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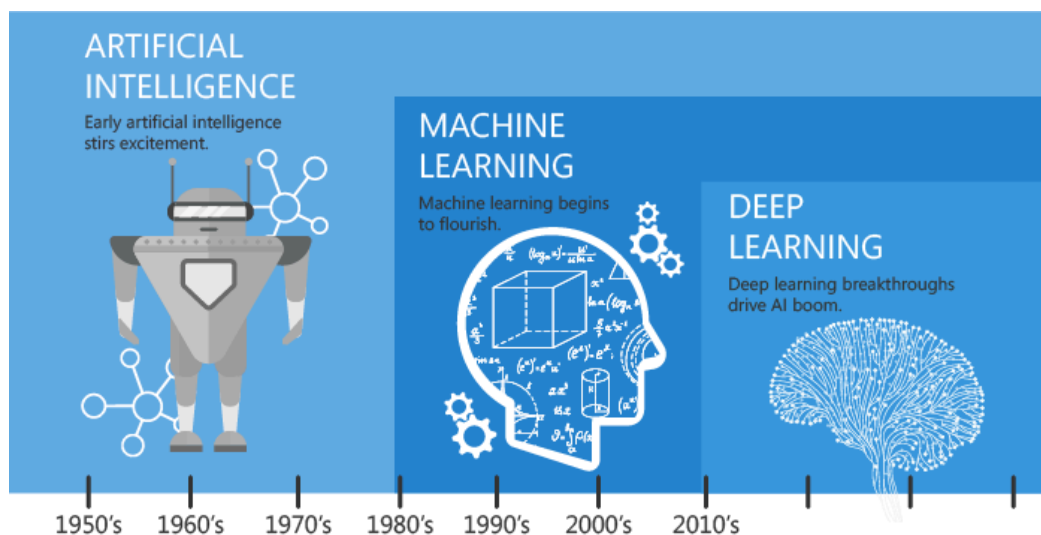
How Artificial Intelligence Affect Customer Behaviors?

It can be said that the first 20 years of the 21st century is the time when the whole world welcomes a leap of human intelligence in technological study. The invasion of artificial intelligence is like a big net covering everyone's life. It's hard to find an adult who doesn't use a smartphone nowadays, even a 3-year-old kid these days knows how to use an iPad well. Artificial intelligence is favored and widely used in all areas, such as: education, medicine, manufacture, security, art, etc. – bringing modernity and convenience to everyone's life. So what does artificial intelligence actually mean?

The term “Artificial Intelligence (AI)” was not a recent technology event. It was coined earlier in 1956 at a conference at Dartmouth College, in Hanover, New Hampshire (Anyoha). According to classical philosophers, AI was initially used to describe human thinking as a symbolic system (Lewis). Until now, there are many definitions surrounding this term and making it gradually become more common in the vocabulary dictionary of each individual. There are two important definitions often used in business.

If ones consider AI as a tangible object, then AI is a computer system with human intelligence that can help people do the tasks... Some of these AI systems are powered by machine learning, some are powered by deep learning and some are powered by rules. (Achin) Another rational definition refers AI to the simulation of human intelligence in machines that are encoded to meditate like humans and imitate humans' actions. (Frankenfield)

Figure 1. Evolution of Artificial Intelligence



Source: Artem Oppermann (2019) "Artificial Intelligence vs. Machine Learning vs. Deep Learning" on Towards Data Science

Machine learning and deep learning are key ideas to understand AI. Figure 1 presents the evolution of AI since 1950's. From the figure, we can see that machine learning is a subset of AI, which mentions to the concept that computer programs are able to automatically study from and adapt to new data without any help from humans. And deep learning, a subset of machine learning, is techniques allow this automatic learning through the absorption of giant amounts of formless data such as text, images, or video. (Frankenfield)

Literature Review

In today business, AI is used to predict future demands and customer behaviors, identify the best material, eliminate defects and fraud, target profitable prospects, recruit talent employees, interact with customers, etc. Although there are experts who can work well on those tasks, AI is still the first choice of enterprises because of its speed and high accuracy.

For businesses, customer experience is a crucial key to success. Because the society is civilizing day by day, people needs become more diverse, businesses in the same industry are constantly competing to provide the market with the most suitable products for consumers. At this time, AI-driven businesses will have huge advantage than competitors because AI can provide deep customer relationship management (CRM) analytics, more precious visions on customer behavior, expectations, tastes, and wishes. If we use it properly, AI can also authorize companies with the capability to offer the appropriate products in front of the exact clients at the right time. (Chuprina)

Sometime, we need to make a change decision in just a second. AI helps marketers gather information quickly to make decisive adjustments for a campaign. And it is those right and timely determinations that will determine the success or failure of companies in the market.

In 2016, Forrester predict that AI-driven companies will take \$1.2 trillion from competitors by 2020. This shows the critical importance of AI for businesses in this rapidly developing technology era.

Not only affects companies, AI also has a strong impact on consumer behavior. In general, AI will increase consumers' expectation, spending and brand loyalty.

The fact that AI can quickly predict the direction of consumer preferences will help businesses sell more products, as customers find the desired products at the right time. After being satisfied with the previous shopping experience, as a common sense, the customers will expect more in their next orders.

When an AI-driven can completely please even the most demanding needs of customers, they will gain absolute loyalty from them. And a fact that none of us can deny that the main source of profit for every business comes from old customers, that's why AI plays an essential key when it comes to doing business.

- I. How does Amazon apply AI to affect their customers' behavior?

As mentioned above, it is vital for every company to enhance their customer experience because when customers are satisfied with what the company brings to them, they will not only become a loyal customer, but will also contribute the company's word-of-mouth campaign. Amazon is one of the giants that have done a good job of constantly improving the user experience for their customers by constantly applying and innovating AI to their business.

The first thing we should know about Amazon is it has been intensely investing in AI for more than 20 years and applied everything they have learned in each aspect of their business from supply chain, forecasting, to capacity planning. (Aggarwal) Amazon's persistent investment in data scientists has kept Amazon near the forefront of the technology innovations of the time.

One of the applications of AI that any consumer can recognize when shopping online with Amazon is the shopping suggestions that appear during the whole time when we shop. Considering millions of products to immediately offer recommendations to customers is something that only AI can do but human. No matter how many people, it is impossible.

Giving "similar items" suggestions helps customers save more time in the selection process, plus search engine optimized for predicting customers' "contexts of use" could improve online product discovery, this is how Amazon turn new customers into loyal customers and stick in their old customers mind for the next shopping.

Amazon has always been the leader when it comes to innovation. (Aggarwal) A series of amazing products and services has emerged that have helped Amazon solidify its leading position in the retail industry: Amazon's voice assistant Alexa – fueled by the Natural Language Understanding (NLU) and Automatic Speech Recognition (ASR), Amazon Prime Air – automated flying delivery drone help shipping the packages within 30 minutes, Amazon Web Service (AWS) – the world's most comprehensive and broadly adopted cloud platform, Amazon Lex chat box, Amazon Polly that turns text into lifelike speech, Amazon Rekognition – automatically extracts metadata from your image and video files, capturing objects, faces, text, etc.

Moreover, customers had witnessed Amazon's "craziest great idea" which had been formed since 2012, when Amazon filed the patent of "anticipatory shipping" and granted in December 2013. Amazon wants to take advantage of AI's superior ability to aggregate data from multiple sources to predict in advance what products customers might feel like they want to buy and delivery them before the customers even visit the website.

Why I call it "craziest great idea", because the dizzyingly powerful innovation of this business model, when it is fully applied in practice, it can create a modern industrial revolution. The first great benefit that we can identify is predictive shipping, which makes it much less likely that you buy the items from a rival retailer (Ajay Agrawal) since the customers receive the products even before they think about where they should buy them. On the other hand, shipping-then-shopping model stimulates you to buy stuffs that you were bearing in mind purchasing but might not have gotten around to. And in both cases, Amazon wins a higher share-of-wallet. (Ajay Agrawal)

However, this business model also has some backlog problems that Amazon itself has not been able to solve, that's why we have not seen the application of "anticipatory shipping" yet. Because this business model is extremely demanding on the speed and absolute accuracy of the AI technology that Amazon is researching and developing.

But that doesn't stop us from looking forward to Amazon's glorious future when this predictive shipping model is adopted. Because the great precedents Amazon has set for customers has built a strong belief for its loyal customers like me.

II. How does Walmart apply AI to affect their customers' behavior?

Walmart, the giant American multinational retail corporation, is considered as a leader in the retail industry. This shows that Walmart has done a great job in ensuring customer satisfaction during the shopping process, whether in-store or online. This success is largely due to Walmart knowing how to properly use AI to optimize the user experience when shopping.

Recently, Walmart has announced to consumers how they leverage Internet of Things (IoT) to preserve the required temperature of foods. IoT are being used at a scale unequalled throughout retail industry to enhance food quality, reduce energy consumption and keep costs low for customers. (Radhakrishnan) One of the most important aspect of Walmart's customers experience is food quality. Walmart uses IoT not only for monitoring the appropriate temperature of refrigerator to make sure proper food safety standards, but also constantly checking performances of the cooling systems for timely repair. This helps to reduce costs, fix unexpected problems in a timely manner can ensures the quality of the customer's shopping process.

Not stopping there, understanding the concerns of customers when they are not at home to receive food packages causing them to be damaged when placed outside the door under the sun, Walmart amazes everyone with its spectacular idea of a smart box using IoT technology in delivery. IoT will help keep your food fresh, not damaged by hot weather during delivery and "waiting" time before you bring it into your refrigerator. The smart box will have three temperature zones for storage of frozen, refrigerated and pantry items. (Grace) This is such a great idea that any "food seller" should learn.

Beside smart box, Walmart accelerated "express delivery" to better meet consumer needs in term of delivery. By listening to their consumers about the desire to receive their orders faster, Walmart applies AI and machine learning to build a reliable "express delivery" system. This system can simply be understood as when a customer confirm the payment of an order and enter the receiving address, Walmart's real-time algorithm will calculate a ton of different things like weather patterns, traffic patterns, how many items in the order, are all items in stock, etc. in milliseconds. So even before this customer check out the order, Walmart knows if they can ship the packages within two hours or less. (Grace) If yes, "express delivery" will be one of the shipping options.

Amidst the pandemic, almost customers change their shopping behaviors from walking in store to placing an order online. Upgrading the quality of delivery service is a smart strategy to help Walmart maintain its leading position in the industry. Moreover, the lack of essential goods for daily life at the beginning of the epidemic is also one of the urgent problems that Walmart has

handled very well. They have leveraged AI and deep learning to make smarter substitutions in online grocery orders.

In this case, Walmart try to build the tech to consider hundreds of variables: price, brand, size, type, aggregate shopper data, individual customer preference, and current inventory and so on – in a real time to offer the best next available item. (Venkatesan) It seems like thanks to this tech, Walmart's goal – never to be out of stock – have received positive responses from their customers since over 95% of them accepted the recommended substitutions. (Venkatesan)

I think it's not strange that so many customers become a loyal Walmart shopper, because Walmart is doing a great job as a retailer in making itself as a customers' intimate shopping companion.

III. How does Sephora apply AI to affect their customers' behavior?

Beauty is the second-most infiltrated category in on-screen shopping after fashion & apparel. The industry kicked off studying digital technologies before many other consumer product sectors to improve front-end interaction with clients. Sephora, world's leading specialty beauty retailer, began to comprise AI in its digital product development in the early 2000's.

Sephora's Innovation laboratory mainly explores new products that exploit augmented reality (AR), AI, and Radio-Frequency Identification (RFID) technology. Sephora invested early in mobile as more than just a retail store. (Rayome) It used shopper data to integrate the retail and mobile experience, which is nowadays developed into omnichannel customer strategy.

From the early days after discovering that customers often look up information about beauty products, prices and reviews before buying products and create the Sephora app to meet all those needs, to this day with the ambition to understand the customer purchase journey has led Sephora to cooperate with Google and implement this omnichannel strategy. Google Analytics 360 Suite helped Sephora better understand the journey when a customer view a Sephora ad online but then make an in-store purchase. This will help clarify which online research ways finally led to a sale, whether online or offline. (Eudes)

A better understanding of the "pain points" or customers' psychology and behaviors during the shopping process is one of the important things that helps strategy developers make successful turning points for their businesses. Not stopping at learning the shopping journey, Sephora also hopes to improve the customer's consumption experience, make the process as personalized as possible so that it can become one of the best companions of any beauty lovers.

One of Sephora's remarkable moves was to bring Sephora Virtual Artist into use on the Sephora app and in stores. This Virtual Artist is an AR tool that not only allows customers to try on thousands of shades of many makeup products sold at Sephora like lipstick, foundation, etc. but also offers makeup tutorials on their own face to attain certain looks. (Rayome)

Sephora has partnered with Pantone to develop a shade-matching technology called Color IQ, which is applied in the Virtual Artist's Color Match taps AI feature to help customers filter through thousands of lip colors, foundations, and concealer shades, etc. to choose the most proper product that match their skin tone. (Rayome)

On the other hand, with RFID scanning, one of the newest tech venture of Sephora Virtual Artist – Tap and Try – have impressed the customers by letting them pick any lip or lash product and immediately try on. Sephora’s InstaScent also pioneered in offering fragrance IQ experience that help customers speedily identify some perfume products that match their personal taste after a mini quiz.

Sephora Virtual Artist's success is reflected in the incredible 200 million of shades tried on, and over 8.5 million visits to the feature. And “in first quarter of 2017, parent company LVMH's selective retailing organic revenue, which Sephora is a part of, grew 11%.” (Rayome)

It can be seen that Sephora deserves to be at the number one position of cosmetics retailers. With clever innovations based on insights into customers' behaviors, Sephora became "Retailer of the Year" in 2017, the year in which thousands of retailers struggled and closed across the United States.

IV. How does Nike apply AI to affect their customers’ behavior?

Not only does Sephora offer a way to integrate consumers' online and in-store shopping experiences, but so does Nike. Nike is a sportswear brand that is still in the top favorites of shoppers around the world. To reach great achievements, Nike has been constantly integrating with the rapid modernization of the new era, even going ahead to maintain its high position in the industry.

To increase the user experience and keep up with the trend of using modern technology products of users, Nike has integrated digital and physical retail into a single store. With Nike app in hand, customers can easily scan to check out without talking to any staffs, scan any products inside the store or the barcode of the mannequin and choose the clothes on the mannequin that they want to try on including size, color, etc. then the employees will bring directly to them. Customers can also reserve the products, do instant checkout after grabbing their stuffs in the locker rooms which can be briefly opened by the Nike app.

The Nike app appeared, not only enhancing the user experience in flagship stores, but also making it easier for online shoppers to choose the right shoe size for them. Its app renders hyper-accurate sizing recommendations called Nike Fit. By using AR tech, Nike Fit help scanning customer’s feet with a mobile phone cam, then measures foot’s dimensions with a 13-point measuring system. AI is used to forecast the customers’ sizes, this means that the more users’ data the machine learns, the more accurate it will be. (Oza)

Nike’s app also offer virtual assistant feature for the customers, which is also considered as “chatbot,” enable them to search by voice and photo, and provide support during the order processes, etc. With Nike’s app, the leading sportswear company has built an exceptional customer experience system to enhance customer loyalty and customer trust. For instance, “Nike+” Rewards Program for members only offer them the priority access to events or new products. “The Nike Maker Experience” system which allows customers to customized their dreaming sneakers and then they will received the final designed products instantaneously made by the system with the help of AI.

All of these amazing services are can be found and experienced in the “Nike House of Innovation,” its mission is to transport innovation and inspiration to every sports lovers around the world. This is the most prominent, iconic thing that rose Nike’s turnover figures to a whole new level. There are 60 million visitors access to Nike’s website in just a month, and they spend an average time of 7 minutes. That’s such an incredible number!

If Sephora achieved “Retailer of the Year” in 2017, then Nike also has its own achievement – “Store Concept of the Year” in 2018 awarded for Nike Live. Nike Live are member-driven boutiques built around user data and custom-made service, with revolving merchandise, member perks, and exclusive experiences. (Cridlin) This chain of Nike Live stores shows that Nike puts customer experience first in the process of growing its business. And there is no doubt that Nike has become one of the most famous sportswear brands in the world

Conclusion

To sum up, AI and machine learning has been bringing an enormous technological revolution to the retail industry. They help businesses manage, analyze, and use consumer data quickly, accurately, and efficiently. The emergence of virtual assistants makes connecting and communicating with customers more convenient and easier than ever.

The COVID-19 pandemic has also made a huge change in customer behavior, most of them switched from shopping in stores to shopping online and decided to continue like that after the epidemic. To survive in this age of technology, companies must quickly absorb new transformations and knowledge, improving not only their techniques but also their business models so as not to fall behind in the game.

And then we can see a glorious future of the commercial world in general and the retail industry in particular. Human life’s quality is getting better day by day, thanks to the development of technology.

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