



Role of Artificial Intelligence (AI) in Changing Consumer Buying Behaviour

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ABSTRACT

This case study examines how positively Artificial Intelligence (AI) has affected marketers' capacity to analyse and comprehend customer behaviour. Marketers are studying how people act online in order to improve the effectiveness of their marketing plans and strategies. Given the enormous amount of data presently available and the frequency of data breaches, AI might be the solution. By studying millions of instances, an image recognition technology may be able to detect and classify objects in photographs. A chatbot can learn to have realistic conversations with people by being shown instances of text chats. To keep ahead of the competition, businesses must now leverage the greatest AI talent. It can shed light on each stage of the customer journey and help marketers better understand the driving forces behind consumer behaviour. When done correctly, it can result in positive outcomes including a higher client lifetime value and stronger client connections. Marketing teams may use AI to decipher massive amounts of data in order to utilise the information and identify the target market. They can utilise it to create user-centred sales funnels and base their marketing strategies on them. More traffic is ultimately generated, which is positive for marketing teams looking to convert visitors. Technology like artificial intelligence (AI) is changing the way we view and comprehend marketing.

Keywords: AI, Artificial Intelligence, Machine Learning, Market trends, Consumer, Buying behaviour

Introduction

The replication of human intelligence functions by machines, particularly computer systems, is known as Artificial Intelligence. Some examples of particular AI applications include speech recognition, machine vision, natural language processing, expert systems, and speech synthesis. A vast volume of labelled training data is typically ingested by AI systems, which then examine the data for correlations and patterns before employing these patterns to forecast future states. For example by studying millions of instances, an image recognition tool can learn to recognise and describe objects in photographs, just as a chatbot can learn to have realistic conversations with people after being shown samples of text chats.

The study of consumers' actions as they choose whether to buy a certain good that satisfies their wants is known as consumer buying behaviour. It is a study of consumer behaviour and what drives people to buy and utilise particular products. For marketers, understanding consumer purchase behaviour is essential because it helps them comprehend what customers anticipate from them. Understanding what prompts a consumer to decide whether a product is useful. In order to introduce a product to the market, it is critical to determine the kind of products that buyers want. Marketers can comprehend what consumers enjoy and detest so that they may create their marketing strategies accordingly. Consumer buying behaviour examines a variety of situations, including what customer's purchase, why they purchase it, when they purchase it, how frequently they purchase it, and many other factors.

Nowadays, a majority of organizations use AI technology to lower operational costs, increase productivity, boosts sales, and forecast customer behaviour to enhance the overall customer experience. Businesses must now hire the best AI personnel in order to stay ahead of the competition as AI technology advances. Businesses may build long-lasting client relationships with the aid of AI. An organisation can interact with customers and enhance the general customer experience with the use of AI solutions like Customer Relationship Management (CRM) software. Analyzing consumer behaviour can also be aided by AI. Marketers can look into how customers interact with their brands using AI. It can provide insight into each stage of the customer journey and aid marketers in comprehending what motivates consumer behaviour. When done properly, it can produce favourable results including greater client lifetime value, stronger customer relationships, and higher customer retention. As we've already mentioned, AI helps businesses to monitor and update the content of their websites and social media profiles. It helps create a content marketing

strategy that will enthrall and attract both current and new clients. Personalization is crucial in content marketing, and AI has a big impact on how well marketing teams comprehend their target clients.

Using AI, businesses can tailor content for their websites and social media pages. This ultimately results in more traffic, which is encouraging for marketing teams hoping to convert website visitors. Corporate leaders believe AI will become a crucial tool in the future, according to a 2500 U.S. consumers and business decision marketers survey titled "A Revolutionary Partnership: How AI is Pushing Man And Machine Closer." In all, 72% said it was advantageous for business. The substantial revenue firms experience after integrating AI into customer behaviour is the main reason for AI's popularity. Marketing teams may focus data and determine the desired market, consumer needs, and trend analysis by using AI to decipher massive amounts of data. By designing their marketing strategies around user-focused sales funnels, they are able to increase the exchange rate of prospects. Increased conversions translate into higher sales. Loyal clients are one of the most important assets for organisations today. This is due to the fact that businesses don't develop this loyalty quickly. To meet or surpass customers' expectations and win their loyalty, it takes years of hard work. The attitudes, requirements, wants, and expectations of clients are abundantly revealed by AI techniques. Based on this data, businesses can run their operations and improve the quality and price to better suit the needs of their customers. Businesses can maintain an advantage over rivals and gain devoted clients in this way. This is what every company hopes for.

Artificial intelligence has rapidly developed in recent years, and it is transforming how we perceive and understand marketing. AI is a resource given the advantages it has and will continue to have as long as we employ it properly. The main advantage is how well technology has impacted marketers' ability to examine and comprehend consumer purchasing behaviour. To make their marketing plans and strategies more effective, marketers are researching how people behave online. The gathering of information on browsing habits, searches, and views has helped marketers better grasp the preferences of the target market. AI and marketing have been collaborating closely in recent years. Many industries, including marketing, are quickly integrating artificial intelligence and machine learning. Technology is constantly evolving, and AI has undoubtedly altered marketing.

Literature Review

Haenlein & Kaplan(2019) defined that Artificial intelligence (AI), often known as human intelligence processes by computers, is capable of converting data into plans that influence significant customer behaviour. Ransbotham, et al.(2017) explained that AI-based digital marketing makes it even simpler for firms to contact the right customers at the right time. According to Jain (2020), Marketers can process a massive quantity of data, conduct personalised sales, and meet client expectations with the aid of AI. Davenport (2020) also noted that businesses are being encouraged to improve customer experience by implementing new technologies like AI and big data thanks to the use of intelligent technology solutions for digital marketing. The use of AI in crafting successful marketing strategies was noted by Khatri(2021). He further elaborated that businesses with successful marketing strategies are implementing new technology to support their advertising campaigns that are designed to take into account contemporary trends and reflect changes in consumer behaviour, while also ensuring data analytics to assess customer wants and desires. The profound influence of AI was noted by Reis et al. (2020). He explained how retailers continue to deploy consumer-facing Artificial Intelligence (AI) digital humans into frontline retail environments as they look for more innovative and creative ways to use their physical retail spaces. This is quickly changing the way that customers interact with service providers. Larson(2019) also elaborated how other retailers are using AI interfaces to improve the in-store shopping experience by supporting the work of front-line staff by providing more individualised services, differentiating their stores from those of their rivals. The impact of artificial intelligence on consumers and industry was discussed by Meenakshi Nadimpalli in 2017. The authors discuss consumer perceptions of AI thinking and discuss how it has affected employment, healthcare, retail, and logistics.

Methodology

In order to establish the study's concept and validate its ideas, the data for this study was gathered from secondary sources, such as published research articles in this area. This study has used a few corporate cases from several industries, including the banking sector, the education sector, the healthcare sector, internet retailers, and trading firms. The researcher has gathered and assessed the information in keeping with the study's objectives.

Objectives

01. To examine industry growth following the use of AI.
02. To evaluate the overall performance of the industry who are using AI.
03. To develop a relationship between AI and consumer behaviour.
04. To find out how AI is Influencing consumer buying behaviour.

Evidence from Various Industries Showing How Consumer Buying Behaviour is Influenced by Artificial Intelligence

Banking Industry

Chatbots: Artificial intelligence (AI) is being used in a variety of ways in the banking sector. There are several instances of AI technology being used. For instance, a significant application of AI is in customer support. OnChat, an AI-based chatbot, was introduced by HDFC Bank (India's leading private sector bank) in 2016 on Facebook Messenger. Within the first year of its deployment, the chatbot—which was created in conjunction with Niki.ai—saw a 160% increase in transactions month over month. Up to April 2018, HDFC Bank OnChat had connections with over 300,000 users and processed nearly Rs 2.5 crore in transactions. Eva, the virtual chatbot from HDFC Bank available on Google Assistant and Amazon Alexa, is another example of how AI is being used in conversational banking. With an accuracy record of more than 85%, Eva has responded to even more than five million inquiries from a million or so customers. Every day, Eva has more than 20,000 conversations with clients from all over the world.

Cybersecurity and Fraud Detection: Every day, a sizable number of digital transactions take place as customers use programs or internet services to pay bills, withdraw cash, deposit checks, and do a variety of other tasks. Therefore, the financial sector needs to put more effort into cybersecurity and counterfeit detection. At this point, banking artificial intelligence comes into play. Artificial intelligence (AI) can help banks lower risks, track system problems, and enhance the safety of online banking transactions. Artificial intelligence and machine learning are able to detect fraudulent activity fast and alert banks as well as customers.

Loan and Credit Decisions: Banks have started integrating AI-based technologies to help them make safer, and more lucrative lending and credit decisions. Many banks still base their decisions on a person or company's creditworthiness solely on their credit scores, and customer references today. It is impossible to disregard the fact that all these credit monitoring systems routinely include errors, omit real-world transaction records, and identify creditors inaccurately. An AI-based lending system may analyse the patterns of behaviour of consumers with little credit record to determine their creditworthiness. The system also alerts banks to certain acts that can increase the likelihood of default. In conclusion, these technologies are fundamentally changing how consumer loans will be carried out in the future.

Financial Decision Making: HDFC Bank offers a variety of AI-powered financial planning tools that allow customers to set financial goals, track their spending, and make a budget. These tools can help customers make better financial decisions by providing insights into their financial behaviour and helps them for future planning.

Customer Experience: Customers are always looking for a more convenient experience. For instance, ATMs were successful because they allowed clients to access necessary services like money withdrawal and deposit even when banks were closed.

More innovation has only been spurred by this level of convenience. Customers can now use their smartphones to open bank accounts from the comfort of their homes. Artificial intelligence integration will improve user comfort and the customer experience in banking and finance services. AI technology speeds up the recording of Know Your Customer (KYC) data and eliminates mistakes.

Education Industry

A new technology called artificial intelligence has begun to alter educational resources and organisations. The ideal educational practice in the sphere of education requires the presence of teachers. The employment of teachers, who are vital to the educational system, is altered by the development of artificial intelligence. The AI primarily employs deep learning, machine learning, and advanced analytics to track a specific person's relative speed to other people. As AI solutions continue to advance, they make it easier to spot where there are gaps in teaching and learning and raise the calibre of education. In order to provide teachers the time and freedom to teach understanding and adaptability—two distinctively human characteristics where computers would struggle—AI can drive efficiency, personalisation, and streamline administrative procedures. It is possible to get the best performance out of students by combining robots and professors. The development, spread, and introduction of technology—and in particular, artificial intelligence—has made it simpler for teachers to carry out their responsibilities in a more effective and efficient manner. Other academic fields have also been impacted by these technological advancements, promoting efficacy and efficiency.

When artificial intelligence is mentioned, a supercomputer comes to mind. A supercomputer is a computer with enormous processing power, adaptive behaviour (such as the use of sensors), and other capabilities that enable it to have human-like cognition and functional abilities, and which actually improve the supercomputer's interaction with humans. Beyond the traditional understanding of AI as a supercomputer to encompass embedded computer systems, there has been a growth in the application of AI within the education sector. For instance, the incorporation of AI, computers, and other supporting technology into robots enables the development of robots that enhance student learning, starting with the most fundamental form of education, early childhood education. According to Chassignol *et al.*, administration, instruction or teaching, and learning have all been combined with artificial intelligence in schools. The focus of this study will be on these domains, which Chassignol *et al.* consider as

the foundation for examining and comprehending artificial intelligence in education. Future AI will have a significant impact on almost every aspect of our lives, but the education sector will be particularly affected because teaching and learning are important aspects of life and the existing educational system leaves a lot to be desired. The education of the past was less adaptable than what the future of AI in education will offer. The teachers who are most crucial to the educational system are both pricey and not flexible. Teachers are devalued and given a lot of paperwork in various parts of the country. By providing each person with a customised curriculum based on their interest and skill assessments, AI can assist them individually.

Nowadays, young people frequently use their cell phones or tablets. This gives students the chance to use AI applications to study for 10 to 15 minutes in their free time. Using gesture recognition technology, AI aids in understanding the students' attitudes or comfort levels during lectures. As AI develops, it can now read a student's facial expressions or hand movements to determine whether they are finding the lecture difficult to understand. If so, the machine can adjust the course so that the student can easily follow along. Machines driven by AI are capable of customising the academic curriculum. With the use of AI tools, worldwide classrooms can accommodate students who have hearing or vision impairments. Students who are ill and unable to attend class can also benefit from this. The teacher marks the pupils in the traditional educational system based on their assignments and tests, which takes a lot of time. When AI intervenes in this situation, it would quickly complete these jobs. Additionally, it aids in providing advice on how to close learning gaps.

People who speak different languages or have hearing or vision issues can access a variety of resources thanks to AI. The AI-based system application Presentation Translator delivers subtitles in real-time mode. Students can read and hear in their native language, for instance, with the aid of Google Translate. Modern technologies like VR and gamification are useful for more participatory meetings. In the future, AI may also be used to handle admissions and enrollment procedures, while its full potential is still untapped. AI can aid students in their home study habits and exam planning. Future AI will be able to respond to various learning styles. Because of artificial intelligence, tutoring and study systems are becoming increasingly popular. Applications for AI in education are currently being explored, such as AI mentors for students.

There are numerous tech-driven educational options available, like Dream Box, Khan Academy, Achieve3000, etc. Third Space Learning, Little Dragon, CTI, Brainy, Thinker Math, and Carnegie Learning are just a few examples of AI-based teaching platforms.

Researchers from London University College contributed to the development of the Third Space Learning system. It is helpful to suggest improvements to teaching methods, such as advising students when a teacher's explanation is too sluggish or too rapid. Smart software is developed by The Little Dragon that analyses a user's facial expressions or hand motions and changes the user interface accordingly. Kids' instructional games are another thing Little Dragon produces.

AI is a significant advancement in schooling. The next level applications of artificial intelligence in education have not yet been developed, according to a research published by the Centre for Integrative Research in Computer and Learning Sciences. Therefore, those developing AI applications should thoroughly inform educators and decision-makers in the field of education. Although there are certain drawbacks to adopting AI in the educational sector, this is the technology of the future, thus educational institutions should start exposing their pupils to it. The effects of AI will be felt initially at the lowest levels of education and progressively progress to higher education. Only time will tell how artificial intelligence will ultimately affect schooling. AI's primary goal is to facilitate educators' work, not to take their position.

Healthcare Industry

AI has shown a lot of potential in the healthcare industry among many other areas, including consumer analytics, finance, and marketing. Both the business world and academics are showing growing support for the use of AI. The following section discusses numerous ways AI has benefited the healthcare sector. Claims processing, clinical documentation, revenue cycle management, and medical records administration are just a few of the applications of AI in healthcare.

In many different industries, including healthcare, artificial intelligence is transforming everything from the product itself to the customer experience. It is without a doubt affecting how all healthcare-related services are selected. Numerous parts of the healthcare industry are changing to better serve patients, from sophisticated surgical robots to diagnostic algorithms.

Applications and Smart Technologies Powered by AI Aid in the Detection and Management of Diabetes: According to a study, out of the 100 million Americans with diabetes, 25% of cases go undiagnosed. There have been instances, particularly in underdeveloped countries, where a lack of modern technology and inexperienced experts result in diabetic individuals going untreated. Machine learning can be used to monitor one's body's blood sugar levels, computer algorithms can be used to provide nutrition advice, and "personal health companions" can help you remember to take your meds and the Apple smart watch developed in partnership with Aetna that uses risk-predictive algorithms or artificial neural networks to optimise performance. It's crucial to understand that diabetes coexists with other conditions. It might result in detrimental health effects like cataract, nerve damage, and even a higher chance of stroke. An Israeli healthcare start-up, Medial EarlySign, announced that rather than depending on people, it will use AI technology and electronic medical data to forecast when a diabetic patient may face kidney failure. Owing to AI-driven

technologies like VoxelCloud, ophthalmologists can quickly and effectively detect diabetic retinopathy utilising automated medical picture analyzers like these.

AI Chatbots Help Patients with a Range of Health Issues: We can't ignore the fact that consumers expect rapid gratification in this digital age. The greatest possible remedy for health issues and symptoms can now be provided by virtual assistants, freeing patients without having to call their doctor to make an appointment or travel far to a nearby hospital just to get answers. Although humans work in shifts to give patients around-the-clock support, it is more practical and cost-effective to purchase a bot that never gets tired. These bots can live inside the leading platforms for conversational commerce, including WhatsApp and Facebook Messenger, instead of necessarily needing a separate application like Your.MD. George Kassabi, a businessman and philosopher, contends that artificial intelligence cannot be employed alone. To provide patients with a seamless experience, health specialists and bots must communicate.

Algorithms for Machine Learning to Extract Patient Insights and Forecast Treatments, Analyze Big Data: It is hard for people to gather and analyse massive amounts of information about healthcare customers in the age of big data. Consequently, artificial intelligence in the form of machine learning techniques, adaptive inference systems, and natural language processing computer program applications like Human Dx help in assembling, organising, and analysing crucial data that needs to be used to offer prescription meds, make accurate diagnoses, and most significantly to provide "personalised care." In addition to handling mountains of patient data, machine learning and deep phenotyping assist in the possible prediction of cardiovascular disease. These two approaches work together to benefit professionals in clinical practice and medical research, ultimately enhancing patient care.

If applied properly, artificial intelligence can enhance our quality of life rather than becoming an intrusive force in it. Because they were created by humans, machines require ongoing maintenance and improvement. Patients can use AI apps more easily than they can deal with the difficulties of procedures and the delays in services in traditional hospital settings.

Online Retail Industry

Artificial intelligence is assisting online commercial enterprises in reaching out to customers. Today's AI and online business platforms can exploit vast datasets related to consumer behaviour and usage patterns. Online shoppers can have personalised buying experiences thanks to computerised reasoning and self-learning computations. Some of the features of AI-driven online shopping are - Instantaneous focus, Visual pursuit, Voice-Activated Search, Selection Intelligence Instrument, Trade in conversation.

Associations and sponsors will benefit from understanding all the data and realising how AI is affecting customers in order to stay prepared. The more you think about your customers and how they behave, the more you may adjust your operations and marketing strategies to better meet their needs.

The best example of how to successfully integrate AI into online retail is provided by Amazon, the largest online retailer in the USA. Along with the wide selection, quick shipping, and affordable rates, a more specialised shopping experience can be designed. As a result, Amazon's customers can use location-specific pricing and receive messaging tailored to their destinations and pay in their local currencies. The use of AI in online shopping enables customer-centric search and a new level of personalization, leading to a more effective sales process. New marketing techniques supported by new technologies, including the use of AI systems, spark the proliferation of new marketing methods to effectively reach target consumers and to offer enhanced consumer experiences.

Online merchants want a deeper understanding of how consumers feel about and how much trust they place in webshops' usage of artificial intelligence. As the importance of time and money efficiency in shopping has recently been more and more vital, they also need to understand how to use AI most effectively to improve online spending and online buy frequency. Online shopping is, in this sense, a practical approach for clients to purchase the desired goods. Few researchers have so far focused on the issue of consumer trust and adoption of AI in online retail. AI can better understand consumer online information search and product selection patterns to provide a more individualised shopping experience. Online stores have a fantastic opportunity to examine the profiles of both current and potential clients and then recommend marketing solutions that are specifically designed for them. AI also makes interactions with customers and staff more frequent and interactive, which boosts customer happiness and engagement. The benefits can be summed up as follows: AI systems run autonomously, analyse massive data in real-time, and understand and mould customer behavioural patterns to provide goods and services in a personalised fashion, improving the purchasing experience.

Trading Industry

Even though humans still make up a large portion of the trading equation, AI is becoming more and more important. A survey by the British research firm Coalition found that nearly 45 percent of cash equity trading income comes from electronic deals. While hedge funds are less receptive to automation, many of them employ it to generate investment ideas and construct portfolios. Machine learning and algorithmic forecasts are only two examples of the technologies that AI trading firms use to help brokers safeguard equities and tailor marketplaces. The ability to do AI stock

trading on common networks and PCs is one advantage. When Wall Street statisticians realised they could apply AI to many sectors of finance, including investment trading applications, Anthony Antenucci, vice president of global business development at Intelnet Global Services, had expertise to share. According to him, conventional statistical models "couldn't successfully digest millions upon millions of data points in real time and collect information." Financial institutions are among the early adopters of machine learning, which is developing at an even faster rate. Of course, Antenucci is not the first person to see the potential for stock in AI. By 2028, it's anticipated that the industry for online trading will be worth about \$12 billion. This predicted expansion will be greatly aided by AI. The demand for AI trading tools will increase along with the size of the global online trading sector. Here are a few AI trading firms that are revolutionising the market.

Trading Technologies, thanks to its 2017 takeover of Neurensic, provides artificial intelligence (AI) technology that can recognise complex market movements on a large scale across many marketplaces in real time. The company gives customers the option to create their own algorithm trading platforms by fusing machine learning technology with powerful, fast big data processing. By automating position entry and exit, users can lessen the impact of big orders on the market and the possibility of human error.

The speech recognition and natural language processing technology of *GreenKey*, which VoxSmart purchased, helps traders find conversions, financial data, and notes more quickly. The company's platform allows financial professionals to browse through and retrieve notes, market information, and rising companies in real-time.

The "K Score" from *Kavout* is a result of its intelligence platform, which creates stockranking evaluations by analysing enormous, diversified collections of data and applying a range of predictive algorithms. The business recommends the top stocks every day using AI, pattern recognition, and a price forecasting engine. AI algorithms improve its model portfolios.

To forecast stock market movements and run a new sort of hedge fund, *Numerai* uses machine learning. The company stands out from the competition since it crowdsources stock market forecasts forecasted by AI using encrypted data sets. The models come from unnamed data scientists who are compensated with NMR, Numerai's cryptocurrency, for better models.

By enabling data scientists to create algorithmic trading methods that aid in the resolution of investment problems, *Auquan*'s data science competition platform democratises trading. Users supply the platform with a raw data set, which Auquan's tools subsequently organise and analyse. Users are able to forecast opportunities and dangers using these updated and structured data sets. With the aid of data science, Auquan hopes to assist investing clients without the requirement for in-house knowledge.

IntoTheBlock bases its price forecasts for a range of crypto marketplaces on AI and deep learning. Users can access historical data to better guide their trading decisions thanks to IntoTheBlock's algorithms, which are trained on spot, blockchain, and derivatives datasets.

To boost the likelihood of alpha in upcoming sessions, *Trade Ideas*' self-learning, AI-powered robo-trading platform "Holly" subjects over a million various trading scenarios to hundreds of investment algorithms. The AI assistant platform will choose the trading methods each night that have the best odds of producing profitable trades for the following trading day. Holly typically enters 5 to 25 transactions each day using a variety of methods.

Imperative Execution, with the help of its program IntelligentCross, a team of experienced brokers, analysts, and engineers builds "efficient financial exchanges," which use AI to improve trading of US equities. The platform, which partners with a variety of brokers, handles over 200 million purchases from investors daily, according to the firm's website.

Sentio uses AI to offer a variety of financial solutions. A single shared workspace houses both internal and external content thanks to the company's AI-powered financial search engine. Individual investors can use the platform to explore firms and markets, while analysts can utilise its natural language processing to find the most recent news on important financial searches.

Two Sigma invests in public stock, fixed income, and alternative investment markets while utilising machine learning in its tech-focused trading. The goal of Two Sigma's AlphaStudio, a platform for data science competitions, is to give investors and academics a place to employ the scientific method to gain knowledge and make predictions.

A stock trading strategy is being developed by innovators employing a lot of AI, and the following are the major themes for the future: Businesses might use their expertise in creating AI stock trading algorithms to launch their own hedge funds. Entrepreneurs could create novel trading algorithms and sell them to hedge funds. Entrepreneurs could create AI investing algorithms and sell them to banks and other financial institutions. AI is used by many trading firms, including hedge funds, to gather information about investments and create portfolios. AI is helpful in quantitative trading since it can assist in the analysis of enormous amounts of historical data points. Not just in the financial sector, but elsewhere, AI is the future.

Logistics and Supply Chain Industry

Global logistics and supply chain management both increasingly depend on artificial intelligence. In addition to providing competitive advantages over other competitors, it opens up chances for cost reduction in demand forecasting, purchasing requirement planning, production planning, inventory, packaging, transportation, warehousing, and distribution planning. Through its extraordinary capacities, artificial intelligence has great promise for improving efficiency and making smarter decisions. The majority of industries have been impacted by new technologies like artificial intelligence (AI), and logistics is no exception. The field of logistics has undergone a revolution thanks to AI development. Automation of warehouses, autonomous vehicles, predictive analytics, and smart highways are some of the most important improvements this technology has made. This powerful technology can automate and simplify a lot of processes, which helps organisations save money and resources. It's hardly shocking that tech giants like Google and Amazon have started investing in AI. As a result, we have decided to investigate how AI is developing in the logistics industry.

Autonomous Vehicles: Using artificial intelligence in the logistics sector also makes it possible to automate vans, trucks, and buses used for cargo transportation. Vehicles that are autonomous can operate independently or with a human driver. Regulations and technology at this time do not permit driverless autonomous vehicles to be used on public roadways. Laws in many nations still require the driver to be in the driver's seat in order to manage traffic and assess potential threats, although this is anticipated to change in the future. This kind of technology can greatly improve logistics. The supply chain is altered by automated vehicles, which also help to save time and money. But more crucially, autonomous technology might contribute to a decrease in collisions. Additionally, it benefits the environment by reducing fuel usage.

Warehouse Automation: Numerous multinational organisations are devoting resources to robotics and AI technology because they need quick and sophisticated logistics solutions. Automation in warehouses makes a lot of mundane chores easier. AI is revolutionising warehousing operations, including data collection, analysis, and inventory management, allowing businesses to operate more effectively and generate more income. AI is used in warehousing to forecast demand, alter orders, and reroute goods while they are in transit. These forecasts allow you to modify your orders and arrange for the delivery of popular items to nearby warehouses as required. If the chain contains more than one warehouse, AI can connect them to determine the most effective method for moving the inventory. Companies may enhance their service, save shipping expenses, and make significant financial savings when they estimate the demand for particular products and organise the logistics well in advance.

Smart Roads: Smart highways are another way that artificial intelligence is being used in the logistics sector. Smart roads contribute to increased traffic safety, decrease supply chain delays brought on by bad weather, and speed up deliveries. In order to accommodate new and emerging technologies, a specific road infrastructure is required due to the rise of self-driving cars and their unique requirements. From one end to the other, roads are long, wide surfaces. The energy crisis may be solved, especially for electric vehicles, if these enormous surface areas could be utilised to produce power. For instance, the Netherlands' SolaRoad initiative is building a 70-metre cycling route with solar panels built right in. Roadside solar panels will be used for illumination, traffic signals, road signage, and other things. More projects are being created for testing in high traffic locations.

Route Optimization: The majority of logistics and transportation businesses currently employ technology to improve their shipping routes, but AI is accelerating this process by automatically combining historical and real-time data into the equation. To determine the most efficient routes, AI-powered route optimization software gathers data on available capacity, traffic, weather, and real-time location monitoring. Even the best moment for drivers to begin their route, stop for gas, or take a break for lunch may be predicted by some technology.

Discussion

Without a question, AI has benefited users by improving their online experience in a variety of ways. Customer satisfaction can be increased by swiftly attending to all requests and cutting down on the time it takes an agent to resolve a caller's issue. However, if a business wants to provide genuinely exceptional customer care, it must also foresee and address any difficulties before customers even consider contacting them. AI-powered technologies can quickly examine a large amount of data. So one may easily learn more about them and forecast their future behaviour by employing them to assess prior and current customer data. As a result, among other things, tailored marketing campaigns may be developed or the most prevalent client complaints may be identified. Every day that goes by, categorising enormous amounts of data is becoming simpler and easier thanks to AI technologies. A company will be able to determine exactly what its customers want, how to give it, and how they may modify their services to better suit them by simply looking at the reports generated by AI. AI can identify queries or issues that come up particularly frequently when it analyses and sorts the customer data in a database. So that customers who encounter these issues won't have to look for solutions, a FAQ featuring those solutions can then be prepared.

AI is able to predict future market directions and identify existing trends based on customer preferences. This can be used to assess the success of new products and services as well as ways to improve customer service efforts. 80% of consumers who identify as frequent buyers say they only use businesses that personalise their experiences, and 91% of consumers say they are more inclined to buy from companies who offer tailored offers

and useful advice. With personalisation, we can find items on Amazon that we want to purchase or receive Netflix series recommendations based on past activity.

Chatbots are without a doubt one of the best examples of artificial intelligence in banking. Once deployed, they can work whenever they want, unlike others who have regular office hours. Additionally, they keep discovering further about a specific customer's usage patterns. It facilitates their efficient comprehension of user requirements. By integrating chatbots into their online banking system, banks can ensure that they are reachable to their customers around-the-clock. Chatbots can also provide individualised customer help and provide appropriate financial service and product recommendations by comprehending consumer behaviour. Additionally, banks have begun implementing AI-based technologies to assist their customers in making better-informed, safer, and more advantageous lending and credit decisions. Customers are always looking for a more convenient experience. For instance, ATMs were successful because they allowed clients to access necessary services like money withdrawal and deposit even when banks were closed. More innovation has only been spurred by this level of convenience. Customers can now use their smartphones to open bank accounts from the comfort of their homes.

Users of social media platforms like Instagram can search photographs for a specific activity, topic, or event by leveraging tags and trending information, discover the hot events, eateries, and locations around the world. The search features, made possible by tagging, assist Instagram users in finding interesting items among the millions of uploaded photographs. By analysing the search patterns and interaction insights of its users, Instagram is able to offer advertisements to companies who want to engage with a consumer profile and who might be most inclined to hear a marketing message. Due to the fact that Facebook owns Instagram and that there are 1.8 billion users on the platform, the company has access to a strong analytics network which can be used to tailor advertisements based on consumer interests, the people they follow and connect with, and the things they save. Instagram must provide users content they will find valuable if it wants to guarantee that users will find value in the site. Finding material that each user will find relevant gets exponentially more difficult as the volume of content increases. When Instagram shifted its feed from displaying posts that they believed users would enjoy and share to showcasing posts that consumers would like and share, AI technologies were brought to work to help organise the data and to better understand over period what is most valuable and pertinent for each user to generate a personalised feed.

Another example is how Amazon can maintain customer satisfaction while capturing a larger share of the market by anticipating consumers' needs through customised product recommendations. Amazon leverages item-to-item collaborative filtering to make this functionality work. The idea behind collaborative filtering is that customers who have once made a purchase will do so again and will continue to be interested in similar products. The algorithm creates recommendations exclusively based on information from rating profiles for various individuals or objects. Amazon claims that their voice assistant, Alexa, enables customers to browse products, make purchases, and manage the checkout process without needing to click or touch a screen. This allows users to conduct their checkout procedure without needing to use their hands, claims Amazon. This AI application aims to make Amazon shopping more convenient for users and give its customers an offline experience by enabling them to create shopping lists and receive Alexa recommendations.

One can see how consumers have benefited from the use of artificial intelligence in various industries, how it improves their online experience, and how it benefits businesses by helping them better understand their customers and stay on top of consumer preferences and market trends, all of which contribute to a company's profitability, sustainability, and growth.

Conclusion

The above research gives us a clear understanding of the application of AI to understand consumer behaviour. We have done a research study of major six industries and found that AI makes the marketing process easier in comparison to the traditional way of behaviour where people go to a store and select the product and buy. Not only that, there are a lot of applications of AI in the healthcare industry like disease detection to patient care services, with the help of AI, the banking sector tries to identify prospects and detect fraud. Therefore the present study is an important aspect for the marketers to apply the AI in their business.

References

- Semeney, A. How to Use Artificial Intelligence for Trading [How to Use Artificial Intelligence for Trading - DevTeam.Space](#).
- Powers, J. (2022, July 21). How AI Trading Technology Is Making Stock Market Investors Smarter [How AI Trading Technology Works for Stock Investors | Built In](#)
- Suleman, A. (2018, February 20). How A.I. Is Superseding HealthCare Customer Experience [How A.I. Is Superseding HealthCare Customer Experience](#)
- Singh, S. (2022, September 6). AI in Banking - How Artificial Intelligence is Used in Banks [AI in Banking – How Artificial Intelligence is Used in Banks](#).

-
- Rathod, M. (2018, September 12). How HDFC Bank is Banking Upon AI Across the Organization [How HDFC Bank is banking upon AI across the organisation - Express Computer](#)
- Davenport, T. Guha, A. Grewal, D & Bressgott, T. (2019, October 10) How artificial intelligence will change the future of marketing [How artificial intelligence will change the future of marketing | SpringerLink](#)
- Nancy, S. (2022, March 6) How Artificial Intelligence Has Made Understanding Consumer Behaviour Easy in 2020 [How Artificial Intelligence Has Made Understanding Consumer Buying Behavior Easy in 2022](#)
- Little, A. The Impact of Artificial Intelligence on Consumer Behaviour: Topline Research Results [The Impact of Artificial Intelligence on Consumer Behaviour: Topline Research Results](#)
- Yoh BLOG. (2022, March 3) Predicting Consumer Behaviour With AI [Predicting Consumer Behavior with AI](#).
- Burns, E. (2022, February) What is artificial intelligence (AI)? [What is Artificial Intelligence \(AI\)? | Definition from TechTarget](#)
- Rajdhar, P. Brahme, M. (2020, December 12) Artificial Intelligence (AI) Influences Is Changing Consumer Buying Behaviour In Online Shopping [Artificial Intelligence AI Influence is Changing Consumer Buying Behavior in Online Shopping - Neliti](#)
- Singh, S. (2022, May 23) Artificial Intelligence - Revamping User Experience in Mobile Banking Apps [Artificial Intelligence- Revamping User Experience in Mobile Banking Apps](#)
- Misra, M. (2020, October 19) How Instagram Uses Machine Learning <https://www.linkedin.com/pulse/how-instagram-uses-machine-learning-manav-misra/>
- Marr, B. (2018, March 16) The amazing Ways Instagram Uses Big Data And Artificial Intelligence [The Amazing Ways Instagram Uses Big Data And Artificial Intelligence](#)
- Niranjan, K. Surya Narayana K. Narasimha Rao M.V.A.L (2021, April 21) Role of Artificial Intelligence in Logistics and Supply Chain [Role of Artificial Intelligence in Logistics and Supply Chain | IEEE Conference Publication](#)
- The IIS Company. The Role Of Artificial Intelligence In Logistics [The Role of Artificial Intelligence in Logistics - The IIS Company](#)
- AndSoft Transportation & Logistics Software. (2022, March 22) AI: “This powerful technology offers to automate and simplify numerous processes” [AI: “This powerful technology offers to automate and simplify numerous processes”](#)
- Jain, A. (2022, February 21) How Artificial Intelligence is transforming the logistics industry ? <https://www.exooutlook.com/how-artificial-intelligence-is-transforming-the-logistics-industry>
- DDC FPO Solutions (2021, October 15) The Role of AI in Logistics and Supply Chain Management [The Role of AI in Logistics and Supply Chain Management](#)
- Theo, S. (2020, December 19) AI In Modern Logistics, Transportation And Smart Roads [AI In Modern Logistics, Transportation And Smart Roads | Must Read](#)
- Dimensionless (2020, April 1) AI in Healthcare [AI in Healthcare. Among multiple areas like customer... | by Dimensionless | Medium](#)