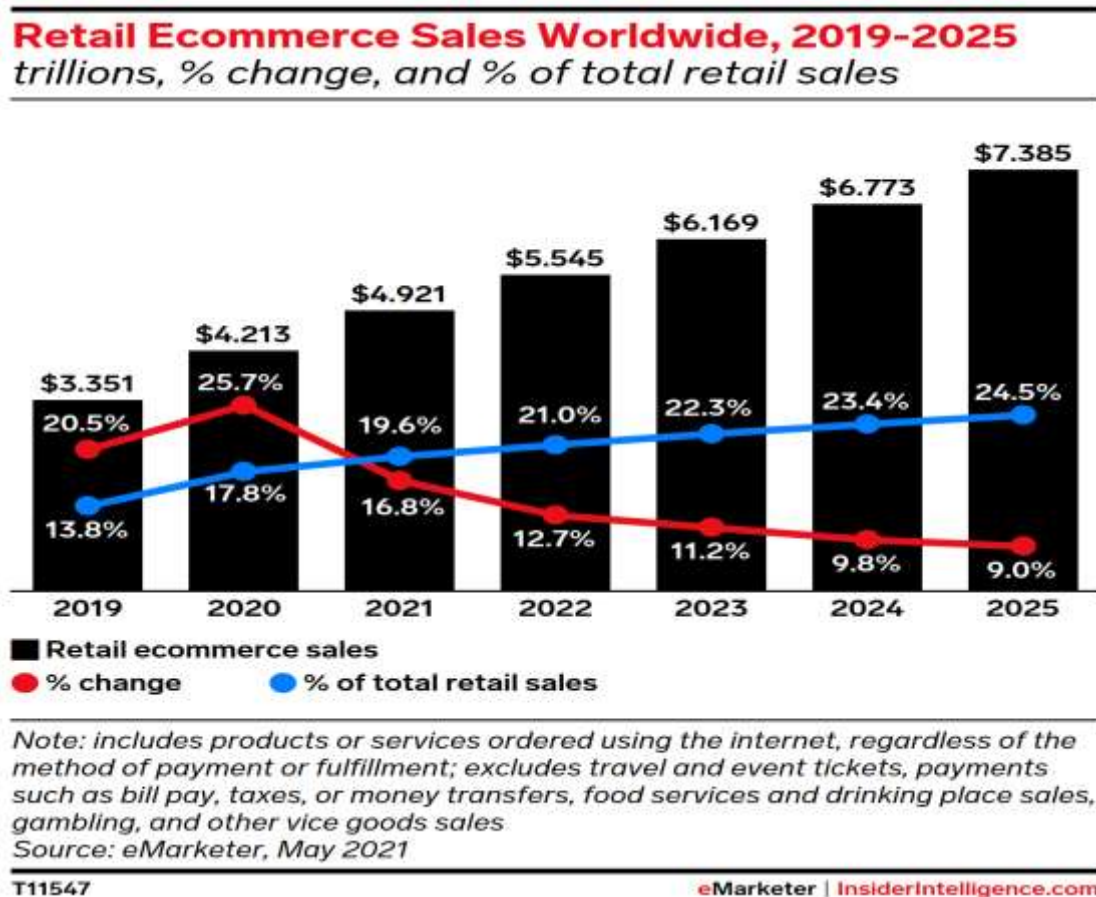
The Millennials and Gen Z are different from the baby boomers. First, they are considered 'digital natives' growing up with technology and therefore are very comfortable adopting and using technology and consider it to be an integral part of their life (Halton, 2021). The digital natives use computers and smart devices to communicate, learn, socialize, and shop.

The Millennials and Gen Z usually learn out about new products digitally by doing a Google search, seeing an ad on Facebook, getting a recommendation from an influencer they follow on Instagram, etc. And they would use offline retail space very differently from the previous generation of shoppers. The Millennials and Gen Z would go into an offline retail store to check

the products out in person and then buy the product online on Amazon.com. This type of behavior is called showrooming, using offline retail space to experience products instead of buying them.

It was just a matter of time before e-commerce became mainstream in the retail industry. However, e-commerce is still in its infancy stage. According to eMarketer worldwide e-commerce is expected to be \$7.385 trillion by 2025, making up 24.5% of total retail sales (Lebow, 2021).

< Figure 2. Worldwide E-commerce Outlook >



* Source: <https://emarketer.com/content/global-ecommerce-forecast-2022>

Thanks to the Millennials and Gen Z, e-commerce sales are expected to continue growing, and technology will continue to have a bigger role in e-commerce as this generation of digital natives will keep discovering and buying products online. This expected upward trend will force on/offline retailers to continue adopting new technologies and evolve to meet the digital shopping demands of the digitally native consumers. Also, physical products brands will continue to invest in improving the customer experience using AR, VR, AI, and more to make the shopping experience as native as possible for the Millennials and Gen Z.

3. 7 Key Technologies in E-commerce

(1) Voice & Visual Search

People are getting more used to giving verbal commands to machines nowadays. There have been many commercials that show a person asking voice assistant devices such as Apple's Siri, Amazon's Alexa, and SK's Aria to give them an answer to their question or reply to their requests.

This kind of behavior might have seemed very futuristic just a few years ago, but in 2020, more than 150 million voice assistant units were sold, 65% of people in the age group of 25-49 use voice-enabled device at least once per day, and 30% of web browsing sessions in 2020 were screen-less (Brown, 2020).

With voice search technology, consumers would visit an e-commerce store and use voice search instead of typing in what they are looking for in the search box. This is significant for not only e-commerce marketplaces such as Amazon, Taobao, Coupang, and more, but also for brands that operate their own e-commerce stores.

Voice searches are gaining popularity because of the following reasons:

(1) It is faster and easier to search for products. When a customer is searching for a product, it is much easier and faster to speak the words into a device than typing the search query.

(2) Voice searches are better for mobile devices. People may have typos searching for products using a PC or a laptop, and it is much more likely a person will mistype words using a mobile phone.

Voice searches will continue to become an important part of a company's e-commerce strategies as voice search accounts for a third of all searches online and the 18-24 demographic will continue using voice search (Brown, 2020).

< Figure 3. Amazon Alexa >



* Source: <https://wikidata.org/wiki/Q28022144>

Another way of searching for products online that is expected to grow along with voice search is visual search. Everyone has had the experience of going into a restaurant hungry and seeing a waiter taking a dish to a table and wondering what the dish may be. If one can just take a picture of the dish to place an order, the life would be very simple.

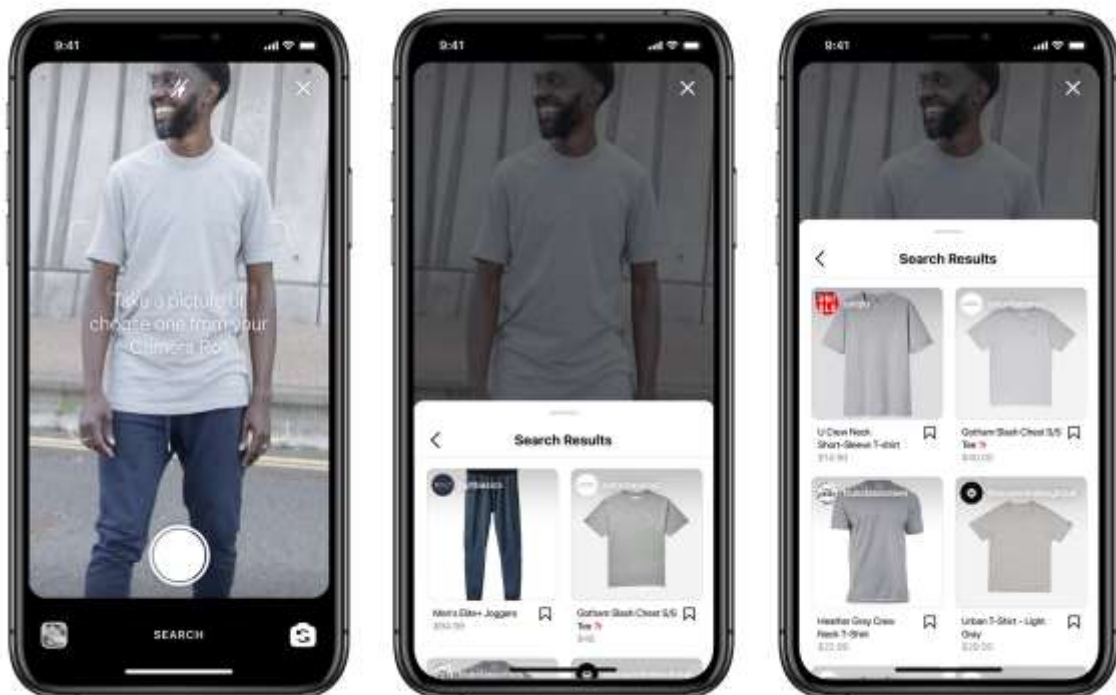
Visual search is expected to continue gaining popularity as 62% of millennials prefer visual search over using keyword search on Google, Amazon, and etc. (White, 2021). And this is the reason why some major retailers such as Amazon, Target, IKEA, and Walmart are trying to develop more efficient visual search engines.

Using images to search for products online would improve conversion rates as customers can quickly find items they are looking for and therefore improving the customer's experience on a certain e-commerce website (Alipour, 2020).

Some of the key technologies needed to make visual searches work are AI and machine learning. The steps to use image search are (1) the customer uploads an image (2) the machine learning engine processes the image (3) extract the visual features of the image (4) calculate the similarities between extracted features and trained data (5) show the product similar to the image.

As one can see from the above, it would require a clear image of the product and data for the AI algorithm to process the image and make recommendations. Therefore, it is critical for brands to have clear and high-quality images.

< Figure 4. Image Search for Products >



* Source: <https://m.timesofindia.com/gadgets-news/facebook-to-add-visual-search-for-shopping-on-instagram-heres-what-it-means-for-users/articleshow/83774127.cms>

(2) Big Data

When one hears the word ‘big data’, one has a tendency to think ‘a lot of data’. However, just having a lot of data would not be meaningful in business. According to Gartner, big data is ‘high-volume, high-velocity, and high-variety of information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation.’

There are many channels from which data about a certain person can be collected. Data on a person’s behavior and preferences are collected from posts on one’s SNS accounts, websites the person visits, reviews the person leaves after a purchase of products, and etc.

Amazon is an e-commerce website that is loaded with data on consumer behavior. Amazon can analyze which products are being sold fast, are being abandoned at cart, receive the best or worst reviews, which products are being bought together, how many of each product are bought at a time, and etc. Also, Amazon can collect data on individual consumers by collecting data when a customer visits Amazon’s website to search for and buy products. With all the data Amazon collects, Amazon can individualize a customer’s shopping experience by recommending products via email or changing which products to show first when a customer visits Amazon’s website.

Amazon also utilizes its offline outlets to collect data and understand consumer behaviors. Amazon 4-stars sells products with 4-star rating or higher on Amazon.com. This specific store allows Amazon to understand which products would sell well not only online but also offline. Also, Amazon’s grocery retail chain, Whole Foods, is another great way to collect data on which fresh foods people buy on a daily basis. This data allows Amazon to optimize their fulfillment network for groceries which requires different types of management than regular consumable goods.

China’s e-commerce giant Alibaba Group also has many websites from which it collects valuable consumer data, such as Alibaba, Taobao, Tmall, Aliexpress, and etc. Alibaba Group also has an offline grocery store called Hema Xiansheng. This grocery store maximizes the utilization of big data as it predicts how much each food item will be sold during weekdays, on weekends, on holidays, and etc. By accurately anticipating customer demand, Hema Xiansheng can maximize profit and customer satisfaction by ordering the right amount of inventory each day, providing fresh food to its customers.

Many brands and retailers also use big data that is collected on SNS platforms and search engines to get customers to come back, attract new customers, and etc. SNS platforms such as Facebook will use data it collects on its users to allow companies to show advertisements to potential customers, find new customers that have shown similar behaviors to certain group of people (lookalike audiences), show advertisements to customers who have visited an e-commerce website but did not purchase (retargeting), and etc.

With big data being collected on various points of a customer’s journey online, it is expected that more companies will provide tailor-made on-demand services to consumers. Amazon has

purchased Body Labs for over \$100 million and will use the technology to further expand their fashion items by offering customized clothing items in the future (Lomas, Crook, 2017).

(3) Artificial Intelligence

Artificial Intelligence (AI) is ‘the ability of a computer or a robot to do tasks that are usually done by humans because they require human intelligence and discernment’ (Copeland, 2022). People have been able to experience artificial intelligence in daily lives when watching videos on YouTube or Netflix, banks sending merchants alarms when fraudulent activities have been detected, and etc.

AI has been applied in e-commerce to enhance the customer experience and sales for businesses. According to a research done collaboratively by Deloitte and Salesforce (2008), 40% of businesses use AI and customer data to change prices real-time, 39% to connect data gathered from different channels online, 34% to personalize product offerings, 32% for image search, 31% to predict questions a particular customer may ask, and 28% for voice search and ordering (황지영, 2019).

Consumers are also likely to enjoy the personalized services that are being offered to them. 91% of consumers say they are more likely to shop with brands that provide offers and recommendations that are relevant to them (Blake, 2020).

Amazon’s AI based virtual assistant, Alexa, has already been showing a lot of promise in shopping. OC&C, a strategy consulting firm, has predicted that voice shopping will grow to \$40 billion in the United States and the United Kingdom. Voice shopping is considered to be faster and more frictionless than traditional keyword search based shopping as people can speak faster than they can type (Simms, 2019).

Another area where AI is applied in e-commerce is with chatbots for customer service. Almost 75% of the Millennials and Gen Z’s in America prefer to talk with other people via text message instead of face to face or via telephone (Murphy Jr., 2017). This statistics is significant as more Millennials and Gen Z’s are expected to be the core buying group within just a few short years. Therefore, it is critical for e-commerce brands and marketplaces to gather big data on customers’ questions, preferences, and more, and apply AI to offer chatbot services that will be able to answer these new groups of buyers’ questions.

(4) Virtual Reality (VR) & Augmented Reality (AR)

In March 2014, Facebook acquired Oculus, a VR equipment company for \$2 billion. When the acquisition was made, most believed that it would bolster Facebook as a major player in the gaming industry. However, Facebook's recent rebranding of their company to 'Meta' shows the world that AR and VR can be applied to the world other than gaming.

AR and VR technology is being applied to the furniture industry as well. When a person is looking to buy furniture, one wants to know if a certain piece of furniture will go well with the interior and ambiance of one's home or office. Ikea, one of the most well-known Swedish home furnishing company launched a mobile application, which allows a customer to use a smart device to see if the furniture that he or she wants to buy. All the customer has to do is to turn on the application, aim the camera to the area in the house where the furniture will be placed, select the furniture of interest, and then the application will put the furniture in that spot, allowing the customer to have a better understanding of how it will look before he or she orders the product.

Wayfair, an American furniture retailer, has launched a service called Magic Leap One. A customer interested in buying furniture will put on a VR headset and will be able to virtually put furniture and home decor items at one's home (Renfrow, 2018).

Nike has allowed customers to check out their shoes virtually using an AR powered service called SNKRS. Customers can have a 360 degree view of the shoes and change sizes before they make a purchase decision.

Luxurious fashion brands such as Gucci and Christian Dior used VR technology to provide their customers the opportunity to experience fashion shows without physically being present at the runway.

According to a study conducted by Ana Jarvornik (2016), AR based mobile applications improved how consumers viewed a brand and increased their tendencies to buy from the brand, re-visit the online store, and recommend the brand to a friend or family.

E-commerce has allowed people to buy consumable goods without actually touching the product thanks to high-quality photos, videos, reviews from other customers. With the emergence and development of AR and VR, now consumers can experience the products virtually improving customer engagement with the brand before making their purchase decisions. Such experiences will lead to customers coming back for repeat purchases.

Therefore, AR and VR could be considered one of the core technologies for retail companies as well as brands as e-commerce retail sales continue to increase, and as the metaverse becomes a bigger part of people's lives.

(5) Tech Retail Outlets

Nowadays, many restaurants and cafes use kiosks to take orders. When someone experienced such an automated ordering process for the first time, it was considered very innovative.

Lately, many large retailers, especially online retailers such as Amazon, Alibaba, JD.ID, Emart and more are opening up offline stores that are either fully automated or more technologically advanced. The global market value of these unmanned stores are expected to grow at a CAGR of 51.9% from 2019 to 2027, and the market value is expected to grow from \$67.48 million in 2019 to \$1,640.32 million in 2027(The Insight Partners, 2020).

Amazon has opened a high tech offline store in Seattle called Amazon Go utilizing their ‘just walk out shopping technology’. Amazon Go is a convenience store that is operated without any cashiers. A customer would open up the Amazon Go smartphone application, scan the QR code upon entering the store, just pick up items the customer wants, and walk out of the store without having to wait in line to pay for the product. The RFID, QR, sensors, and more technologies would know exactly what the customer had picked out from the shelves and charge the credit card the customer has already saved on his or her Amazon smartphone application (Cheng, 2019).

< Figure 5. Amazon Go Store >



* Source: <https://www.supermarketnews.com/retail-financial/amazon-go-draws-high-interest-us-shoppers>

Another retail giant, Alibaba has been opening up unmanned stores all over China. These stores utilize technologies such as machine vision, biometric identification, and deep learning to make the shopping experience as seamless as possible. Basically, the machine vision technology recognizes the customer when he or she walks into the store and the customer scans his or her QR code, which is connected to their Alibaba account, and purchases are paid for using Alipay (Russell, 2017).

Traditional offline retailers are also implementing more unmanned experiences for customers. Many Korean retail conglomerates have implemented self-checkout systems where customers can pay for their purchase without the help of a cashier. However, these offline retailers are taking a slightly different approach to implement technology to their stores and enhance customer experience. The smart shopping cart named Eli was introduced by E-mart at one of its E-mart Traders locations.

Eli will lead a customer to the section where the product the customer is looking for is located, and along the way will share sale information (Kim, 2018).

< Figure 6. Eli at Emart Traders (Korea Herald) >



* Source: <http://m.koreaherald.com/view.php?ud=20180417000718>

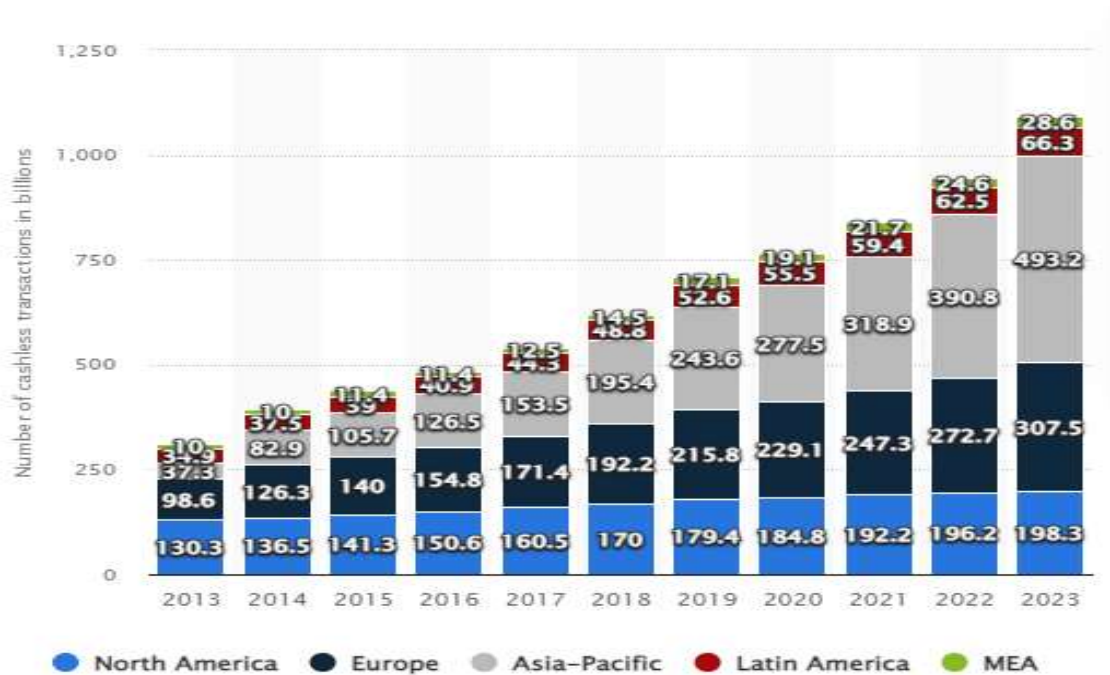
(6) Fin-tech

As e-commerce gains more popularity, cashless transactions are expected to become the mainstream method of payment. PayPal was the pioneer in the cashless transactions, but now there are many more companies providing cashless payment services worldwide.

According to Statista, 493.2 billion in the Asia-Pacific region, 307.5 billion in Europe, and 198.3 billion in the U.S cashless transactions are expected to be made by 2023. Of the countries in the Asia-Pacific, China is leading the way with payment service providers such as Alipay and WeChat Pay (De Best, 2022).

In China, consumers can not only pay for online purchases using Alipay and WeChat Pay, but also can pay for purchases at offline stores and restaurants with these payment methods by simply scanning QR codes. Cashless payments in China have gained popularity quickly due to the fact that Chinese people do not like to have debt, therefore do not prefer using credit cards. Also, the millennials and Gen Z's have become the main purchasing group of many consumer goods, paving the way for fin-tech companies to gain them as customers rapidly.

< Figure 7. Cashless Transactions >



* Source: <https://www.statista.com/statistics/265767/number-of-cashless-transactions-worldwide-by-region/>

In the U.S, the most popular cashless payment services are Apple Pay, Amazon Pay, Google Pay, PayPal, and etc. Amazon allows customers on their e-commerce website to make a purchase with just one click with their famous 'Buy with 1-Click' system. Amazon Pay is also becoming a prominent payment gateway for many e-commerce stores worldwide as Shopify, a service that allows individual online stores to be created by companies has integrated Amazon

pay as a part of the payment options for the stores. Now, Amazon customers can also buy products from individual online stores with Amazon Pay.

Fin-tech and cashless transactions are important to the overall e-commerce and retail landscape as it is a great way to collect data at the transaction stage. In the past, when a customer buys products using cash or gift certificates, it was very hard to collect data on how many a certain item was purchased and at what price point. But with cashless transactions, retailers can have a deeper understanding of how much of a certain product a customer buys as well as how frequently one purchases certain items. This type of data would serve as the foundation for e-commerce marketplaces as well as brands to curate an individualized marketing plan that will lead to more on-target marketing campaigns resulting in more revenue.

(7) Logistics

Robots

When one thinks of robots, there is a tendency to think of robots that will rise up against mankind and rule the world. Although the aforementioned robots are scary to human beings, the robots in e-commerce and retail are quite friendly and helpful.

In 2012, Amazon purchased Kiva systems, a company that manufactures mobile robotic fulfillment systems, for \$775 million. Amazon deployed these Kiva robots to their warehouses in 2014 and Amazon's executive at the time stated that the robots had cut operating expenses by 20% (Kim, 2016).

Kiva's primary job is to find products in Amazon's warehouses and bring the products to the human packer, saving time for human workers as well as avoid picking the wrong products from the shelves.

< Figure 8. Kiva Robots at Amazon Warehouse >



* Source: <https://singularityhub.com/2017/02/10/how-robots-helped-create-100000-jobs-at-amazon/>

Smart Warehouses

Many of the e-commerce marketplaces have been losing money for the first 4 to 5 years after the initial business inception as they invest heavily in fulfillment centers and delivery systems. Amazon has invested \$54.5 billion dollars in its global distribution network, adding 176 million additional square feet to its current space of 402 million square feet (Cohen, 2021). Also, a Korean e-commerce giant Coupang, which was recently listed on the New York Stock Exchange, has pledged to invest \$840 million dollars to its logistics centers (Kim, 2021).

In an effort to cut costs, retail giants are investing in floating warehouses. Amazon has received a patent (Walmart also applied) for the 'aerial fulfillment centers' (AFCs). The AFCs are blimps that float around a metropolitan area and hold inventory of products. When an order is placed, the AFC deploys a UAV (Unmanned Aerial Vehicle) to deliver the product to the customer (Fleet Owner, 2018).

When implemented to the distribution networks, AFCs are expected to cut costs for e-commerce marketplaces as less funds will be invested warehouses, trucks, and etc. It will also make the shopping experience much better for customers as they could receive their products faster than getting the product delivered on the ground.

However, the blimps and UAVs flying around cities could cause havoc for aviation controls as well as make it annoying for people to walk around in cities due to the noise the drones make and possibly get injured if they get hit by a UAV.

< Figure 9. Amazon's Floating Warehouse and UAV Image >



* Source: <https://www.businessinsider.com/amazon-blimp-delivery-drones-viral-video-is-fake-2019-4>

Last Mile Delivery

The reason for e-commerce marketplaces investing heavily in distribution centers is to improve the quality and speed of their last mile delivery leading to enhanced customer experience. According to a survey conducted by Conveyco, about 44% of the US consumers stated that they are willing to wait up to two days for the delivery of products, 41% are willing to pay extra for the same-day delivery, and 24% are willing to pay extra for a delivery of their order within one to two hours window (Romaine, 2021).

Due to the Covid-19 pandemic, people are now more accustomed to buying groceries online. This has created a tremendous opportunity for e-commerce marketplaces to expand their business as well as to acquire new customers, but at the same time has put a lot of pressure on them to expand their cold-chain last mile delivery system. Also, the retailers must be able to predict the demand of groceries much better as groceries have a shorter shelf life.

It is All about Data

Delivering of products accurately and in a timely manner are the two critical factors that lead to customers being satisfied with an e-commerce retailer. In order to deliver products in a timely manner, the retailers must do a great job of understanding consumer behaviors, predicting demand, and stocking their warehouses with the right amount of inventory. Therefore, it is critical for retailers to analyze and understand customers' behavior by analyzing every critical step of the customer's journey.

4. 7 Key Technologies in E-commerce Buying Cycle

By examining the 7 major technologies that affect e-commerce, the following model is being presented by the author of this paper.

Technology continues to evolve and e-commerce evolves with the development of technology. However, the four main steps in the e-commerce buying cycle, Discover, Experience, Buy, and Receive the product will stay the same. The explanation of each step of the cycle are:

- (1) Discover: consumers will discover products via search or advertisements
- (2) Experience: consumers get to experience the product to see if they want to buy them
- (3) Buy: consumers make the decision to buy
- (4) Receive: consumers will get their products delivered to them

< Figure 10 >

7 KEY TECHNOLOGIES IN E-COMMERCE BUYING CYCLE



5. The Future of E-commerce: the Metaverse

Shopping and the Metaverse

One of the benefits of online shopping is that people are able to go into offline retail stores to see, touch, and test the products, then order the product online saving them the hassle of taking their purchases home as well as shop for the lowest price possible. However, with e-commerce came some inconveniences that people did not experience from traditional brick and mortar retail stores.

In the traditional world, if someone was looking for a jacket to buy, one would walk into a shop, malls, or department stores to buy the jacket. He or she will pick out the clothes and try them on to see how it looks on them before making the purchase. However, when people started shopping online for fashion items such as apparel and shoes, people had higher tendencies to return the items. In the fashion industry, 72% of the returns were primarily due to personal preferences such as size, fit, look/style, and etc. (Dopson, 2021)

Although it is relatively new, the metaverse is starting to solve some of the inconveniences with e-commerce and brick and mortar stores only. Along with the help of the AR and AI technologies, companies are allowing consumers to experience products online before they make purchases. Nike launched a service called 'Nike Fit' that takes the hassle of ordering the wrong shoe size online. The customer has to just enter the shoe size and Nike Fit will recommend the right size for different types of shoes.

Many brands are also entering the metaverse by setting up shops on the metaverse. Streetify is a metaverse platform that allow people's avatars to walk down the street, enter a shop, and make purchases online (이승환, 2021).

Marketing on the Metaverse

As more people spend more time in the metaverse, walking around different areas and participating in activities and games in the metaverse, companies will start to put more advertisements in the metaverse to attract customers. Basically, the companies will put ads in places where people pay attention.

Companies can sponsor an avatar of a celebrity such as NFL superstar Tom Brady to have his avatar wear their products and walk around or participate in activities in the metaverse. Fans of Tom Brady as well as the NFL will be exposed to those items and will be very tempted to buy them.

Billboards are no longer considered prime spots for advertising in the real world as more of people's attention has shifted online. However, billboards in the world of metaverse is considered a great place to put advertisements.

III. Case Studies: Winners in E-commerce

In order to understand how technology is being applied in business, the following 3 cases studies were carried out.

1. Nike

Nike is a multinational brand that has been around for decades, having a strong presence in primarily offline retail stores. However, Nike realized the growing trend toward online shopping and made a transition to become an online power along with their offline presence. Therefore, Nike’s case study will present strategies for brands that have been more focused on brick and mortar retailers.

2. Dollar Shave Club

Thanks to the ease of starting an online business as well as small amount of funds to start an online based business (as compared to traditional offline based business), many startups have been able to utilize e-commerce, digital marketing, and the technology to not only start a business, but unseat the traditional power from the top position in the market. Dollar Shave Club is a great example of the above and its case study will present strategies startups can use to rapidly scale their business as well as take a large portion of the market share.

3. Walmart

Until e-commerce became the mainstream way of shopping for goods, Walmart was one of the top retailers in the United States. However, with the emergence of Amazon and e-commerce, Walmart had lost its once proud powerhouse status in retail. However, Walmart’s strong offline position is now serving as the platform and reason why Walmart is making a strong push to retake the reign in the retail space. Walmart’s case study will present to retailers how to become a true O2O (Online to Offline) retailers as well as show brands how to utilize Walmart to further their growth in the North American market.

Retailer	Key Success Factors
	<ul style="list-style-type: none">• Marketed directly to consumers (Nike.com)• Marketing on social media to increase awareness• Implementing data-driven marketing• Utilize 3D technology to make shopping for shoes easy
	<ul style="list-style-type: none">• Marketing directly to consumers (Dollarshaveclub.com)• Online subscription model• Funny social media marketing strategy
	<ul style="list-style-type: none">• O2O (Online to Offline) retail and marketing• Utilizing technology to improve shopping experience• Growing with third-party sellers

1. Nike

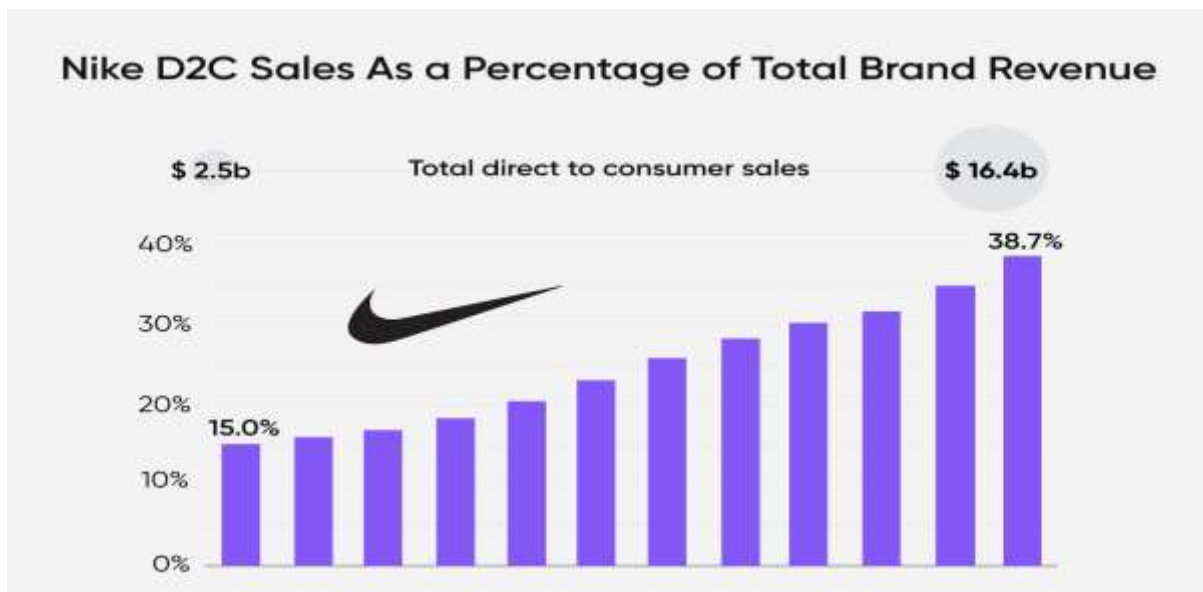
Nike was established back in 1964 by the University of Oregon track and field coach Bill Bowerman along with his former student Phil Knight. After launching its first retail store in 1966, the company went public in 1978. Since then, Nike has had a very strong presence in traditional brick-and-mortar sporting goods stores and Nike's own stores worldwide. As a sporting goods brand, it was a great strategy to be in as many stores as possible, since customers would always want to try on shoes and athletic gear before making a purchase decision.

In 1999, with the growing demand of shoppers buying products online, Nike launched its own e-commerce website, Nike.com. In the beginning, only about 1~2% of Nike's revenue came from e-commerce. However, as of 2021, about 21% of Nike's sales are coming from online sales (McCann, 2021).

Going D2C (Direct-to-consumer)

Many multi-national companies, as well as startups and SMEs, can make splashes in the marketplace by going direct to consumer (D2C) thanks to the development of e-commerce. Nike is no exception, with its digital sales growing from \$2.5 billion dollars in 2010 to \$16.4 billion dollars in 2021 (Wong, 2022)

< Figure 11. Nike's D2C Sales Growth >



* Source: Nike's D2C E-Commerce Strategy for Hitting 50% Digital Penetration. www.fabric.inc

Going D2C allows companies to have a higher profit margin and lower prices for customers since there will be less middlemen in the logistics and retail process. Although there are margins and profit benefits to going D2C, it is more important as more shoppers, especially the millennials and Gen Z, are shopping online.

Also, companies can get direct and fast feedback from their customers. When a customer visits Nike's offline store, Nike does not know how many products the customer has picked up from the shelf only to put it back, which types of apparel the customer tried on and did not buy, and etc. However, with D2C e-commerce websites, Nike can see exactly which products a customer looked at, which products the customer added to the cart without buying, and which products the customers bought, in real-time. With this data, Nike can be more agile in making improvements to the products as well as sending discounts immediately to customers bringing them back to the website to finish the purchasing process.

Marketing on Social Media (SNS)

Back in the 1980s and 1990s, the best way to reach potential customers was running advertisements on television and radio, and putting ads on billboards and newspapers. Also, direct mailing was very popular as well. The problems with these types of advertising are that the advertisers (companies) cannot track who has seen their ads or not and it was a one-way push marketing strategy that did not take into consideration the customer's needs or wants.

After social networking services (or social media) became a very important part of people's lives, this was an opportunity for many businesses to run targeted marketing campaigns. Marketing on social media platforms will allow advertisers to use the data that has been accumulated on the platform, and at the same time gather data on the company's marketing campaigns.

Also, the advertisers can get immediate feedback on their marketing efforts by analyzing reactions to their marketing campaigns as well as know what the customers are thinking of the company's newest products. Nike has been paying close attention to what the consumers are saying about Nike and their products. Nike understands the conversations that take place on social media platforms are one of the purest forms of customer feedback (Mage Plaza, 2022).

Another advantage of social media is that average people can share their opinion freely about just any topic. And when it comes to sharing one's opinion about products and brands, social media is also an excellent place for people to do it. According to a study conducted by Stackla, 88% of consumers say authenticity is important when deciding which brands they like and support. One of the best ways to show authenticity is by showing UGCs (User Generated Content) on company's SNS pages and websites. Nike has done a great job of supporting UGCs on their social media pages.

Data Driven Marketing

Data is the key component that allows brands to be able to understand customers and therefore create products that will satisfy customers' desires as well as run targeted marketing campaigns to maximize sales. The best places to gather customer data for any brand are on their own e-commerce websites as well as through social media.

Nike also understands the importance of data, leading to the company purchasing a data analytics company Zodiac in 2018. The acquisition of Zodiac allowed Nike to use its historical transaction data to better forecast the behavior of individual customers. Zodiac's technology improved Nike's customer acquisition, reduced churn, and enhance the accuracy of sales forecast (Wong, 2022).

Implementing Technology to Enhance Customer's Experience

One of the main advantages of companies expanding their presence online is the ability to serve customers without them having to leave their house. Having great photos and videos of the product, full description of the product, and lots of genuine customer reviews are enough for consumers to make purchase decisions. However, when it comes to fashion and clothing items, those are sometimes not enough.

Nike understood that customers want to try on shoes and clothes before they buy these items. Since this shopping behavior is a difficult challenge, Nike purchased an Israeli company called Invertex which specialized in 3-D foot scanning. With Invertex's powerful deep learning, augmented reality, 3-D body scanning technology, Nike has created the world's most accurate body-based match engine for footwear (Young, 2018)

2. Dollar Shave Club

Before e-commerce became the mainstream way of buying consumer goods, it was very difficult for small companies to take large portions of the market share. Many sectors of the consumer goods markets were dominated by behemoths like Proctor & Gamble, Unilever, and etc.

Dollar Shave Club is a company that delivers razors and personal grooming items to customers by mail. Dollar Shave Club was founded in 2011 in Venice, California and it broke the above formula of large multi-national firms dominating consumer goods market. Although Dollar Shave Club was not a tech-heavy company, they utilized a few key components of e-commerce that allowed them to grow and get sold to Unilever for \$1 billion in 2016, just 5 years after its foundation.

Going D2C (Direct-to-consumer)

With so many services and platforms such as Amazon, Shopify, Alibaba, and more allowing small and large businesses reach their customer directly, it has never been easier to start a company going D2C and experiencing tremendous amounts of success.

Dollar Shave Club did just that. Instead of making their products themselves, they found a supplier, a Korea based manufacturer called Dorco, to make their products. Dollar Shave Club then had the products shipped to a 3PL (Third Party Logistics) center to have the products stored and the orders fulfilled whenever the customer ordered their products from their own website.

The typical e-commerce playbook used by Dollar Shave Club allowed them to (1) stay lean by outsourcing manufacturing and fulfillment (2) provide great customer service and experience by focusing on customers, and (3) build a fan base and audience online by connecting with them directly.

Subscription Model

There is no doubt that e-commerce has made it easier for small companies to thrive and compete against the giants in the market. However, since there are so many e-commerce websites online, it is very difficult to get a customer to visit a company's e-commerce website and make a purchase. It is estimated that 97% of all visitor to an e-commerce website never return and that about 27% of customers come back to buy from a specific website again (Meleska, 2021).

The founders at Dollar Shave Club understood the aforementioned statistics and shopping behaviors. Therefore, Dollar Shave Club focused on the subscription model and made it the company's goal to provide a 'hassle-free' shaving experience. Dollar Shave Club's plan was to deliver high-quality razors to customer's doorstep every month for a price of between 3-9 dollars depending on the quality of razor a customer chose (Mayur, 2021). Dollar Shave Club

will bear the cost of the first product and shipping, and if the customer decides to continue with the subscription, the product costs and shipping are charged to the customer's bill.

Also, if a customer wants to stop the delivery for a month or two because they had new razors left, all they have to do is simply put a hold on the subscription without the customer service department bothering them.

Social Media Marketing Strategy

People use social media to search for information, connect with friends and family, look for funny things to kill time, and etc. For the most part, social media is used for entertainment purposes.

With so many people using social media daily, it presented a tremendous opportunity for businesses to connect with their customers and potential customers. Companies' not only use social media to run advertisements, but also use it for content marketing as well as getting their brand messages across to the market.

Dollar Shave Club's marketing strategy shows that the company understands why people use social media. The company's marketing messages are famously known to be funny in the e-commerce world, and it has allowed Dollar Shave Club to have a strong position in the marketplace as well as customer loyalty. It is believed that some customers want to be a member of Dollar Shave Club just because of its distinctive and witty personality (Pahwa, 2021).

< Figure 12. Dollar Shave Club's Funny Marketing Example >

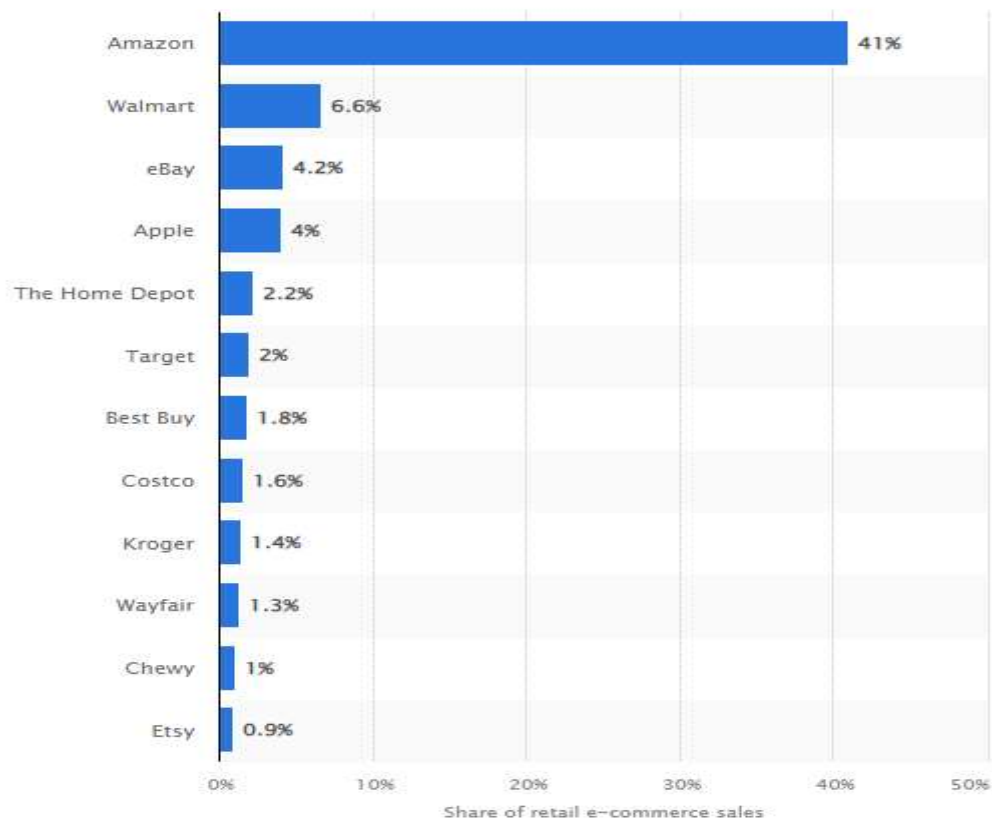


* Source: <https://www.feedough.com/dollar-shave-club-business-model-case-study/>

3. Walmart

Walmart has been the most prominent retailer in the United States since it was first founded by Sam Walton back in 1945. As of January 2021, Walmart had 4,743 stores in the United States (Statista, 2022). However, since the emergence of e-commerce and Amazon, Walmart is no longer considered the top dog in retail. According to a Statista (Chevalier, 2022) statistics on the e-commerce market share in the U.S., Amazon is in first place with a market share of 41%, while Walmart, although holding the second position, has a market share of 6.6%.

< Figure 13. United States E-commerce Market Share >



* Source: U.S. leading e-retailers by market share 2021 | Statista

Many had believed that it was ‘game over’ for Walmart as more and more people were shopping online. However, when the Covid-19 pandemic hit, it provided Walmart with an opportunity for resurgence. In 2021, Walmart US had e-commerce sales of 43 billion dollars, a 70% growth over the previous year (Statista, 2022). Now, it is believed by many industry experts that Walmart brings a unique value proposition to the market that Amazon and other online based retailers cannot easily compete with.

O2O (Online to Offline) is Still a Trend

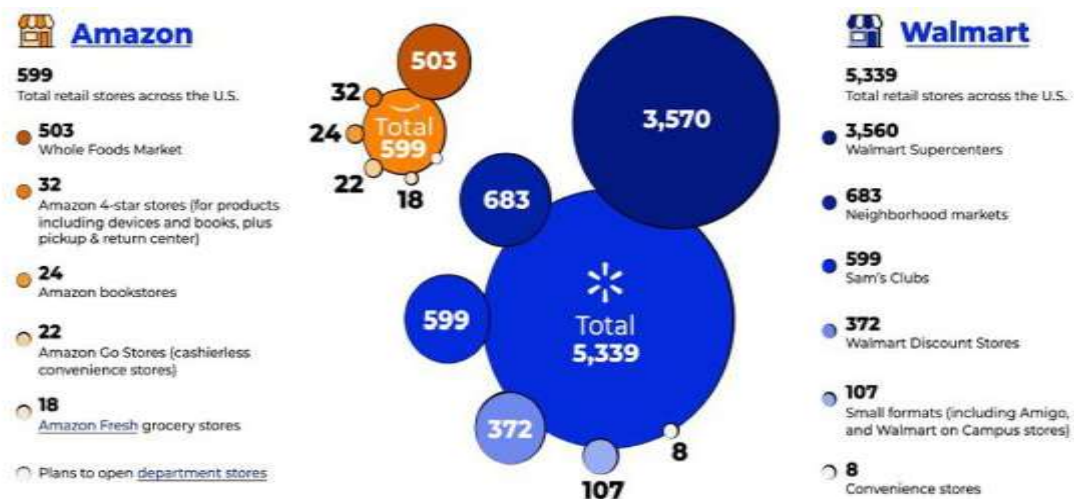
When e-commerce was growing rapidly, many of the large retailers in the U.S. went out of business. One of the key reasons these retailers was struggling and filed for bankruptcy was their inability to adapt to the change in consumer behavior of shopping online. However, as people went online to shop for products more often, they realized all the inconveniences that e-commerce brought. People realized that sometimes they cannot wait for the products to be delivered to them even if the retailer offered the next-day or 2-day shipping. Also, customers can go to offline stores and see the products in person as well as get customer service.

With people still wanting the convenience and benefits of offline shopping, Walmart is positioned perfectly to make a comeback and become a threat to Amazon as long as Walmart's e-commerce shopping experience is similar to Amazon's. About 31% of Walmart's shoppers favor the retailer for easy pickup and returns to the offline stores, and over 90% of the U.S. population live within 10 miles of a Walmart store (Kestenbaum, 2021). When e-commerce became extremely popular, people doubted the fact that someone would place an order online and then get into their car to go pick up their order. Another retail giant, Target, also has the numbers to prove this type of behavior. In the third quarter of 2020, Target's Drive Up sales were up 500% (McKinnon, 2022)

Also, people are now more focused on convenient shopping trips. Consumers can make a stop at Walmart's offline store and get all the household items as well as groceries they need for the week.

Amazon has also seen the revival of Walmart, and has been investing in offline stores as well. Amazon has purchased Whole Foods which has under 600 stores nationwide in the U.S., and it's primarily a grocery retailer, while Walmart's offline stores sell household items on top of groceries.

< Figure 14. Offline Stores Comparison of Amazon and Walmart >



* Source: [Walmart Is Gaining On Amazon In E-Commerce \(forbes.com\)](https://www.forbes.com)

Using Technology to Provide Great Experience

Many large companies these days acquire another company for the reasons of taking more market share, getting access to the acquired company's customer base, acquiring technology that company has built up, and etc.

Walmart purchased Jet.com, an e-commerce company, back in 2016. Although Jet.com was struggling, the purchase of the company meant it will be able to speed up their efforts to develop their e-commerce competencies. Jet.com had a sound digital knowhow which provided true value for Walmart, especially when it came to facilitating Walmart's grocery e-commerce platform (Digital Food & Beverage, 2021).

One of the key examples of using technology to improve customer's experience is using artificial intelligence to recommend related products. For example, if customer purchases pasta, then the AI technology will recommend cheese and pasta sauce.

Growing with Third-Party Sellers

Amazon is known for its large number of third-party sellers. Having a large number of third-party sellers allows the retailers to grow its product catalog without investing in inventory. This allows the retailers to focus on improving their logistics, e-commerce websites, and marketing (gathering data) which can all be considered assets. According to Statista, 56% of paid units sold on Amazon were by third-party sellers (Coppola, 2021).

Walmart making it easy for third-party sellers to sell on their platform would be great for their growth. Only 7% of third-party sellers on Amazon also sell on Walmart.com, and almost 40% of Amazon sellers that are not currently not on Walmart.com are considering selling on Walmart (Kestenbaum, 2021).

IV. Proposal for Maximizing Sales in E-commerce

1. Reaching Customers

(1) Going D2C (Direct to Consumer)

In order for companies to succeed in the future, having an online presence is a must. However, going D2C will become even more important as small, medium, and large brands keep going directly to consumers to provide products and services.

For SMEs and startups, the fastest way to get their company established in the e-commerce game is by taking advantage of the large D2C marketplaces such as Amazon and Walmart.com. These large marketplaces have the technology and infrastructure such as fulfillment centers, delivery trucks, and etc. to make going D2C very smooth without having to invest a lot of capital.

Another advantage of going direct to consumer is the ability for the companies to get customers onto the subscription model. Implementing this model will keep revenues coming in for the company, and it will make it convenient for the consumers to become loyal fans of the company.

(2) Social Media Marketing

Marketing on social media platforms is a great way for SMEs and startups to compete against more established brands in the market. With a small daily budget (as little as \$5/day), companies can run very targeted advertisements allowing them to not only make sales, but also gather customers' action based data for future marketing, and feedback on products.

When a company is running marketing campaigns on social media platforms, the company needs to understand the main reason the visitors are on the platform, for entertainment. Just like Dollar Shave Club's content marketing strategy on social media, companies should make efforts to make the ads entertaining or informational while promoting their products.

At the end of the day, companies must remember that the primary goals of marketing on social media are to (1) target the right demographic (2) get customer to engage with the brand by making entertaining advertisements (3) gather data and feedback, and (4) use the data and feedback to improve the marketing campaigns as well as the products.

2. Improving Customer Journey

Imagine a typical millennial or Gen Z customer in the year 2030. Let's call this person, Eileen. She is a digital native who is completely accustomed to shopping for products online. Eileen is walking down the street and sees a jacket she likes in the show window of a shop. Her shopping journey would go something like:

- (1) She takes out her smartphone and takes a photo of the product and the smartphone crawls the web to find the exact product from Amazon.com.
- (2) She turn on the VR function that is built into her sunglasses and then puts the jacket on her avatar in the metaverse. She turns herself about 360 degrees to make sure she likes the way the jacket looks on her.
- (3) She does not like the buttons on the jacket, so she speaks into her smartphone and says 'find me gold-colored buttons that will go well with this jacket'.
- (4) Amazon recommends gold color buttons that may look great with her jacket.
- (5) She picks the fifth one on the list and the buttons are put on the jacket and she once again sees the jacket on her avatar in the metaverse.
- (6) She likes what she sees and decides to order the product. The glasses she has on scan her pupils and processes the payment through Amazon Pay.
- (7) Her jacket is now being made and a drone delivers her jacket in front of her door two days later.
- (8) She takes the jacket out of reusable packaging and gives the packaging back to the drone.
- (9) She puts on the jacket and takes a photo of herself and posts it on her SNS accounts.
- (10) Her friends love her new jacket and ask her where she got the jacket. They decide to meet in the metaverse and visit the Amazon.com Body Fit shop to try on the jacket with their avatars.

The year may not be exactly 2030, but the above customer journey may become a typical way people go shopping for clothes in the near future with all the technological applications to e-commerce.

(1) Data Driven Tailor-Made Products

The millennials and Gen Z are very 'self-oriented'. According to a study conducted by Bloomberg, 50% of Gen Z consumers prefer products that are personalized (Talbot, 2019). As one can see from Eileen's story, she doesn't like to buy products and use them as-is, but rather she wants little details tailor-made to satisfy her desires.

In the past, when e-commerce and technology were not as big of a part of retail as it is now, the brands would mass produce products and use the 'push' marketing strategies. The consumers basically had to buy products on the market that best suited their needs although it did not scratch their itch perfectly.

One of the best ways to understand the customers' wants and desires is by analyzing the data

gathered on the company's e-commerce websites as well as on the social medial. As the case study on Nike shows, companies must pay close attention to the data gathered on their e-commerce stores, social media marketing/advertising platforms, and the user-generated content and feedback.

Also, the millennials and Gen Z are environment conscious. A recent study showed that the vast majority of millennials and Gen Z prefer buying from sustainable brands and are willing to pay 10% more to buy from sustainable brands. This generation of buyers is likely to make buying decisions on values and principles (Petro, 2021).

Many major brands are making moves to become more sustainable to meet the demands of the new consumers. Many coffee franchises have come out with plastic cups that allow customers to drink their coffee without a straw, and Starbucks went a step further to give customers straws that are made of paper instead of plastic. Some of the e-commerce retailers are delivering products in reusable containers instead of cardboard boxes. And many brands are going the minimal packaging route to become eco-friendly businesses.

For SMEs and startups that are aspiring to become influential brands in the future the businesses must understand and implement the below strategies to succeed for years to come:

- (1) Develop products based on big data with AI analysis.
- (2) Implement an agile manufacturing system to be able to provide personalized products.
- (3) Use environment-friendly materials and ingredients.

(2) Data-driven Marketing

Anyone who has shopped online has experienced seeing ads for products he or she searched for on a specific e-commerce website when they visit other websites. Also, retailers and brands will send customers reminder emails and SMS messages if a customer left a product in the shopping cart and did not buy the product.

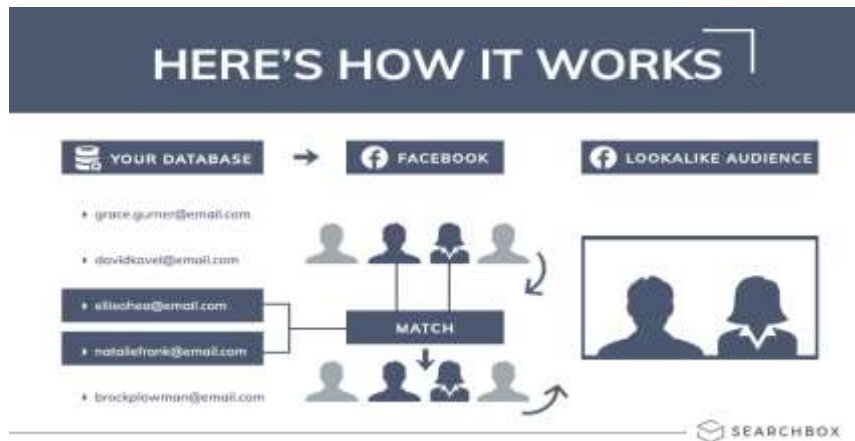
The above marketing strategies are forms of retargeting marketing. In a study conducted by Trulist.co, about 97% of website visitors never return to a website and remarketing campaigns are shown to improve conversion rates by 161%.

Therefore, it is critical for brands to implement retargeting to their overall digital marketing strategies. The steps needed to successfully retarget customers are:

- (1) Set up a website or e-commerce site (other than online marketplaces such as Amazon, or Walmart) as seen in case studies of Dollar Shave Club and Nike.
- (2) Add tracking codes such as Facebook Pixels, Google Tag Manager, and etc. to the company's website. Tracking codes are the link between a customer and the brand.
- (3) Run digital marketing campaigns to the company's website.
- (4) Keep targeting those customers who have visited the company's website with retargeting ads. The retargeting ads can be for the same product or products in a similar category.

One of the key advantages of gathering data using SNS and marketing platforms such as Google is that these platforms allow SMEs and startups with limited budgets to take advantage of their advanced AI engines. Brands can not only retarget customers who have bought their products, but also can find new potential buyers by utilizing the ‘lookalike audience’ marketing. When a brand uses the lookalike audience marketing, the marketing platforms (SNS and search engines) will analyze the brand's customer data that has been accumulated on its own platform and find people that are behaving in a similar fashion. This is a great opportunity for brands to find new potential customers.

< Figure 15. Facebook’s Lookalike Audience Search Flow >



* Source: <https://www.affde.com/ko/how-to-use-facebook-lookalike-audiences.html>

(3) Personalizing the Customer’s Journey

Amazon.com has become the biggest product search engine for U.S. consumers. 74% of U.S. consumers begin their search for products on Amazon, not on Google (Berthiaume, 2021). Also, 35% of the consumers will click the first product they see on the search page and 70% of shoppers will never go to the second page on the search result (Power Digital, 2021).

When a customer searches for products on e-commerce marketplaces, it is very important the brands are able to show up on the first page. Also, most of the e-commerce marketplaces recommend products based on the customer’s previous search results. This personalization improves the shopping journey of the customer, making them want to come back to a certain website.

Therefore, for SMEs and startups that are selling on e-commerce marketplaces such as Amazon and Walmart.com, it is critical for them to show up when a customer searches for products that are in the company’s category.

The recommended course of action for improving the chances of showing up for searches is:

- (1) Do keyword research on e-commerce marketplaces (Amazon and Walmart) to understand consumers demand and search queries
- (2) Create a conversational title using keywords
- (3) Highlight product features on the product description page while including top keywords
- (4) Follow marketplaces' guidelines for product photos

Although the above steps may seem simple and boring, it is the best way for companies to show up on the search page and improve the chances to trigger e-commerce marketplaces recommendation algorithms.

3. Growing in the Future

(1) Engaging Shopping Experience with AR and VR

When Covid-19 pandemic put a pause on the way Korean companies met with potential overseas buyers, companies started looking for a way to promote their products to buyers virtually and wanted to provide a shopping experience that was as real as actually touching and seeing the products in person. And this trend was also rising in B2B marketing. KOTRA bought equipment to be able to create AR/VR videos for SMEs and startups and implemented a solution to show 360 degree videos on KOTRA's B2B e-commerce website, www.buykorea.org.

AR and VR experiences are expected to become a big part of the B2C/D2C business transactions, especially with the metaverse becoming a part of people's lives. As mentioned in the examples of Eileen's jacket shopping in the Reaching Customers section of this paper, millennial and Gen Z shoppers will want to experience products from the comfort of their homes before making the purchase decision. It may seem like a trend that is out of this world for many older generations, but the virtual shopping trends are expected to continue.

For SMEs and startups, new trends are usually great opportunities for them to grow dramatically by riding the wave. Having great photos and videos are must, but for SMEs and startups to gain a competitive edge, they must implement AR and VR to their overall marketing strategies as Nike has been doing.

(2) The Metaverse and NFTs (Non-Fungible Tokens)

Everyone has seen the news that Facebook has rebranded the company to Meta. This shows the world that the metaverse is going to be an important part of people's lives. Just like the cryptocurrency and NFTs, the metaverse is here to stay. Although there are many arguments that since the cryptocurrencies are not centralized and therefore will eventually be regulated by central governments to have control of the monetary system, leading it to lose its value, businesses have to be prepared to accept cryptocurrencies as it can become the currency in the metaverse.

The millennials and Gen Z all over the world are investing heavily in cryptocurrencies (although it is largely due to the fact that it has become very difficult to make money investing in stocks and real estate), and this generation is the largest consumer group for the foreseeable future. Also, this digitally native generation easily implements the metaverse and NFTs into their lives.

In the near future, people will go shopping in the metaverse from the comfort of their own home, meet up with their friends in the metaverse and buy products in the metaverse using cryptocurrencies. And many metaverse native brands will be doing drops to their loyal

customers who own NFTs issued by the brand. For many people who have lived in the 1990s and 2000s this type of buying behavior seems like something they can only imagine or see in a sci-fi movie like the 'Back to the Future' series. However, the commerce in the metaverse with block chain technology is fast approaching and brands must be prepared to adapt to this wave of shopping behaviors.

For SMEs and startups to succeed in the age of the metaverse and blockchain, companies

- (1) Must be willing to advertise in the metaverse
- (2) Must be willing to accept cryptocurrencies as a method of payment
- (3) Need to implement AR and VR technologies to their marketing content plan
- (4) Utilize NFTs to create a community of loyal followers and provide them with special benefits for holding NFTs.

V. Conclusion

Technology will continue to evolve and people will adapt to the new lifestyle that the technology will bring about. It is expected that more companies will invest heavily in the digital world as many sectors of the digital world are still considered Blue Ocean.

E-commerce is a great example of technology completely disrupting a traditional industry. Technology has changed the way people look for products, buy them, and give feedback to the company as well as share their opinion with the world via social media.

In this paper, the e-commerce buying cycle was broken into 4 steps: Discover, Experience, Buy, and Receive. And, in each step of the buying cycle, technology is a key component. In the discover phase, voice and image search allows consumers to more readily find products and artificial intelligence analyzes big data to recommend products to the consumers, making it easier to find products they need. Virtual and augmented reality technologies and high-tech retail outlets such as Amazon Go allow the consumers to easily experience the products as well as enhance the shopping experience. Fin-tech such as PayPal, WeChat Pay, Apple Pay, and etc., has made the check-out process very fast and convenient. And lastly, robots are making fulfillment centers worldwide more efficient and in the near future drones may be used to speed up the last mile delivery time.

The rapidly changing technology has presented opportunities to some companies while posing threats to many traditional powerhouses in the retail industry. And, some major companies have filed for bankruptcy such as JcPenney, Circuit City, Toys R'us, and more, while some have successfully rebounded as is the case with Walmart and Best Buy.

The case study of Nike shows a very successful physical products brand that got on the online shopping band wagon early and is experiencing tremendous amount of success. Nike, along with many brands, is trying to be closer to their consumers by going D2C, as well as using the social media to stay connected with their fans.

Dollar Shave Club's case shows that technology has evened the playing field for companies of all sizes. Now startups can start a business from scratch and become the market leader with the help of technology and e-commerce in just a few years. The key to success is having a clear target market, understanding their pain point or passion, and finding creative ways to meet the customers' needs.

The last case study of Walmart shows that although e-commerce is the new mainstream way of shopping, there is still plenty of demand for shopping offline and O2O (Online to Offline) is going to be a key factor in retail in the future.

The emergence of new technologies such as e-commerce, the metaverse, and NFTs have impacted the way people live, and the Covid-19 pandemic has only sped up the digital world becoming a bigger part of people's lives.

Therefore, all consumer goods brands and e-commerce companies must utilize technology to find more creative ways to reach and stay connected with customers, improve their shopping journey, and find innovative ways to continue growing in the future.

References

이승환. (2021). 메타버스와 유통의 관계. 메타버스 비긴즈. 굿모닝미디어

황지영. (2019). 유통에서 인공지능 사용 현황. 리테일의 미래. 인플루엔셜

Alipour Hanieh. (2020). Image search for e-commerce. *Image search for e-commerce: See revenue and satisfaction soar*. Retrieved January 2022 from <https://www.the-future-of-commerce.com/2020/06/21/image-search-for-e-commerce/>

Berthiaume, Dan. (2021). Customers looking for products on Amazon. *Study: Most product searches begin on Amazon*. Retrieved January 2022 from <https://www.forbes.com/sites/gregpetro/2021/04/30/gen-z-is-emerging-as-the-sustainability-generation/?sh=765e6d958699>

Blake, Morgan. (2020). Consumers prefer personalization. *50 stats showing the power of personalization*. Retrieved February 2022 from <https://www.forbes.com/sites/blakemorgan/2020/02/18/50-stats-showing-the-power-of-personalization/?sh=cc561962a942>

Brown, Nick. (2020). Voice search for e-commerce. *How to Optimize Voice Search Feature For Your Ecommerce Store*. Retrieved January 2022 from <https://www.bigcommerce.com/blog/voice-search-ecommerce/>

Butler-Young, Sheena. (2018). Nike's use of technology to improve customer experience. *Nike acquires a company in Israel that specializes in 3-D body scanning*. Retrieved March 2022 from <https://footwearnews.com/2018/focus/athletic-outdoor/nike-3d-scanning-acquisition-invertex-1202547874/>

Cheng, Andria (2019). Amazon Go. *Why Amazon Go may soon change the way we shop*. Retrieved January 2022 from <https://www.forbes.com/sites/andriacheng/2019/01/13/why-amazon-go-may-soon-change-the-way-we-want-to-shop/?sh=2ba212b67097>

Chevalier, Stephanie. (2021). Market share of e-commerce marketplaces in the U.S. *Market share of leading retail e-commerce companies in the United States as of October 2021*. Retrieve March 2022 from <https://www.statista.com/statistics/274255/market-share-of-the-leading-retailers-in-us-e-commerce/>

Cohen, Michael. (2021) Smart warehouses for Amazon. *Amazon needs to invest billions in warehouse system to keep up with demand*. Retrieved January 2022 from <https://m.benzinga.com/article/22263439>

Copeland, B.J. (2022). The definition of artificial intelligence. *Artificial intelligence*. Retrieved January 2022 from <https://www.britannica.com/technology/artificial-intelligence>

Coppola, Daniela (2021). Amazon's third-party sellers. *Share of paid units sold by third-party sellers on Amazon platform as of 3rd quarter 2021*. Retrieved March 2022 from <https://www.statista.com/statistics/259782/third-party-seller-share-of-amazon-platform/>

De Best, Raynor. (2022). The number of cashless transactions. *Number of non-cash transactions worldwide*
Digital Food and Beverage. (2021). Using technology to improve customer experience. *How Walmart is using Jet to propel its ecommerce strategy*. Retrieved March 2022 from <https://foodandbeverage.wbresearch.com/blog/walmart-recent-acquisition-jet-ecommerce-retail-food-beverage-strategy>

Dopson, Elise. (2021). Future of e-commerce. *The plague of ecommerce return rates and how to maintain*

profitability. Retrieved December 2022 from <https://happyreturns.com/press/shopify-plus-how-to-maintain-profitability>

Fleet Owner. (2018) Amazon floating warehouses. *Amazon receives patent for floating warehouses*. Retrieved January 2022 from <https://www.fleetowner.com/technology/article/21702925/amazon-receives-patent-for-floating-warehouses>

Halton, Clay. (2021). The definition of digital natives. *Digital native*. Retrieved January 2022, from <https://www.investopedia.com/terms/d/digital-native.asp>

Insight Partners. (2020). Amazon Go and tech retail outlets. *Unmanned convenience store market to grow at a CAGR of 51.9% to reach US\$ 1,640.32 Million from 2019 to 2027*. Retrieved January 2022 from <https://www.theinsightpartners.com/reports/unmanned-convenience-store-market>

Javornik, Ana. (2016). AR application in e-commerce. *It's an illusion, but it looks real! Consumer affective, cognitive and behavioral responses to augmented reality applications* Retrieved January 2022 from <https://www.tandfonline.com/doi/abs/10.1080/0267257X.2016.1174726>

Kestenbaum, Richard. (2021). Walmart's offline pick-up service. *Walmart Is Gaining On Amazon In E-Commerce*. Retrieved March 2022 from <https://www.forbes.com/sites/richardkestenbaum/2021/10/20/walmart-is-gaining-on-amazon-in-e-commerce/?sh=6b46532c653c>

Kim, Da Sol. (2018) Autonomous shopping cart. *E-mart unveils autonomous shopping cart Eli for test run*. Retrieved January 2022 from <http://www.koreaherald.com/view.php?ud=20180417000718>

Kim, Eugene (2016). Robots in warehouses. *Amazon's \$775 million deal for robotics company Kiva is starting to look really smart*. Retrieved January 2022 from <https://www.businessinsider.com.au/kiva-robots-save-money-for-amazon-2016-6>

Kim, Jae-heun Kim (2021). Coupang's investment in warehouse. *Coupang to spend \$308 mil. to expand distribution network*. Retrieved January 2022 from https://www.koreatimes.co.kr/www/tech/2021/11/419_319399.html

Lebow, Sara. (2021). E-commerce market forecast. *Worldwide ecommerce continues double-digit growth following pandemic push to online*. Retrieved January 2022 from <https://www.emarketer.com/content/worldwide-ecommerce-continues-double-digit-growth-following-pandemic-push-online>

Lomas Natasha, Crook Jordan. (2017). Amazon purchasing Body Labs. *Amazon has acquired 3D body model startup, Body Labs, for \$50M-\$70M*. Retrieved January 2022 from <https://techcrunch.com/2017/10/03/amazon-has-acquired-3d-body-model-startup-body-labs-for-50m-70m/>

Mage Plaza. (2022). Nike's SNS marketing. *Nike marketing strategy: Why Nike is a marketing leader?* Retrieved March 2022 from <https://www.mageplaza.com/blog/nike-marketing-strategy.html>

Mayur, Akash. (2021). Delivery of products. *Dollar Shave Club business model: Pioneering the D2C industry*. Retrieved March 2022 from <https://thestrategystory.com/2021/07/05/dollar-shave-club-business-model/>

McCann, Mallie (2021). Nike online sales. *Nike's digital sales continue to grow despite supply chain issues*. Retrieved March 2022 from <https://www.mageplaza.com/blog/nike-marketing-strategy.html>

McKinnon, Tricia (2022). Drive up sales figure. *6 reasons Walmart's ecommerce strategy is winning*. Retrieved March 2022 from <https://www.indigo9digital.com/blog/4-secrets-to-walmarts-ecommerce-sucess>

Meleska, Peter. (2021). Subscription model in e-commerce. *How to convert the returning into repeat customers*. Retrieved March 2022 from <https://www.conversific.com/blog/how-to-get-repeat-customers/>

Murphy Jr., Bill. (2017). Chatbots becoming an important part of e-commerce. *Millennials and Gen Z would rather text each other than do this*. Retrieved January 2022 from <https://www.inc.com/bill-murphy-jr/millennials-gen-z-prefer-texting-to-human-conversations-new-study-says-plus-5-other-findings.html>

Pahwa, Aashish (2021). Dollar Shave Club's digital marketing strategies. *Dollar Shave Club Business Model / Case Study*. Retrieved March 2022 from <https://www.feedough.com/dollar-shave-club-business-model-case-study/>

Petro, Greg. (2021). Gen Z want sustainable brands. *Gen Z is emerging as the sustainability generation*. Retrieved January 2022 from <https://www.forbes.com/sites/gregpetro/2021/04/30/gen-z-is-emerging-as-the-sustainability-generation/?sh=765e6d958699>

Power Digital. (2021). Consumers' product search on first page. *How Does Amazon Listing Optimization Work?* Retrieved December 2021 from <https://powerdigitalmarketing.com/blog/how-does-amazon-listing-optimization-work/#gref>

Renfrow, Jacqueline. (2018). VR and AR in e-commerce. *Wayfair unleashed mixed-reality shopping*. Retrieved February 2022 from <https://www.retaildive.com/news/wayfair-unleashes-mixed-reality-shopping/529741/>

Romaine, Ed. (2021). The importance of last mile delivery. *20 Statistics that show the importance of same-day delivery*. Retrieved January 2022 from <https://www.conveyco.com/delivery-statistics/>

Russell, Jon. (2017). Facial recognition payments. *Alibaba debuts 'smile to pay' facial recognition payments at KFC in China*. Retrieved March 2022 from <https://techcrunch.com/2017/09/03/alibaba-debuts-smile-to-pay/>

Simms, Kate. (2019). The use of voice assistant technology. *How Voice Assistants Could Change the Way We Shop*. Retrieved January 2022 from <https://hbr.org/2019/05/how-voice-assistants-could-change-the-way-we-shop>

Stackla (2022). User generated content strategies. *Post-pandemic shifts in consumer shopping habits: authenticity, personalization and the power of UGC*. Retrieved March 2022 from <https://stackla.com/resources/reports/post-pandemic-shifts-in-consumer-shopping-habits-authenticity-personalization-and-the-power-of-ugc/>

Statista (2022). The number of Walmart stores in the U.S. *Number of Walmart U.S. stores in the United States from fiscal year 2012 to 2021, by type*. Retrieved March 2022 from <https://www.statista.com/statistics/269425/total-number-of-walmart-stores-in-the-united-states-by-type/#:~:text=Walmart%20U.S.%20had%20a%20total,valuable%20brands%20in%20the%20world.>

Statista (2022). Walmart's e-commerce sales. *Online sales of Walmart worldwide from fiscal year 2019 to 2020, by division*. Retrieved March 2022 from <https://www.statista.com/statistics/1109330/walmart-ecommerce-sales-by-division-worldwide/#:~:text=Walmart%3A%20eCommerce%20sales%20worldwide%20FY2019,in%20comparison%20to%202020%27s%20figure.>

Talbot, Andrew. (2019). Personalized products. *50% of Generation Z consumers want personalized products*

Retrieved January 2022 from <https://www.custom-gateway.com/50-generation-z-consumers-want-personalised-products/>

White, Danni. (2021) Image search for e-commerce. *Visual Search Trends: Things You Should Follow*. Retrieved January 2022 from <https://www.techfunnel.com/martech/visual-search-trends/>

Wikipedia. (2022). Millennials and baby boomers. *Generation*. Retrieved January 2022, from <https://en.wikipedia.org/wiki/Generation>

Wong, Patrick. (2022). Nike's D2C sales. *Nike's D2C e-commerce strategy for hitting 50% digital penetration*. Retrieved March 2022 from <https://fabric.inc/blog/nike-ecommerce-strategy/>