Amazon's Artificial Intelligence in Retail Novelty - Case Study

Manasa R. [1] & A. Jayanthila Devi [2]

[1] Research Scholar, Institute of Computer Science and Information Science, Srinivas University, Mangalore, India,
ORCID ID: 0000-0003-0392-2388; E-mail ID: manasa.ccis@srinivasuniversity.edu.in
[2] Research Professor, Institute of Computer Science & Information Science, Srinivas University, Mangalore – 575001, India,
ORCID ID: 0000-0002-6023-3899; Email ID: drjayanthila@gmail.com

Amazon's Artificial Intelligence in Retail Novelty - Case Study

Manasa R. [1] & A. Jayanthila Devi [2]

[1] Research Scholar, Institute of Computer Science and Information Science, Srinivas University, Mangalore, India,
ORCID ID: 0000-0003-0392-2388; E-mail ID: manasa.ccis@srinivasuniversity.edu.in
[2] Research Professor, Institute of Computer Science & Information Science, Srinivas University, Mangalore – 575001, India,
ORCID ID: 0000-0002-6023-3899; Email ID: drjayanthila@gmail.com

ABSTRACT

Purpose: *The provision of a method for thoughtful decision-making is the core purpose of artificial intelligence research and development. The primary goal of artificial intelligence (AI) is to give computers the ability to do intellectual tasks such as making decisions, solving problems, seeing their surroundings, and understanding human communication. Amazon is famous for using robots—roughly 30,000 of them—within its distribution centres. The company has gained mechanical autonomous organisation, which allows the robots to function independently. Kiva in 2012. Retailers can improve their demand estimates, make better pricing decisions, and optimise product placement with the aid of AI. The end result is that customers are connected with the proper products at the suitable time, in the appropriate place, and at the appropriate price. Utilizing predictive analytics may assist in determining the amount of a product that should be ordered to ensure that shops do not end up with either an excess or a shortage of inventory.*

Design/Methodology/Approach: *The efficiency of our workplaces may be substantially improved by the use of artificial intelligence. When AI is utilised to do tasks that are boring or dangerous, human workers are given more time to concentrate on endeavours that need capabilities such as creativity and empathy, amongst other abilities. Artificial intelligence (AI) may be of assistance to a corporation in three different areas: the automation of corporate processes; the acquisition of insight through data analysis; and the interaction with consumers and staff.*

Findings/Result: *As a result of AI, individuals will be freed up to focus on the 20% of non-routine jobs that account for 80% of the value they create. In the future, "intelligent automation of process change" (IAPC) will be used by smart machines to constantly examine and improve the whole process of a business's response to artificial intelligence. Automated and optimised everyday chores save your time and money and improves operational efficiency and productivity. The outputs of cognitive technology may help you make quicker business judgments and benefits the AI in the Workplace. Doing the same thing over and over again might take a toll on your workers' productivity. Automating and optimising these procedures will save you money. Employees will be able to concentrate on multiple areas at once, resulting in increased production. As AI processes data more quickly than humans, this leads to increased productivity.*

Originality/Value*: It is essential to have a deeper comprehension of the differences between AI and human intelligence if we are to be adequately prepared for a society in which AI will play a much more pervasive role in our everyday lives in the foreseeable future. The process of reproduction is intricately connected to both biological and human intelligence. The advancement of artificial intelligence (AI) is significant for the reason that it paves the way for software to perform human activities and cost-effective than it was previously possible.*
Paper Type: *Company Analysis.*

Keywords: E-Commerce, Amazon, Artificial Intelligence, Predictive Analysis, Intelligent automation, SWOT analysis.

1. INTRODUCTION :

Today, the phrase "artificial intelligence" (AI) is not a foreign one. All throughout the home and out in the world are practical applications for artificial intelligence. They may be found in workplaces such as offices and financial institutions as well as healthcare facilities, factories, and even outer space. Robots, speech recognition, self-driving cars, and satellite navigation systems all rely on artificial intelligence algorithms. There is a perception that artificial intelligence is a broad field, but it is really used in a limited number of fields such as healthcare; biology; information technology; and business. Electronic commerce (E-commerce) has exploded in popularity in recent years, becoming the retail industry's fastest-growing channel [1-2]. This year's COVID-19 epidemic has significantly affected people's lives, and e-Commerce has played an even greater role in keeping society's economy healthy [3]. 17 percent of all items will be purchased online by 2021, according to Euromonitor's projections. There will be USD 4.2 trillion in global e-commerce sales in 2020; this is up 24% from 2017 and 7% lower than in 2017 [4]. The fashion business is riper for digitalization than any other, owing to the enormous range of items that can be accessed via digital media and consumed by anybody in the globe at any given time, anywhere, at any given moment [5]. Companies will be able to demonstrate their products, services, and other offerings through various digital media, such as computers, smartphones, tablets, and other devices [6]. Images, texts, robustness, art, and games are all examples of varied methods to provide these sorts of knowledge [7]. Customers may enter the shop, grab what they need, and walk out with the costs of everything they've taken instantly invoiced to Amazon's mobile app [8]. There are many people who feel that using AI in retail would make it dominating player in retail in the near future since it removes the main source of customer dissatisfaction with shopping, which is having to wait in line for long periods of time to pay [9]. When it comes to shopping, this important innovation has revolutionised the way people buy and helped to saving time in a busy environment.

Designing an easy cashier-free or smart checkout system for university students and employees is the goal of this study. When it comes to this research, there are a number of goals that must be met. Identifying the economic value and advantages of AI is crucial [10]. Ad Preference Manager (APM) enables users to monitor and amend their interest profiles, as well as to get an explanation for each sponsored ad that is presented on the social media platform [11]. Recently, researchers have used platform-specific APMs to assess the accuracy of interests inferred by social media sites, such as Facebook and Google [12] (also known as ad settings). Offline data brokers, such as Acxiom and Experian, were able to run Facebook advertising that were accurate and comprehensive. Even though this option was deleted by Facebook in March of 2018 [12], it is still available on the site.

2. RELATED RESEARCH WORKS :

The essential points of this thesis are discussed in detail in this chapter. The definitions of terminology like "intelligence" and "artificial intelligence," as well as the relationship between human and artificial intelligence, are explained. During the dotcom bubble's bust in the mid-2000s, some artificial intelligence funding vanished. Machine learning, on the other hand, continued on its path thanks in large part to improvements in PC hardware. Machine learning methods were successfully used by businesses and governments in constrained situations. Organizations were able to store and process enormous volumes of data because of exponential advances in PC handling force and capacity. It was in the last 15 years that Amazon and Google, as well as Baidu, used machine learning to their enormous benefit. Other than gathering data on their clients in order to better understand their behaviour, these businesses work on PC vision, common dialect handling, and a slew of other AI projects. As a technique of augmenting the device's capacity to conduct extraordinary and immediate services and correction, AI may be described. In today's high-tech environment, AI is of essential relevance since it is reshaping the fundamentals of commerce. AI may be used by retailers to enhance and modernise their entire customer service. AI is now better equipped than ever to perform precise and accurate analyses thanks to the massive amounts of data that powerful, giant retailers like Walmart and Amazon have access to on a daily basis from their customers [13]. These analyses include predicting customer behaviour, suggesting products they'll like, increasing inventory levels while minimising costs of transportation and delivery, and so on. Increasing the accuracy of forecasts will let businesses to make more money

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

by avoiding having to acquire things that will merely take up valuable storage space in their warehouses [14]. Not only is the corporate sector being dominated by AI and smart sensors and robots, but so are many other disciplines as well [15].

The Ad Preference Manager on Facebook enables users to examine their interests (APM) [16]. It is common to use the APM as a dashboard to display advertisements that are more relevant to the user (as shown in Figure 1a). Users may see what Facebook thinks they're interested in through this dashboard [17]. Following are the sections of the APM.

a) **Your Interests**: All of Facebook's inferences about a user's interests may be found in this section, broken down by category [18]. An explanation for why a particular interest has been inferred may be found in each interest. The user also has the option of removing any interests that were incorrectly determined.

b) **Advertisers and Business:** Advertisers that have submitted user contact information, such as phone number or email address, for the purpose of targeting adverts may be found in this subsection [19]. Ads clicked and hidden by a user are likewise included in the list.

c) **Novel marketing**: Using AI in online shopping allows for a more customer-centric search and a higher degree of personalization, resulting in a more efficient sales process [20]. AI systems stimulate the spread of new marketing approaches to efficiently reach target customers and to give improved consumer experiences. Company-customer interactions have been transformed by the use of information technology (IT) [17]. However, trust is the foundation of every technological revolution.

d) **Information Technologies (IT):** The advent of digital technology has had a profound impact on a diverse range of areas of modern life. A digital personal assistant (DPA), like Microsoft Cortana (Microsoft), Apple Siri (Apple), or Google Assistant (Google). A variety of activities may be assisted by DPA by accepting audio or text commands [21]. These tasks include: shopping, listening to music or setting a timer; sending messages; operating domestic appliances and electronic equipment; and answering basic questions.

Consumers' perceptions and acceptance of the usage of AI in web shops must be better understood by online merchants. Because time and cost efficiency in purchasing has lately become more and more crucial, they need to know how to apply AI to enhance online spending and buy frequency [22]. To put it another way, internet shopping provides clients with an easy method of acquiring their preferred goods. Google Scholar is a search engine which is used for finding related works. E-commerce, Artificial Intelligence and Internet of Things are the keywords which we have used to search the journals and conference papers.

Table 1: Related Works on Amazon's Artificial Intelligence in Retail Market

S. No.	Author(s)	Year	Area	Findings
1	Anderson, J. C., & Gerbing, D. W. (1)	1992	E-Commerce	Attempt is made to provide some clarification and guidance to researchers interested in employing structural equation modelling to test and develop theory
2	Liang, Y., Lee, S.-H., & Workman, J. E. [2]	2020	Artificial Intelligence	Examined consumers' attitudes and purchase intentions toward an AI device.
3	Batra, R., & Ahtola, O. T. [3].	1991	E-Commerce	This paper reports three studies that validate measurement scales for these constructs and, using them, show that these two attitude dimensions do seem to exist; are based on different types of product attributes; and are differentially salient across different consumer

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

S. No.	Author(s)	Year	Area	Findings
				products and behaviours, in theoretically-consistent ways.
4	Cass, A. O. [4].	2001	Fashion Designing	Examines the relationships between gender, age, self-monitoring, materialism, fashion clothing consumption motives and fashion clothing involvement.
5	Bues et.al [5].	2017	E-Commerce	Study investigates how mobile in-store advertising should be designed in order to be most effective. The authors identify three value drivers (price promotion, location, and personalization) and examine their effect on customers' purchase intention.
6	Kim, T., Chiu, W., & Chow, M. K. F. [6].	2017	Internet Of Things	Explores characteristics of possible market segments and provides a better understanding of user profiles of sports wearable devices
7	Preeti Virdi, Arti D. Kalro, Dinesh Sharma [7].	2020	E-commerce	Exploratory attempt to understand how consumers use multiple decision aids present on e-commerce websites.
8	Hess, T. J., McNab, A. L., & Basoglu, K. A. [8]	2014	Information Technology	A reliability generalization study (a meta-analysis of reliability coefficients) was conducted on three widely studied information systems constructs from the technology acceptance model (TAM): perceived ease of use, perceived usefulness, and behavioural intentions. This form of meta-analysis summarizes the reliability
9	Davis, F. D. [9]	1993	Information Technology	TAM(technology acceptance model) provides an informative representation of the mechanisms by which design choices influence user acceptance, and should therefore be helpful in applied contexts for forecasting and evaluating user acceptance of information technology
10	Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. [10]	1989	E-commerce	Addresses the ability to predict peoples' computer acceptance from a measure of their intentions, and the ability to explain their intentions in terms of their attitudes, subjective norms, perceived usefulness, perceived ease of use, and related variables.

3. OBJECTIVES :

Computers' ability to execute activities like decision-making, problem-solving, sensing, and interpreting human communication is at the heart of AI's primary goal. An artificial intelligence multiagent shopping system that is provided with information about different products. Users may create an account and add information about a certain product they're interested in. Each information

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

entered by the user is saved and processed by the system, which then searches for objects that fit his search.

4. METHODOLOGY :

4.1 Classifications of artificial intelligence

The two primary goals of artificial intelligence are technical and scientific [23]. Artificial intelligence has been utilised in two ways: to do useful tasks, and to answer questions about people and other living things by incorporating it into models and ideas.

Narrow artificial intelligence and general artificial intelligence are two examples of technological artificial intelligence [24-25]." There are many different types of artificial intelligence, but narrow artificial intelligence refers to systems that may be seen in computers. Without being explicitly coded, it concentrates on resolving a single issue that has been learnt and taught in order to accomplish a certain set of activities. Vision-acknowledgment frameworks on self-driving cars, Siri virtual function on iPhone Apple, and recommendation motors, which indicate products consumers may acquire based on what they have previously bought, are all examples of this sort of machine insight. Narrow artificial intelligence can be put to use in a variety of different ways, from answering basic customer service questions to coordinating with other clever frameworks to perform tasks such as booking a hotel at the right time and location, assisting radiologists in the detection of potential tumours in X-rays, identifying offensive content on the internet, and so on [26].

4.2 Application fields of artificial intelligence technology

Since tasks are carried out in a human-like manner by computerised reasoning, the whole framework benefits from increased precision, efficacy, and efficiency. It is impossible for machines to become tired of working since they lack the ability to feel [27]. Furthermore, computers with knowledge have far better throughput since they are not affected by the same thoughts or sensations that affect humans. Knowledge in these machines is recognised for its ability to apply rationality and provide a productive and exact yield for the ultimate customer. As preparatory information, the numerical model of artificial intelligence provides this insight into the framework's learning. Additionally, this data is put to good use in order to complete various tasks for the benefit of the customer [28]. Figure 1 illustrates the six applications of artificial intelligence that may be found under the umbrella of artificial intelligence.
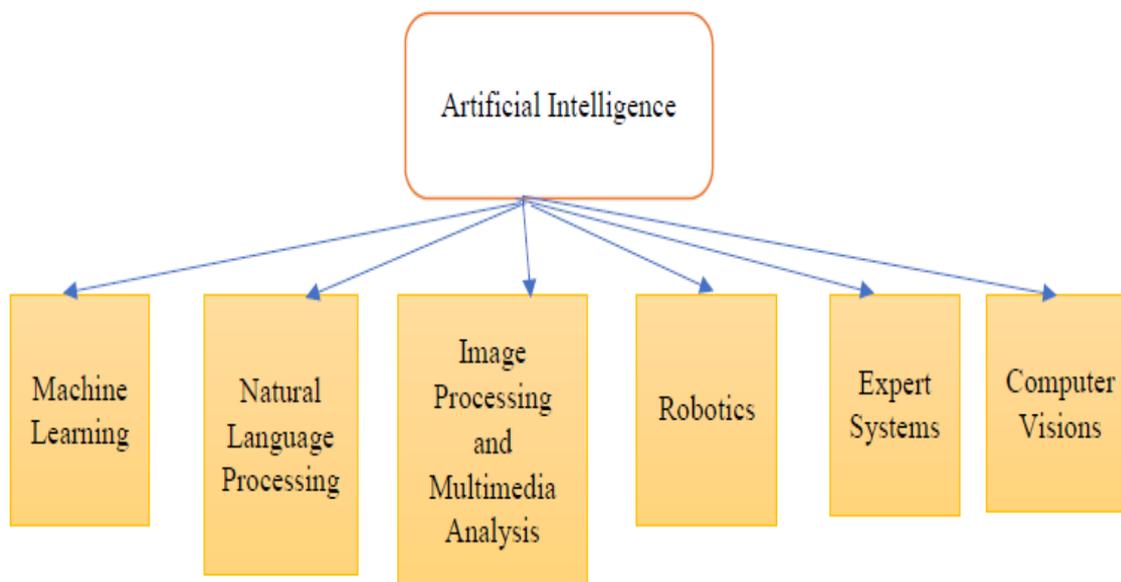
Fig 1. Main fields of artificial intelligence [29]

4.3 Machine Learning in Artificial Intelligence (AI):

There is a 1959 definition of "machine learning" which states that this discipline studies how computers may learn on their own without being explicitly programmed. An important element of machine learning is that it doesn't obey pre-programmed "rules," even if this description is a little ambiguous

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

[30]. Automated data analysis, pattern recognition, and learning from data are all part of the generic definition of "machine learning," which encompasses a variety of techniques. Alpha Go Zero's "reinforcement machine learning" begins with the game's governing principles solely [31]. Robotics is the science and engineering of creating machines that can do human tasks in their place. According to their purposes, various types of robots have been given distinct titles, such as medical robots, agricultural robots, and home appliances [32]. Because many of them are meant to do repetitive and risky duties rather than high-precision and creative activities, they are not necessarily like people. Designing robots that look like people help them be accepted more readily by the general public.

Reality changes quickly in the actual world. Even if the setting or circumstance has never been experienced before, an AI system must be able to adapt swiftly and securely to a new context in a fast-changing environment. A lifelong pursuit of knowledge is essential [33].

Artificial Intelligence (AI) is really a collection of technologies. To get the most out of AI, a number of other technologies must also be swiftly developed. As seen in table 1, Internet of Things (IoT) research as well as reinforcement learning and natural language processing are all critical components of the overall research strategy [34].

4.4 Natural: Language Process with Artificial Intelligence (NLP – AI)

An artificial intelligence area called natural language processing (NLP) is concerned with helping computers comprehend how people write and communicate. Programming in Python is an excellent option for natural language processing due to its simple structure and text processing tools such as SpaCy [35]. Other programming languages may be readily integrated with Python because to its excellent documentation and community assistance. In this series, we'll see that deep and machine learning, as well as natural language processing, are all options in the broader field of artificial intelligence [36]. In addition, he studied the intersection of these ideas in Fig. 2, which you can see in more detail below.
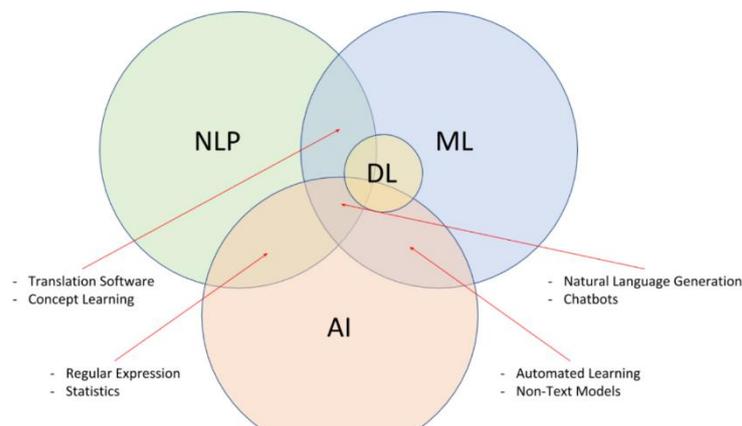

Fig. 2 The intersection of NLP, machine/deep learning, and artificial intelligence [37]

Processing of natural language using various techniques. Natural language processing may be used for several purposes, as mentioned below.

a) When a word is reduced to its stem from its inflected or derived forms (e.g., fast), the process is known as stemming [38].

b) The goal of lemmatization, like that of stemming, is to identify a word's lemma. A set of inflected word forms (such as is, are –> be) is treated as a single item by lemmatization.

c) Term frequency is a quantity of how often a term appears in a given text or a group of texts. Searches for information, text mining, and user modelling may all benefit from the strategy [39]. Inverse document frequency is a subtype of the technique. It is used to lessen the weight of words that occur in a document collection more often and to increase the weight of terms that appear in the collection less frequently.

d) To determine if a sentence is favourable, negative, or neutral, many people use sentiment analysis. Sentiments may also be categorised by industry, source, and formality. What's crucial is that this method allows you to assess a statement's complexity [40].

e)

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

4.5 Image processing and Multimedia Analysis with AI:

The New Generation Artificial Intelligence Development Plan emphasises explainable and inferred AI. A more logical multimedia may be achieved by focusing on AI. To understand how intelligent systems may survive in the actual world, and potentially to replicate this process, is one of the ultimate goals of artificial intelligence. Humans' capacity to see and reason is a key aspect in their ability to survive in a variety of situations [41]. As a consequence of this, research into artificial intelligence that simulates human perception and reasoning will result in more inferrable multimedia content that is able to perceive and reason. Even though AI may be used to improve multimedia, there have been significantly less attempts in this regard, namely, boosting its reasoning capabilities. The loop connections of Multimedia and Artificial Intelligence are illustrated below (AI). This is Fig. 3.
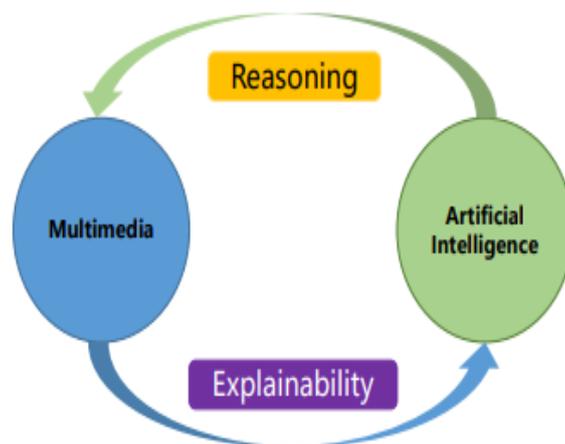

Fig. 3: The "Loop" of Multimedia image processing with Artificial Intelligence [42].

This article discusses about how multimedia and AI interact on two levels: the content level and the application level. If you want to see a paradigm leap in AI's capacity to explain itself, focus on multimedia. If you focus on multimedia, you'll get more inferable multimedia.

The widespread availability of multimedia data, on the other hand, makes possible a wide variety of multimodal applications. Some examples of these applications are audio-visual speech recognition, the captioning of images and videos, and the answering of visual questions.
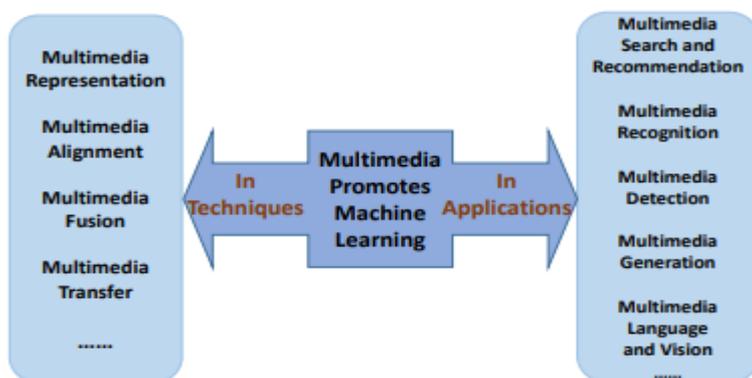

Fig. 4: Multimedia promotes machine learning [44].

According to the diagram in Figure 2, in this part, we'll look at how multimedia may help advance machine learning in two ways: by encouraging the advancement of machine learning methodologies as well as by promoting the advancement of machine learning applications.

4.6 Experts Systems with Artificial Intelligence

The ability of a computer programme to make judgments in a manner that is analogous to that of a knowledgeable human being is referred to as a "expert system." Instead of the traditional procedural code, if-then rules are employed in expert systems, which are designed to think like people. This is because if-then rules are easier to understand and more flexible. Humans and organisations with

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

extensive expertise in a specific sector may benefit from using expert systems, which employ artificial intelligence (AI) to mimic human judgement and behaviour. For those unfamiliar with the term, what exactly is an expert system? Expert systems have several properties that are worth mentioning. Expert Systems Have These Characteristics. An expert system, on the other hand, is indestructible. A human's knowledge may be more widely disseminated this way [45]. A single expert system may include information from several human experts, as demonstrated in Fig. 5.
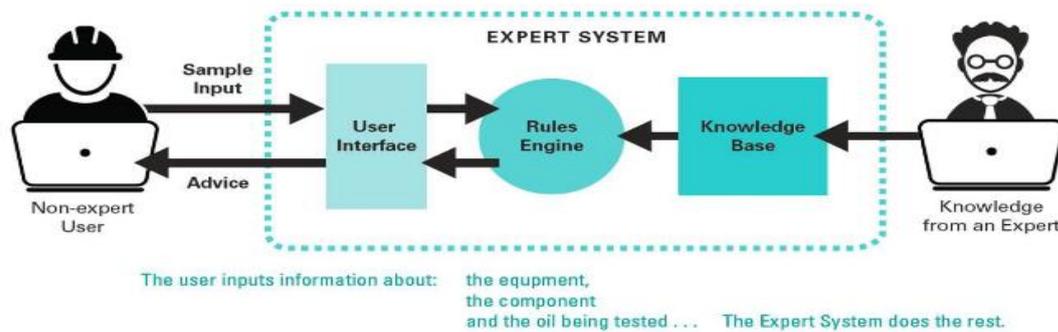

Fig. 5 Expert system with Artificial Intelligence [45].

Information base knowledge may be found and interpreted by the inference engine, and a solution relevant to the user's issue can then be found. To discover new facts, an inference engine uses the rules it has learned from its knowledge base. An explanation and debugging capabilities may also be included in inference engines. There have been a number of arguments regarding the future of mankind in the face of such intelligence, wondering whether computer power has beyond our capacity to govern. Expert systems have sparked many of these discussions.

4.7 Computer Visions with Artificial Intelligence

Computer vision is a field of study that aims to help computers see. Computer vision problems attempt to derive the most abstract possible truths about the world from the raw visual input they are given. Artificial intelligence and machine learning are two broad categories that include a variety of approaches, including both specialised techniques and more general approaches to learning [46]. If you want a basic example, you may figure out the cost to buy an apartment or house. Fig. 6 shows computer vision using a standard neural network.
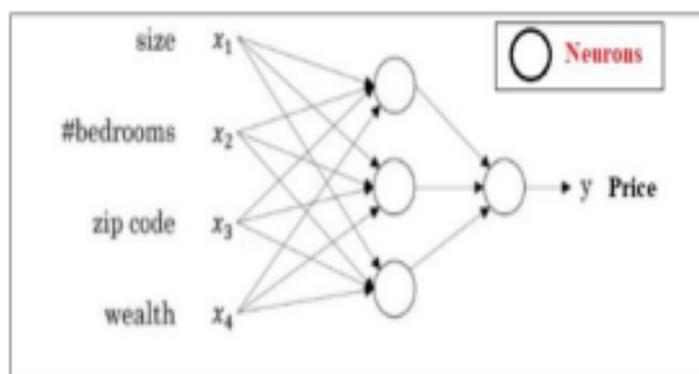
Fig. 6 Computer vision with Standard Neural Network [46].

The Price component is influenced by a wide range of elements, each of which has an effect. For example, the room's square footage, the number of bedrooms, and the neighbourhood's postal code. To illustrate how a neural network may generate a price as an Output, using the parameters listed above as inputs, the following Neural Network is shown in figure 6.

5. TECHNOLOGY ANALYSIS WITH AI (ARTIFICIAL INTELLIGENCE :

Since tasks are carried out in a human-like manner by computerised reasoning, the whole framework benefits from increased precision, efficacy, and efficiency. As machines lack emotions, they do not get tired of working [46]. Furthermore, computers with knowledge have far better throughput since they are not affected by the same thoughts or sensations that affect humans. Knowledge in these machines is well-known for its ability to apply logic and deliver a high-quality end result for the customer. A numerical model is used to create an artificial intelligence awareness framework, and it is this model's learning that dictates this early insight into the artificial intelligence framework. Additionally, this data is put to good use in order to complete various tasks for the benefit of the customer. Because there is a dearth of data, any research that is conducted must be preliminary, and advancements in this area must be continually tracked [46].

Because of the availability of data and infrastructure in the financial industry as well as technical advancements, as well as demand considerations including profitability requirements, competitiveness with other businesses, and regulatory mandates, these use cases have become more popular [47]. The quality of credit, the cost of insurance contracts, and the automation of client contact are just a few examples of the applications that financial institutions and suppliers are already employing AI and machine learning technologies for. Trading huge holdings has a significant influence on the market, which is why institutions are using AI and machine learning to make the most of their limited resources. Regulatory compliance, monitoring, data quality evaluation, and fraud detection may all benefit from the employment of these technologies [47].

Financial stability might gain from and be jeopardised by the implementation of FinTech in the next years and the increasing availability of data, as shown by our research using the FSB FinTech framework [47]. In several areas, the FSB study on FinTech regulatory and supervisory challenges has similar findings. These are the names of the individuals: For instance, a more effective processing of information in credit judgements, financial markets, insurance contracts, and customer involvement might be beneficial to an already efficient financial system. Robotics and artificial intelligence (AI) may enhance regulatory compliance and supervisory effectiveness via RegTech and SupTech. - Third-party dependencies may arise in the future due to network effects and scalability of new technologies. Thus, new systemically significant actors may arise, and they may do so outside the regulatory framework. Fintech firms may become more intertwined as a consequence of AI and machine learning being used to integrate previously unconnected data sources [47].
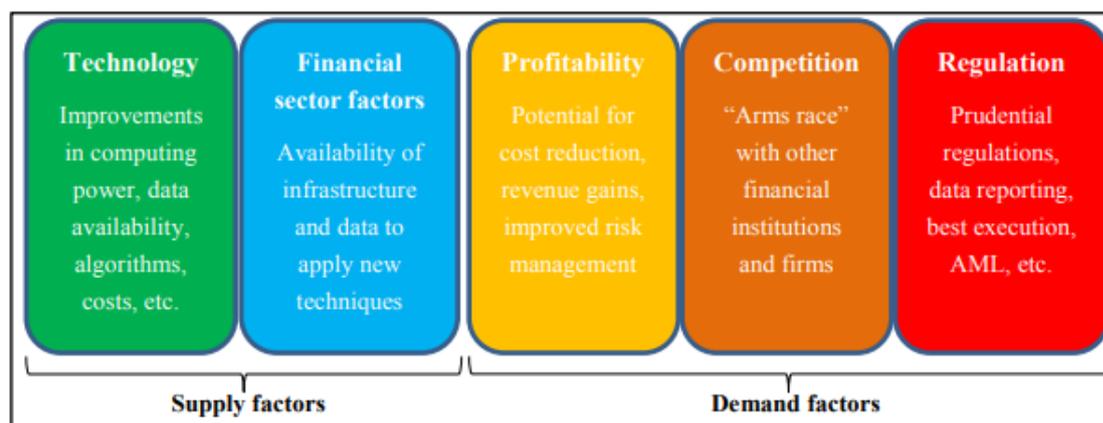
Fig. 7: Supply and demand factors in Technology analysis - AI and machine learning [48].

Demand is also driven by the need to comply with regulations. Automating and adopting new analytical tools, such as AI and machine learning, has been driven by new rules, which have raised the demand for effective regulatory compliance. As a result, financial institutions are looking for ways to meet regulatory requirements, such as prudential laws, data reporting, best execution of transactions, anti-money laundering and counter-terrorism funding restrictions, at a reasonable cost [48]. This means that in order for regulatory authorities to effectively oversee the financial industry, they must use more sophisticated analytical techniques that can deal with increasingly big, complicated, and rapidly rising datasets. Figure 7 illustrates the interplay between these supply and demand forces.

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

6. CASE STUDY OF Amazon Intelligence :

6.1 Future of Amazon Intelligence

Amazon.com, the world's first one trillion-dollar firm, is an e-commerce powerhouse. As creator Jeff Bezos continues to develop his massive firm, it is adding new components like healthcare, artificial intelligence, and, of course, additional convenience shops [49].

A total of eight Amazon Go shops will debut in San Francisco and Chicago in 2019. There are no checkout lines at Amazon Go, a brick-and-mortar shop [49]. In Amazon Go shops, shoppers' purchases are tracked by sensors, deep learning, and computer vision, and they are charged through the app as soon as they leave the store. More than 3000 Amazon Go shops are expected to debut in the United States by 2021, according to a Bloomberg reporter. In the end, Amazon.com's artificial intelligence technologies have made it an amazing e-commerce shop. Amazon has a bright future ahead of it, and if the firm can focus more on improving its present artificial intelligence applications, it will be one of the strongest e-commerce rivals in the future [49].

6.2 SWOC Analysis of Amazon

A SWOC analysis of Amazon can assist in understanding the business situation of this online retail behemoth.

Strengths:

The fact that Amazon is able to keep its lead over its competitors is in part due to the fact that the company uses information technology and e-commerce as a flexible and user-friendly system in order to stay at the top. Amazon's success can be described, in large part, to the application of a three-pronged strategy that emphasises originality, cost leadership, and focus. This strategy has allowed Amazon to achieve its success. As a result of this method, the company has realised profits, and its shareholders have benefited greatly.

a) The SWOC analysis of Amazon in India shows that one of Amazon's key features is that it has top-of-the-line awareness of buyers across the world and India, and this understanding has allowed it to penetrate new territories that were earlier off-limits to several e-commerce opponents [50].

b) Amazon has been able to accomplish better customer fulfilment thanks to its excellent distribution and logistics skills, providing it with an edge over its rivals [50].

Weaknesses:

a) In recent years, as part of its diversification plan, Amazon has been spreading itself too thin, which means that it has diverted its emphasis from its main business of online book sales. This is because Amazon has been stretching itself too thin. Amazon must bear in mind that as it moves farther and further away from its core competencies, it runs the danger of alienating its competitive edge even if this may seem to be a smart plan for risk diversification [51].

b) Because Amazon provides free delivery to its consumers, the company stands the risk of incurring financial losses. As a result, there will be no possibility of a decrease in costs [52].

c) Because Amazon is primarily an online shop, the company's exclusive concentration on e-commerce has the potential to impede the company's development aspirations, particularly in developing economies [52].

d) Analysts and experts in the industry have pointed out that one of the key difficulties with the company is that it relies on extremely narrow margin business techniques, which has significantly harmed the company's capacity to turn a profit. This is one of the primary problems that has been pointed out by these analysts and experts [53].

e) Despite having high quantities and sales, Amazon is still not able to earn a profit [53].

Opportunities:

a) Given that people are concerned about security and privacy while shopping online, Amazon stands to gain a large amount of market share by implementing its online payment system. Furthermore, having its payment gateway would have resulted in profit margins increasing [54].

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

b) Amazon may sell more of its own goods directly in addition to serving as a platform for the sale of products sold by third parties. To put it another way, rather than only selling and stocking things that are manufactured by its suppliers, it may grow the number of products that are offered via its brand [54].

c) It is possible that Amazon would expand its product listing by stocking a greater number of items than it now does. This would put the company in a stronger and more secure position to generate more income [55]

d) Amazon's SWOT analysis suggests that the fourth potential for the company is to extend its worldwide presence and build new facilities in developing areas [56]. This would provide the company with a significant competitive advantage in the very cutthroat retailing industry of digital goods.

Challenges:

a) Cybercrime poses the greatest threat to the continued success of Amazon. The organisation is very concerned about the risks of hacking and identity theft [56].

b) On its website, Amazon needs to answer customers' concerns as soon as possible. In light of the fact that cybercriminals are always creating new methods of attack, this should serve to safeguard users' privacy and internet security [57].

c) This is due to the fact that they take an approach to cost leadership, which other businesses have criticised as being unfair on occasion [57].

d) Internet businesses that are local have an advantage against Amazon due to the fluidity and agility of their business strategies and operations [58].

6.3 Impact of Covid-19:

Amazon is one of the few corporations that has continued to profit from the coronavirus epidemic. The company was able to declare record earnings in July thanks to increasing online sales, which contributed to the company's overall growth. The supply chain for Amazon was heavily disturbed, which made to declare as out-of-stock items and delivery delays. The global coronavirus epidemic claimed the lives of more than one million individuals, but it also produced illness [59]. It wrecked the global economy, brought whole sectors to a halt, prompted massive layoffs, and, in the case of retail, expedited the slow-moving downfall of already struggling department store chains. Those are just some of the negative effects it has had.

7. RESULT & ANALYSIS :
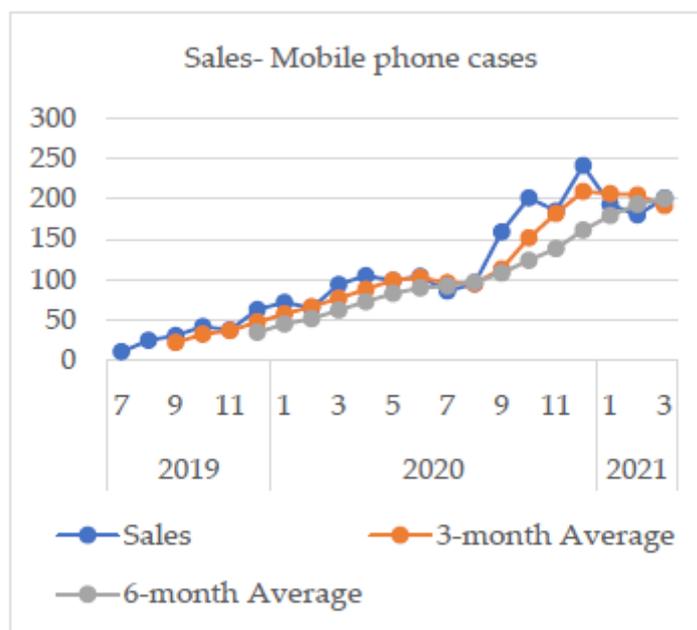
(a)

Fig. 8: Monthly data, 3-month average & 6-month average Mobile phone [59]

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

Following our study and findings, the e-retailer decided to use the FBA logistic model in September 2020. Figure 7 depicts the monthly, three-month, and six-month average sales volumes from July 2019 to March 2021. After a slow increase in sales from July to August of 2020 with the previous operating model in place, the FBA logistic model was implemented in September of that year and sales grew rapidly. Fig-8's features are provided in the graph below (Fig. 8).

Sales of mobile phone covers jumped in September 2020, an increase of 67%. From August 2020 to September 2020 the sales rose by 72 percent. Customer concerns about response time after adoption of the FBA logistic model and information displayed in fig.8 were not recorded by customers (Fig. 9).
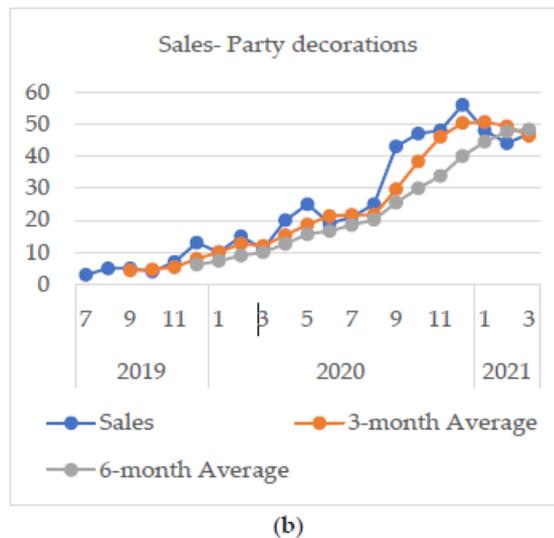
Fig. 9: Monthly data, 3-month average & 6-month average party decorations [59]

There is no question that the supply chain that supports online commerce is always undergoing development in order to facilitate improvements in both productivity and cost-effectiveness. It is essential to efficient supply chain management to have the ability to observe each link in the supply chain.

8. RECOMMENDATIONS :

Fig. 10: Amazon recommendation items [60]

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

Many international standards are in use today. Algorithmic trading has become a prevalent part of the markets and may, among other things, increase systemic risk. The following is a list of examples:
New technologies, such as algorithmic trading, have been studied by the International Organization of Securities Commissions (IOSCO), and suggestions, including data collecting and cross-border collaboration, were made.

Recommendation engines are tools that use algorithms to analyse data and propose goods that are most popular with consumers. For each customer, it will recommend products based on their prior buying habits. In order to better serve its consumers, Amazon developed Amazon Personalize, a recommendation engine that uses data gleaned from previous online purchases to provide more relevant suggestions. Amazon Personalize allows users to provide an activity stream from their performances, including purchases, page visits [61]. Amazon.com 's "Your Recommendations" link, as seen in figure 10, takes users to a page where they may browse product recommendations based on item offerings, item rankings, and product recommendations [62]. Customers may also benefit from Amazon's shopping cart suggestion service, which recommends purchases based on the items in their cart [63-64].

9. CONCLUSION :

Human society's use of artificial intelligence (AI) to analyse, improve, and generate vast volumes of data has been a full success. People may now see its uses in their homes, phones, offices, hospitals, and retail malls. There are several benefits and chances for businesses to use artificial intelligence technology in the business sector. Customers' shopping habits can be measured, their degree of interest in things can be determined, and the firm can connect with them and forecast what they'll purchase in the future based on their purchasing history.

Our study project may be able to help us overcome this obstacle. We also point out that participants are not aware of the explanations and ability to delete interests from their accounts, which suggests that Facebook needs to better advertise the transparency options it has accessible. Here are a few of the most pressing questions that need to be investigated: What sorts of non-rational consumer behaviour influence users' DPA behaviour, and how can different types of competition and corporate structures (such as a lack of vertical integration or conglomerate integration) thwart anticompetitive incentives in the DPA and adjacent markets? In internet trade, trust is of utmost significance.

REFERENCES :

[1] Anderson, J. C., & Gerbing, D. W. (1992). Assumptions and comparative strengths of the two-step approach: Comment on Fornell and Yi. *Sociological Methods & Research*, *20*(3), 321-333. Google Scholar↗

[2] Liang, Y., Lee, S. H., & Workman, J. E. (2020). Implementation of artificial intelligence in fashion: Are consumers ready?. *Clothing and Textiles Research Journal*, *38*(1), 3-18. Google Scholar↗

[3] Batra, R., & Ahtola, O. T., (1991). Measuring the hedonic and utilitarian sources of consumer attitudes. *Marketing letters*, *2*(2), 159-170. Google Scholar↗

[4] Cass, A. O., (2001). Consumer self-monitoring, materialism, and involvement in fashion clothing. *Australasian Marketing Journal (AMJ)*, *9*(1), 46-60. Google Scholar↗

[5] Bues, M., Steiner, M., Stafflage, M., & Krafft, M., (2017). How mobile in-store advertising influences purchase intention: Value drivers and mediating effects from a consumer perspective. *Psychology & Marketing*, *34*(2), 157-174. Google Scholar↗

[6] Kim, T., Chiu, W., & Chow, M. K. F., (2018). Sport technology consumers: Segmenting users of sports wearable devices based on technology readiness. *Sport, Business and Management: An International Journal*, *9*(2), 134-145. Google Scholar↗

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

[7]   Virdi, P., Kalro, A. D., & Sharma, D., (2020). Online decision aids: the role of decision-making styles and decision-making stages. *International Journal of Retail & Distribution Management*, *48*(6), 555-574. Google Scholar↗

[8]   Hess, T. J., McNab, A. L., & Basoglu, K. A., (2014). Reliability generalization of perceived ease of use, perceived usefulness, and behavioral intentions. *Mis Quarterly*, *38*(1), 1-28. Google Scholar↗

[9]   Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International journal of man-machine studies*, *38*(3), 475-487. Google Scholar↗

[10]   Davis, F. D., Bagozzi, R. P., & Warshaw, P. R., (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, *35*(8), 982-1003. Google Scholar↗

[11]   Davis, F. D., Bagozzi, R. P., & Warshaw, P. R., (1992). Extrinsic and intrinsic motivation to use computers in the workplace 1. *Journal of applied social psychology*, *22*(14), 1111-1132.. Google Scholar↗

[12]   Grewal, D., Gotlieb, J., & Marmorstein, H., (1994). The moderating effects of message framing and source credibility on the price-perceived risk relationship. *Journal of consumer research*, *21*(1), 145-153. Google Scholar↗

[13]   Kim, H. Y., Lee, J. Y., Mun, J. M., & Johnson, K. K. (2017). Consumer adoption of smart in-store technology: assessing the predictive value of attitude versus beliefs in the technology acceptance model. *International Journal of Fashion Design, Technology and Education*, *10*(1), 26-36. Google Scholar↗

[14]   Kim, J., & Forsythe, S., (2007). Hedonic usage of product virtualization technologies in online apparel shopping. *International Journal of Retail & Distribution Management*, *35*(6), 502-514. Google Scholar↗

[15]   Kim, H. Y., Lee, J. Y., Mun, J. M., & Johnson, K. K., (2017). Consumer adoption of smart in-store technology: assessing the predictive value of attitude versus beliefs in the technology acceptance model. *International Journal of Fashion Design, Technology and Education*, *10*(1), 26-36. GoogleScholar↗

[16]   Kim, M., & Cheeyong, K., (2015). Augmented reality fashion apparel simulation using a magic mirror. *International journal of smart home*, *9*(2), 169-178. Google Scholar↗

[17]   Lee, H. H., & Chang, E. (2011). Consumer attitudes toward online mass customization: An application of extended technology acceptance model. *Journal of Computer-Mediated Communication*, *16*(2), 171-200. –200. Google Scholar↗

[18]   Lee, J. H., & Im, J. E. (2008). The effect of perceived justice on postcomplaint behavior in the internet open market-Focused on the moderating effect of fashion involvement. *Journal of the Korean Society of Clothing and Textiles*, *32*(9), 1427-1437. Google Scholar↗

[19]   Leong, L. W., Ibrahim, O., Dalvi-Esfahani, M., Shahbazi, H., & Nilashi, M. (2018). The moderating effect of experience on the intention to adopt mobile social network sites for pedagogical purposes: An extension of the technology acceptance model. *Education and Information Technologies*, *23*(6), 2477-2498. Google Scholar↗

[20]   Liljander, V., Gillberg, F., Gummerus, J., & Van Riel, A. (2006). Technology readiness and the evaluation and adoption of self-service technologies. *Journal of Retailing and Consumer Services*, *13*(3), 177-191. Google Scholar↗

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

[21] Kamble, A., Desai, S., & Abhang, N., (2021). Wearable Activity Trackers: A Structural Investigation into Acceptance and Goal Achievements of Generation Z. *American Journal of Health Education*, *52*(5), 307-320. Google Scholar↗

[22] MacCallum, R. C., & Hong, S. (1997). Power analysis in covariance structure modeling using GFI and AGFI. *Multivariate behavioral research*, *32*(2), 193-210. Google Scholar↗

[23] Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. *Information systems research*, *2*(3), 173-191. Google Scholar↗

[24] Naderi, I., (2013). Beyond the fad: A critical review of consumer fashion involvement. *International Journal of Consumer Studies*, *37*(1), 84-104. Google Scholar↗

[25] Kim, J., & Bhaduri, G. (2019). Self-monitoring tendency and fashion involvement: Antecedents and consequences of perceived relative value of mass-customized fashion products in a gift-giving context. *Journal of Global Fashion Marketing*, *10*(4), 324-341. Google Scholar↗

[26] Yu, U. J., Cho, E., & Johnson, K. K. (2017). Effects of brand familiarity and brand loyalty on imagery elaboration in online apparel shopping. *Journal of Global Fashion Marketing*, *8*(3), 193-206. Google Scholar↗

[27] Rosen, L. D., Whaling, K., Carrier, L. M., Cheever, N. A., & Rokkum, J. (2013). The media and technology usage and attitudes scale: An empirical investigation. *Computers in human behavior*, *29*(6), 2501-2511. Google Scholar↗

[28] Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision sciences*, *27*(3), 451-481. GoogleScholar↗

[29] Williams, M. D., Slade, E. L., & Dwivedi, Y. K. (2014). Consumers' intentions to use e-readers. *Journal of Computer Information Systems*, *54*(2), 66-76. Google Scholar↗

[30] Sabbir, M., Akter, S., Khan, T. T., & Das, A., (2020). Exploring Factors Affecting Consumers' Intention to Use Smartwatch in Bangladesh: An Empirical Study. *Asia Pacific Journal of Information Systems*, *30*(3), 636-663. Google Scholar↗

[31] Alfadda, H. A., & Mahdi, H. S., (2021). Measuring students' use of zoom application in language course based on the technology acceptance model (TAM). *Journal of Psycholinguistic Research*, *50*(4), 883-900. Google Scholar↗

[32] Bolton, R. N., McColl-Kennedy, J. R., Cheung, L., Gallan, A., Orsingher, C., Witell, L., & Zaki, M., (2018). Customer experience challenges: bringing together digital, physical and social realms. *Journal of Service Management*, *29*(5), 776-808. Google Scholar↗

[33] Chen, C., Ibekwe-SanJuan, F., & Hou, J., (2010). The structure and dynamics of cocitation clusters: A multiple-perspective cocitation analysis. *Journal of the American Society for information Science and Technology*, *61*(7), 1386-1409. Google Scholar↗

[34] Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, *48*(1), 24-42. GoogleScholar↗

[35] Davenport & Kalakota (2019). The potential for artificial intelligence in healthcare Future healthcare journal, 6 (2) (2019), p. 94. GoogleScholar↗

[36] Day, G. S., (2011). Closing the marketing capabilities gap. *Journal of marketing*, *75*(4), 183-195. GoogleScholar↗

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

[37]   Gacanin, H., & Wagner, M. (2019). Artificial intelligence paradigm for customer experience management in next-generation networks: Challenges and perspectives. *Ieee Network*, *33*(2), 188-194. Google Scholar↗

[38]   Guo, J., Zhang, W., Fan, W., & Li, W. (2018). Combining geographical and social influences with deep learning for personalized point-of-interest recommendation. *Journal of Management Information Systems*, *35*(4), 1121-1153.   Google Scholar↗

[39]   Huang, M. H., & Rust, R. T. (2017). Technology-driven service strategy. *Journal of the Academy of Marketing Science*, *45*(6), 906-924.   Google Scholar↗

[40]   Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. *Journal of Service Research*, *21*(2), 155-172.   Google Scholar↗

[41]   Kumar, V., Rajan, B., Venkatesan, R., & Lecinski, J., (2019). Understanding the role of artificial intelligence in personalized engagement marketing. *California Management Review*, *61*(4), 135-155.   Google Scholar↗

[42]   Misra, K., Schwartz, E. M., & Abernethy, J. (2019). Dynamic online pricing with incomplete information using multiarmed bandit experiments. *Marketing Science*, *38*(2), 226-252. Google Scholar↗

[43]   Netzer, O., Lemaire, A., & Herzenstein, M. (2019). When words sweat: Identifying signals for loan default in the text of loan applications. *Journal of Marketing Research*, *56*(6), 960-980. Google Scholar↗

[44]   Seranmadevi, R., & Kumar, A. (2019). Experiencing the AI emergence in Indian retail–Early adopters approach. *Management Science Letters*, *9*(1), 33-42. Google Scholar↗

[45]   Simester, D., Timoshenko, A. & Zoumpoulis, S. I., (2020). Targeting prospective customers: Robustness of machine-learning methods to typical data challenges. *Management Science*, *66*(6), 2495-2522. Google Scholar↗

[46]   Barney, J. B., & Wright, P. M. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management*, *37*(1), 31-46. Google Scholar↗

[47]   Arora, A. S., & Sanni, S. A. (2019). Ten years of 'social media marketing' research in the Journal of Promotion Management: Research synthesis, emerging themes, and new directions. *Journal of Promotion Management*, *25*(4), 476-499. Google Scholar↗

[48]   Singh, A., Kumar, B., & Singh, V. K. (2010). Customer engagement: New key metric of marketing. *International Journal of Arts and Sciences*, *3*(13), 347-35 Google Scholar↗

[49]   Wirth, N. (2018). Hello marketing, what can artificial intelligence help you with?. *International Journal of Market Research*, *60*(5), 435-438. Google Scholar↗

[50]   Belanche, D., Casaló, L. V., & Flavián, C. (2021). Frontline robots in tourism and hospitality: service enhancement or cost reduction?. *Electronic Markets*, *31*(3), 477-492. Google Scholar↗

[51]   Gonzalez-Garcia, A., Modolo, D., & Ferrari, V. (2018). Do semantic parts emerge in convolutional neural networks?. *International Journal of Computer Vision*, *126*(5), 476-494. Google Scholar↗

[52]   Korenek, P., & Šimko, M., (2014). Sentiment analysis on microblog utilizing appraisal theory. *World Wide Web*, *17*(4), 847-867. Google Scholar↗

International Journal of Case Studies in Business, IT, and Education (IJCSBE), ISSN: 2581-6942, Vol. 6, No. 2, December 2022

SRINIVAS PUBLICATION

[53] Hayes, J. L., Golan, G., Britt, B., & Applequist, J. (2020). How advertising relevance and consumer–Brand relationship strength limit disclosure effects of native ads on Twitter. *International Journal of Advertising*, *39*(1), 131-165. GoogleScholar↗

[54] Babu, N. V., & Kanaga, E., (2022). Sentiment analysis in social media data for depression detection using artificial intelligence: A review. *SN Computer Science*, *3*(1), 1-20. Google Scholar↗

[55] Liao, W., Zhou, J., Wang, Y., Yin, Y., & Zhang, X. (2022). Fine-grained attention-based phrase-aware network for aspect-level sentiment analysis. *Artificial Intelligence Review*, *55*(5), 3727-3746. Google Scholar↗

[56] Linden, G., Smith, B., & York, J., (2003). Amazon. com recommendations: Item-to-item collaborative filtering. *IEEE Internet computing*, *7*(1), 76-80. Google Scholar↗

[57] Yadav, A., & Vishwakarma, D. K. (2020). Sentiment analysis using deep learning architectures: a review. *Artificial Intelligence Review*, *53*(6), 4335-4385. Google Scholar↗

[58] Ueland, Ø., Gunnlaugsdottir, H., Holm, F., Kalogeras, N., Leino, O., Luteijn, J. M., ... & Verhagen, H., (2012). State of the art in benefit–risk analysis: Consumer perception. *Food and Chemical Toxicology*, *50*(1), 67-76. Google Scholar↗

[59] Sarkar, K., (2020). Heterogeneous classifier ensemble for sentiment analysis of Bengali and Hindi tweets. *Sādhanā*, *45*(1), 1-17. Google Scholar↗

[60] Aithal, P. S., Kumar, P. M., & Shailashree, V. (2016). Factors & elemental analysis of six thinking hats technique using abcd framework. *International Journal of Advanced Trends in Engineering and Technology (IJATET)*, *1*(1), 85-95. Google Scholar↗

[61] Aithal, P. S., (2017). An effective method of developing business case studies based on company analysis. *International Journal of Engineering Research and Modern Education (IJERME)*, *2*(1), 16-27. Google Scholar↗

[62] Vijay raj B. V., & A. Jayanthila Devi, (2021). Analysis of Business Decisions that caused Nokia to drop its Legacy and its Rebirth in 2017 using Nostalgic Marketing Approach: A Case Study. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, *5*(2), 268–283. Google Scholar↗

[63] Vijay raj B. V., & A. Jayanthila Devi (2021). Restoring Tourism Industry in India after Covid-19: A Case Study. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, *5*(2), 284–298. Google Scholar↗

******