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Artificial intelligence (AI) applications for marketing: A literature-based study

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ABSTRACT

Artificial Intelligence (AI) has vast potential in marketing. It aids in proliferating information and data sources, improving software's data management capabilities, and designing intricate and advanced algorithms. AI is changing the way brands and users interact with one another. The application of this technology is highly dependent on the nature of the website and the type of business. Marketers can now focus more on the customer and meet their needs in real time. By using AI, they can quickly determine what content to target customers and which channel to employ at what moment, thanks to the data collected and generated by its algorithms. Users feel at ease and are more inclined to buy what is offered when AI is used to personalise their experiences. AI tools can also be used to analyse the performance of a competitor's campaigns and reveal their customers' expectations. Machine Learning (ML) is a subset of AI that allows computers to analyse and interpret data without being explicitly programmed. Furthermore, ML assists humans in solving problems efficiently. The algorithm learns and improves performance and accuracy as more data is fed into the algorithm. For this research, relevant articles on AI in marketing are identified from Scopus, Google scholar, researchGate and other platforms. Then these articles were read, and the theme of the paper was developed. This paper attempts to review the role of AI in marketing. The specific applications of AI in various marketing segments and their transformations for marketing sectors are examined. Finally, critical applications of AI for marketing are recognised and analysed.

1. Introduction

Artificial Intelligence (AI) will become an integral part of every commercial entity across the globe in the long term. The new trends in AI-driven automation reflect substantial changes in the AI landscape. It is evident in the form of reconfigured ideas, interests, and investments in the field of AI adoption by the enterprise [1–3]. This technology is sophisticated enough to recognise faces and objects, which has enormous implications for various business applications. For security purposes, facial recognition can distinguish individuals; On the other hand, object detection can be used to distinguish and analyse images. AI treats human images like cookies, allowing for more personalised services based on customers' preferences. Some businesses are experimenting with facial recognition to diagnose their customers' moods and, as a result, make appropriate product recommendations [4,5].

AI is primarily concerned with user retention and lead conversion in digital marketing. It can guide a user in the direction that aligns with the business's goals by using intuitive AI chatbots, intelligent email marketing, interactive web design, and other digital marketing services. Several factors determine the impact of AI on digital marketing. ML, a subset of AI, is concerned with computer programmes that access data and use it to learn independently. It compiles data from various places, including social media accounts, menus, online reviews, and websites. AI then uses the information to produce and deliver content relevant to the audience. AI software enables in-depth online analysis of restaurants and their customers [6–8]. By implementing AI into marketing strategy,

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businesses can use the available data better and reach out to potential customers with attractive commercials at more convenient times.

Digital marketing gives a visibly pleasant experience for clients with AI for advertising across social media and digital platforms such as Facebook and Instagram. These platforms thoroughly assess users' information before directing them to offers appropriate to their wants. AI also assists marketers in identifying and forecasting trends [9,10]. It prevents the company from overspending on digital advertising and ensures that the money is well spent. The ability of a computer to recognise objects, scenes, and activities in images is referred to as computer vision. Medical imaging analysis, face recognition, public security, and security monitoring are a few uses. If computer vision and AI are properly coupled, robots can predict what will happen in the future and act accordingly based on potential changes [11–13].

AI has simplified building client profiles and comprehending the customer journey process. It allows brands to quickly and easily provide valuable personalised content for the various client profiles in any marketing funnel stage and throughout each avenue. Based on historical data, AI applications in digital marketing can determine what content is most likely to bring customers back to the site. AI identifies which customers are most likely to unsubscribe from a specific service and analyses which features are standard among unsubscribers. As a result of these analytics, marketers can plan their future campaigns and implement practices encouraging people to stay [14–16].

AI applications in digital marketing can sift through billions of data points on the internet and tell precisely what it needs to know for business. It will describe what price will get the most conversions, when is the best time to post, what subject line will get the most attention, etc. Intelligent marketers stay current with all trends. It simplifies jobs and allows for more creativity and out-of-the-box thinking. It also adds value to the customers who benefit [17,18]. This paper examined AI and its need in the marketing sector. We briefly cover the various applications of AI in several marketing segments. The paper also looks at other AI-based transformations for the marketing industries. Finally, the study identifies and discusses important uses of AI in marketing.

1.1. Artificial intelligence

AI is a computer science technology that teaches computers to comprehend and emulate human communication and behaviour. Based on the data provided, AI has created a new intelligent machine that thinks, responds, and performs jobs the same way people do. AI can do highly technical and specialised activities such as robotics, speech and picture recognition, natural language processing, problem-solving, etc. AI is a collection of several technologies capable of executing tasks that need human intelligence. When applied to standard commercial processes, these technologies can learn, act, and perform with human-like intelligence. It simulates human intelligence in machines, saving us time and money in business transactions [19–22].

AI is concerned with creating intelligent machines that can think and act like humans. It provides exceptional opportunities for a wide range of industries. Every industry mentioned is either terrified or enthralled by the arrival of AI. AI creates intelligent machines and devices that can think and react like humans. This technology has been dubbed the "next step" in the industrial revolution. It is believed that AI and ML hold solutions to most of today's problems.

Furthermore, AI may aid in the prediction of future problems. AI can create new technologies, industries, and environments. In a nutshell, AI simulates human intelligence processes by machines. This may include learning, reasoning, and, most importantly, the ability to self-correct [23–25].

AI can analyse, comprehend, and make decisions. It is for existing user data and is used to make market predictions and predict user behaviour. It is also known as data forecast, and organisations worldwide use it to fine-tune their sales and marketing strategies to increase sales. Most AI applications in marketing nowadays employ ML, from personalising product suggestions to assisting in discovering the most successful promotion channels, estimating churn rate or customer lifetime value, and building superior customer groups [26,27].

1.2. Need for artificial intelligence in marketing

AI is a fascinating and cutting-edge technology that complements a company's current content strategy. This technology is a broad term that encompasses a wide range of technologies such as natural language processing, ML, deep learning, computer vision, and many others. ML significantly impacts the digital marketing scenario because of its ability to analyse data and provide analytical tools. As a result, it assists marketing teams in conducting needs-based analyses. Businesses that use AI tools save time by focusing on other aspects of digital marketing. AI is a vast and ongoing technological evolution with far-reaching consequences. As a result, it is advised to embrace AI in digital marketing to foster innovation and improve productivity in the coming years [28–30].

Marketers can use AI to gain deeper consumer insights and better understand how to categorise and drive customers to the next step in their journey, providing the best possible experience. Marketers can increase ROI without spending on ineffective attempts by thoroughly examining consumer data and knowing what they truly want. They can also avoid wasting time on mind-numbing advertising that irritates clients [31,32]. AI will personalise marketing in several ways. Many firms are already using AI to personalise their websites, emails, social media posts, videos, and other materials to better respond to customer demands. One of the primary goals of AI is to automate jobs that formerly needed human intellect. This decrease in the number of labour resources required by an organisation to execute a project, or the amount of time an individual must dedicate to routine chores, allows for significant efficiency benefits [33,34].

1.3. Research objectives

Brands are using the power of AI to personalise marketing emails based on consumer preferences and behaviour to increase engagement and persuade them to convert or make a buy. The AI automated the segmentation process and began providing personalised material through email, SMS messaging, and in-app notifications based on each recipient's lifecycle stage. Applying AI to existing cyber-attack techniques like spear-phishing will improve their effectiveness and, by overcoming labour restrictions, increase the number of players capable of carrying them out. While AI is frequently portrayed as a danger to privacy, it can also assist in preserving privacy and the ownership of private data and its derivative assets. Policymakers will have to carefully consider how to control emerging technology, striking a balance between the need to keep powerful weapons out of the hands of bad actors while also ensuring that innovation is not suffocated [35–37]. The primary research objectives of this paper are as under:

RO1: To brief about AI and its need in marketing;

RO2: to study the specific utilities of AI in various marketing segments;

RO3: to explore various AI-based transformations for marketing sectors;

RO4: to identify and discuss significant AI applications for marketing.

1.4. The method used to write this paper

Reading several related articles, blogs, and books on Artificial intelligence for marketing was done as part of this literature-based evaluation. The authors then critically analysed these publications in relation to the research issue. This literature review offers a comprehensive status on researching the particular issue. This paper contains conceptual categories related to AI for marketing and typically follows a

structure. Thus, to write this paper, almost 217 research publications were examined. This study answers the research questions and provides a detailed discussion on AI for marketing.

2. Specific utilities of artificial intelligence in various marketing segments

The various primary marketing segments of AI initiatives are depicted in Fig. 1. Pricing, strategy and planning, product, promotion, and place management have been vital in targeting AI-based systems in marketing scenarios. The importance and significance of other issues such as targeting and positioning, situations, and thinking models towards the product design and end-customer needs have been targeted as essential aspects of marketing for AI applications [38–40].

Marketers use AI to increase client demand. Customers have a positive user experience through integrated applications that employ machine intelligence. It keeps track of purchases, including where and when they are made. It can analyse the data and provide customised marketing messages to customers. When a user visits a nearby retailer, these messages contain suggestions and special offers to improve the customer's average order value [41,42]. Marketing gives the company a competitive advantage by using an integrated approach to system automation. Decision-making and client micromanagement are advantages of the AI marketing approach. Data is critical for improving the patterns of material recommended to customers by ML algorithms. Programmatic media bidding is the automated procedure for buying and selling internet advertising ads. These computer-based models inherit ML traits, utilise audience data, and present relevant advertisements to target buyers [43–45].

Because AI algorithms and ML are used to assist models, the risk of human error is reduced, audience data is efficient, and display advertising is scaled. People like to view advertisements that are relevant to them or address their concerns. By creating targeted ad strategies for suitable customers, marketers can ensure that they are dealing with the right consumer core groups who are most likely to behave and respond positively to the advertising in front of them. Marketers can do this by leveraging the digital superintelligence of AI models and algorithms [46–48]. AI can help marketers with targeted marketing campaigns that involve ad targeting. It can use ML to distinguish between buying, actual conversion, and exploratory behaviour and retarget prospects with a higher chance of converting them. Facial recognition software, one of many amazing AI-driven tools, aids in tracking customers' in-store visits and linking images to their social media profiles. When paired with AI-powered smart notifications, these sophisticated technologies send real-time discount offers and welcoming messages to each visitor, resulting in a new level of customised user experience [49–52].

AI is a strong tool when combined with high-quality market research data. This enables companies to complete a wide range of tasks. The segmentation of target groups is an important feature of this widely used use case. AI is substantially faster and more efficient than humans in this work [53–55]. Businesses may provide more tailored offers to their target audiences that they are more likely to accept if they conduct a deeper investigation. With the fast spread of new technologies, many industry leaders have been encouraged to move up to a more advanced and efficient field, in which AI has entrenched itself as the most useful. Organisations with AI at their disposal will have a better chance of staying ahead of the competition in various ways [56,57].

Marketers can more precisely identify which customers should be targeted and whether they should be included or excluded from the campaign. Customers will be better matched to items they are likely to buy, and irrelevant or out-of-stock products will be avoided. Brands can

Fig. 1. Several Segments for AI applications in Marketing Domain.

utilise AI to improve customer experience by providing tailored content and offers and excellent customer service to each consumer. Predictive marketing analytics is one method that firms use with AI [58,59]. By analysing data from previous occurrences, AI can reliably and adequately predict how performance will appear in the future, depending on a range of parameters. Understanding what individuals value most can help make more meaningful recommendations to them. However, most AI-based customisation solutions start from the top-down and are tailored to the individual rather than a whole group. The capacity to employ AI to forecast the success of marketing initiatives and better tailor user experiences is a vast technical trend that will continue for many years [60–62].

Conversational search queries and algorithms are evolving due to AI, prompting search engine marketers and content developers to adapt. Regarding marketing automation, AI can free up critical human marketers' time while swiftly creating more focused marketing materials that convert better with clients. Major social networks have vehemently opposed certain practices for marketers employing AI on social media. This enables consumers to ask a customer support bot questions that do not require a phone call or a complete human discussion. Millions of individuals worldwide use vanishing messaging services for personal contact with friends and marketers looking to interact with consumers more genuinely and intimately. Brands can engage with individuals in unique and intimate ways where audiences spend time online, notably on social media, thanks to the power of AI [63–65].

Additional products such as HubSpot's software may help with task management, which automates specific emails via a process. While it is true that the low cost and high levels of efficiency of AI are appealing, there are so many things AI can imitate. Marketers must access a large amount of data to start AI marketing. Many marketing teams lack data science and AI expertise, making it difficult to work with large amounts of data and provide insights [66,67]. To get programmes up and to run, enterprises should collaborate with third-party organisations that can help with data collecting and analysis to train AI systems and enable continuing maintenance. ML systems will learn to make correct, effective judgments as they ingest more data. Process intelligence technology will increasingly give businesses accurate and comprehensive insight into their operations in real-time, allowing them to monitor and enhance them [68–70].

This enables marketing teams to target the appropriate channels at a reasonable cost. As programmatic buying demonstrates, ML can enhance marketing flexibility to match clients' changing needs and interests. Different consumers respond to different messages across channels; an emotional appeal may move some, others by humour, and still others by logic. ML and AI can track which messages customers have reacted to and generate a more detailed user profile [71,72]. Marketing teams may then send users more personalised communications depending on their preferences. However, if the data is not standardised and error-free, the insights will be useless, and AI algorithms may make judgments that harm marketing initiatives. Marketing teams must engage with data management teams and other lines of business to develop data cleansing and data maintenance processes before adopting AI marketing [73–75].

AI refers to computational technologies that can do particular tasks in place of human intellect. This technology is advancing at breakneck speed, similar to the exponential growth in database technology. Databases have evolved into the critical infrastructure that powers enterprise-level applications [76,77]. Big data and AI have a specific link. Recent advances in AI development have primarily been driven by "ML" AI chatbots can be trained on data sets containing text recordings of human conversations collected from messenger apps to understand what humans say and respond appropriately. AI can find patterns in massive data sets that human vision cannot detect. Computer models can identify an individual's personality traits more accurately than their friends can, solely based on which Facebook posts the individual liked [78–80].

3. Various AI-based transformations for marketing sectors

Different AI-based transformations have made the marketing domain more impactful and impressive. Fig. 2 exemplifies the various AI used to accomplish the several intended functions for resolving the marketing issues in today's competitive and advanced level marketing publicising. Furthermore, data collection, thorough market analysis, digitalisation through AI strategies, thoughtful understanding of customers, research and need finalisation in the market domain, etc., are additional inputs for carrying out the AI implementation for handling the market level tactics [81–83].

Marketers can use AI technology to identify trends and forecast them for the future. Based on these facts, they can then decide how to allocate their budgets and whom to target. Brands can spend less on digital advertising and more time on high-value work [7,10]. From the planning stage to the conversion and customer loyalty phases, AI plays a critical role in the success of any marketing campaign. As a result, companies that fully utilise AI will gain a competitive advantage [84–86]. Machines with capabilities replicating cognitive functions associated with the human mind, most notably learning and problem-solving, have been developed. By analysing user data and assisting marketers in making sense of user intent, AI is helping marketers decipher the ever-changing world of content marketing. Marketers can use AI to generate content for simple stories such as stock updates and sports reports [87,88].

AI may also be used to automate the hunt for software security. Software designers could use AI to test for security flaws in their products, similar to how criminals look for undiscovered exploits in operating systems. While selecting a tool, It is important to consider the level of transparency required to understand why an AI platform made a particular decision. Based on the algorithm, marketing teams may receive a clear report on why a certain decision was taken and which data influenced the decision. In contrast, systems that use deep learning at a higher level may not be able to provide definitive reasoning [89–91]. AI algorithms learn from data to create a valuable new prediction tool, and the AI output can be separated from the original training data. As a result, to fully manage the data and its value, any assets must likewise be controlled. The infrastructure that enables the collection, storage and analysis of big data should be treated as an asset in the same way it is in any other industry. Furthermore, specific industries, such as banking, have systemic ramifications and are much more critical to safeguard owing to third-party links [92,93].

AI systems are constantly working in the background of popular products and services like Netflix, Amazon, Google etc. However, in recent years, AI has made its way into marketing, assisting firms in improving every stage of the consumer experience. Furthermore, resources previously available to huge firms have become affordable and accessible to medium- and small-sized businesses [94,95]. To better consumer behaviour, create and understand more sophisticated buyer segments, marketing automation, content creation, and sales forecasting, neural networks are developing dynamic tools for marketers, allowing us to process large data sets that provide more significant insights. Marketers can use predictive analytics to forecast the outcome of a campaign by recognising patterns from previous campaigns. While neural networks have been around for a while, there is a greater demand to process Big Data, and as a result, systems are becoming much more dynamic and intelligent [96–98].

The AI can also comprehend advertising needs and recommend a suitable target audience. The algorithms analyse user information such as age, gender, demographics, interests, and other vital information to determine the best audience for that specific brand. The way people search for information on the internet has changed. With the rise of voice search devices, ML will become more precise in the coming years due to this additional information input [99–101]. Deep learning uses over a million data points to evaluate whether or not a prediction is valid, similar to ML models. Because deep learning is a self-learning

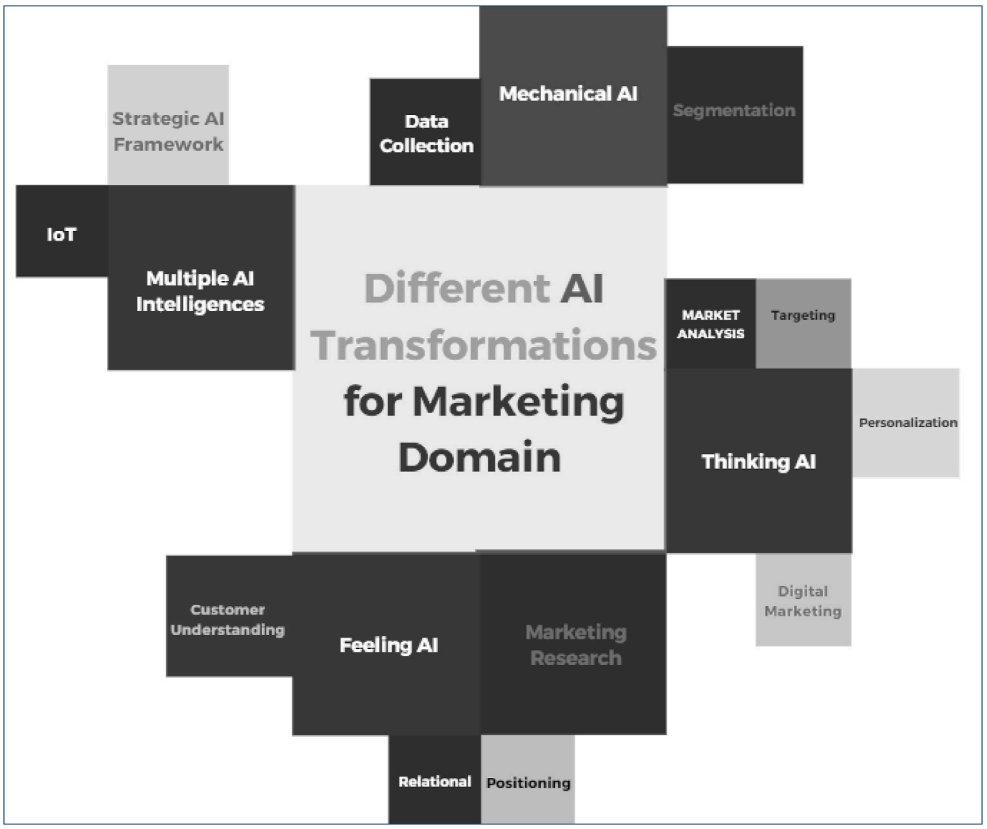

Fig. 2. AI transformations for marketing sectors.

system, human intervention is no longer required, and the results can be used immediately. Marketing campaigns promote products and services via different mediums by following specific themes and messages that help position a brand on the market, driving the top of the funnel and generating a pipeline for the business [102,103].

AI technology can group and process data from various platforms to draw conclusions and apply a data-driven decision-making process. Traditional marketing has radically transformed as power has shifted from industry to consumer. Companies are rapidly increasing their interest in and marketing spending on systems designed to capture, process, and use massive amounts of business and consumer data [104–106]. Using AI solutions, marketers can now see what their customers think, say, and feel about their brands. Similarly, marketers can truly understand how customers feel with the flood of social media at their disposal. Marketers with foresight can use this data in real-time to quickly modify messaging or branding for maximum effectiveness. While numerous methods for optimising digital advertising and account-based marketing, AI solutions enable marketers to go further for deeper insight and analysis [107–110].

Business concepts have developed from the assembly and promotion era to the connection and intelligence era [111–113]. Over the years, the advancement of computer science has fundamentally reworked the meaning of ideas, innovation, and inventions. As a result, business models are evolving further. The Internet of Things has completely transformed the concept of data handling. In addition to providing greater access to consumer data, these devices track and record how users interact with them, making the devices smarter.

Moreover, as IoT technology research advances daily, businesses leverage it to interpret data collected from IoT widgets for improvement and growth. Any business's productivity can increase its understanding of the market and its customers. IoT devices can improve efficiency during product development [114–116].

AI is expected to impact data transparency and security in the coming years significantly. Customers will expect additional transparency into what data is gathered, how it is utilised, and how it is safeguarded as they become more aware of how much data organisations collect. AI-powered marketing tools optimise many companies' email marketing campaigns. Notably, they assist them in determining when to send personalised emails and what personalised content or product recommendations to send to various segments. AI shows the most relevant content at the most effective times. This technology can assist in identifying top-performing content, planning for future content, repurposing content, and optimising distribution [117–119]. Automation, data analytics, and natural language processing are already used in business. These three fields of AI are streamlining operations and improving efficiencies across industries.

4. Artificial intelligence applications for marketing

AI is employed in marketing campaigns across various industries, including finance, government, healthcare, entertainment, retail, and more. Each use case yields different outcomes, such as improved campaign performance, enhanced customer experience, or increased marketing operations efficiency. Through programmatic advertising, marketers are using AI to address various challenges. Programmatic platforms use ML to bid on real-time ad space relevant to target audiences. AI may also aid in the reduction of mistakes in marketing procedures [120–122]. So long as supervision and instruction exist, AI can execute specialised activities more efficiently than humans. AI is considerably more likely to result in a higher return on investment since it can substantially speed up the process of marketing campaigns, cut expenses, and improve efficiency. This technology can perform tactical data analysis faster than humans and use ML to arrive at quick decisions based on campaign and customer context. It frees up time for team members to focus on strategic projects, which can subsequently be used to guide AI-powered marketing. Marketers can use real-time analytics to

make better media choices rather than wait until the end of a campaign to make AI decisions [123–125]. Table 1 discusses the significant applications of AI applications for marketing.

AI for marketing is the best technique for predicting clients and improving the customer journey by integrating customer data. AI advancements provide businesses with more significant ways to do this. This technology can assist in developing more successful marketing strategies, enhance the customer journey, and transform how firms attract, nurture, and convert prospects [205,206]. Marketers use AI to separate clients into key groups by segmenting them based on particular niches. Machine-generated content and automated personalisation for the client journey are governed by AI content production. AI-powered content curation enables us to engage visitors better and stay on top of their thoughts by offering relevant material and added value while showcasing industry expertise. It may be used for various purposes, including tailoring messages and making better consumer suggestions [207–209].

AI applications in marketing allow for customising a website's or app's services and content, the first step in driving personalised marketing campaigns and creating meaningful consumer engagement. AI chatbots use ML to improve and get smarter over time continually. These are vast, adaptable, and intelligent and give users a more lifelike experience. Chatbots benefit organisations since they are excellent data collection tools that dramatically cut personnel requirements and lower obstacles. Businesses use dynamic pricing modules to arrive at optimal prices for their products or services to stay competitive and swiftly boost profitability. AI-controlled dynamic pricing modules enable them to accurately price their services, even for short periods. It is one of the most profitable AI applications in marketing [210–212]. In marketing, AI is extremely useful in carrying out retargeting methods. AI continually monitors prospects' behaviour and buying history and discovers patterns using ML and deep learning algorithms [213–217].

5. Discussion

Iterative processing and algorithms that enable software to learn from patterns allow AI to capture large amounts of data in record time. Different subfields of AI operate in distinct ways. ML is the study of how computers imitate or execute human learning behaviours to acquire new knowledge or skills and reorganise existing knowledge structures to improve performance continuously. AI can be advantageous because the interests and trends of different persons change regularly. Client personas may alter slightly as trends shift over time, even if factors like personality qualities remain constant. AI automation can potentially make all of this much easier to organise. Marketing teams can keep up with ever-changing trends and fads, ensuring they target clients and potential customers with relevant, up-to-date, personalised content.

AI has become a perfect 'enabler' for marketing and sales professionals. It processes and utilises the vast volumes of available data. It automates the creation of analytical models, uncovers hidden insights, and uses cognitive reasoning to adjust programme actions. ML lets marketers complete the big picture by bringing in all the data to create a mission-critical consumer image in real time. It employs automated cognitive processes to solve complex data-rich challenges and algorithms to initiate data-driven actions. ML assists in the discovery of patterns, trends, and insights and then automatically acts on those discoveries to create micro-targeted campaigns. Furthermore, it aids in the acceleration of the entire sales funnel by predicting which prospects will convert, thereby optimising sales efforts.

AI in business can gather and analyse large amounts of data, drive consumer insights, and enable quick and efficient decision-making. AI combined with big data, IoT, and the human brain has the potential to expand the boundaries of marketing. AI allows businesses to collect data, conduct more in-depth analyses, and take action based on practical information usage. AI may be the best investment in a professional career as a marketer. Deep learning is central to marketing AI. It refers to

Table 1
Significant applications of Artificial Intelligence (AI) for Marketing.

S. No	Applications	Description	References
1.	Digital Marketing	AI has a massive influence on digital marketing. Marketers may use AI to understand consumer behaviour, actions, and indicators. As a result, they can target the correct approach to the right individual in a timely and effective manner. Marketers can use AI in marketing to quickly process large amounts of data from social media, emails, and the Web. It may be used in conjunction with marketing automation to enable the translation of data into choices, meaningful interactions, and a beneficial influence on company outcomes. AI marketing aids in the collection of data, the gathering of consumer insights, the prediction of customers' next moves, and the making of automated marketing decisions.	[126–129]
2.	Reduction of human mistakes	AI has reduced human mistakes, particularly in the most critical area. This technology can also develop and optimise content in various email formats that are nice and relevant to the recipients. Without a doubt, AI exists to prevent human interaction, hence eliminating the possibility of human error. Due to frequent data security issues, many firms are concerned about their workers' inability to protect client data and other essential corporate data. AI can assist in addressing various issues by learning, adapting, and responding to the cybersecurity requirements of an organisation. Many of the slash-and-burn resources commonly used to design and implement a marketing strategy can be eliminated with AI.	[130–132]
3.	Connect business process	AI uses the power of information systems to connect end-to-end business processes and give a faultless experience. Marketers who harness AI's potential are exceptional performers in terms of marketing outputs in enterprises. AI applications in marketing enable marketers to create and implement creative marketing strategies that are more customised and human-centred. These techniques often thrill customers and make them ardent brand supporters. Interaction designs may be more appealing with technology like AI, allowing consumer micro-moments control. The rising benefits of AI enable organisations and redefining marketing for a more elevated experience.	[133–136]
4.	Analyse massive amounts of market data	AI can analyse massive amounts of market data and predict what action a user is likely to take next. It comprehends billions of search queries and assists in determining how close a user is to make a purchase. AI also assists in the understanding of shortcomings and taking appropriate action. The impact of AI and ML extends far	[137–140]

(continued on next page)

Table 1 (*continued*)

S. No	Applications	Description	References
		beyond the provision of simple tools. It fundamentally alters how to conduct our business operations. It impacts businesses in such a way that it nearly triples their efficiency.	
5.	Deliver valuable information	AI technologies make things easier by examining every new piece of data and delivering more relevant information to clients depending on their preferences. It must be regarded as a tool for guiding marketing campaigns toward higher-level objectives. AI will undoubtedly assist marketers in combining sophisticated technology and human ingenuity to read, comprehend, and interact with modern customers on an individual level through hyper-personalised, relevant, and timely messaging. Algorithms successfully assess a site visitor's activity to adjust and immediately bring up individualised ad material. Data is constantly collected and utilised to drive future ad content modifications. By leveraging personal and behavioural data, AI will empower sellers to focus more on outcomes and assist their clients. Psychographics will provide more comprehensive insights into the goals, desires, and purchasing patterns influencing customers' decisions to choose a product or service using AI.	[141–143]
6.	Enable convenient customer support	AI enables us to give clients intelligent, simple, and convenient customer support at every point in their journey. It is critical for a seamless and optimum consumer experience. Marketing automation approaches are based on automating repetitive marketing operations and activities. AI applications in marketing are especially important for marketing automation. AI captures and interprets client data in real-time using ML and applies those findings on a vast scale. AI makes it easier to separate, sort, and prioritise this data. AI-powered marketing automation tools are revolutionising marketing automation strategy. Next-generation platforms promise to boost marketing strategies by addressing shape-shifting needs such as hyper-personalised offerings for clients.	[144–147]
7.	Better marketing automation tool	AI helps marketers swiftly identify qualified leads, develop better nurturing tactics, and generate relevant content when integrated into marketing automation tools. Dynamic content emails, particularly one-on-one emails, are the most effective because they use contextual emails to energise what the brand says while also targeting what subscribers are interested in hearing. Dynamic content strategies guarantee that emails remain relevant to subscribers depending on their geo-locations, psychographics, behavioural data, and insights.	[148–150]
8.	Ease workload	While many of us excel at extracting insights from vast amounts of data, most of us waste much time when it comes to getting useful information from complex data. In such cases, AI may assist by easing workload and saving time. Predictive analysis, as an application of AI in marketing, has the potential to unleash a powerful pull across all of our marketing activities. Predictive analysis driven by AI can take existing data and extract enormous value from it. AI-backed Predictive lead scoring is one of the most popular AI applications in marketing. It is a novel approach to sorting and rating leads. Marketers will continue to embrace the predictive algorithm-based lead scoring technique.	[151–154]
9.	Speeds up data processing	AI speeds up data processing compared to human interaction, ensures accuracy and security, and allows the team to focus on strategic goals to create effective AI-powered campaigns. AI can gather and track real-time tactical data, allowing marketers to make decisions in the present rather than waiting for campaigns to conclude. Based on the data-driven reports, they may decide what to do next, making wiser and more objective judgments. AI can assist in completing repetitive and tedious jobs. It cuts the time and takes personnel to do such jobs while decreasing mistakes to zero. Hiring expenditures can be significantly reduced while utilising available talent to do more vital duties.	[155–157]
10.	Make customer-centred choices	The insights that AI gathers for organisations are valuable resources to understand their consumers better and make customer-centred choices. AI offers external market knowledge by evaluating enormous internet content on social media platforms, blogs, etc. Marketers can quickly develop consumer personas using billions of data points from AI systems. They include on-site interactions, regional specials, purchasing habits, previous interactions/communications, referral sources, and other factors.	[158–160]
11.	Examine data about customer	ML may examine millions of data points about a customer to decide the optimum times and days of the week to contact them, the suggested frequency, the material that piques their interest the most, and which email topics and headers produce the most hits. It is possible to customise a website experience using sophisticated algorithms. AI can present offers and information that are more relevant for each user type after evaluating thousands of data points on a single user. Predictive models may be used in a variety of fields, including marketing. These models can forecast the likelihood of a specific prospect becoming a client. They can	[161–163]

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Table 1 (*continued*)

S. No	Applications	Description	References
		also indicate other factors, such as the stated price required to convert a customer or which clients are more likely to make multiple purchases.	
12.	Improve stock control	AI may improve stock control during intense demand and buying, naturally discouraging customers from purchasing more than realistic amounts and optimising income for the firm. Every company's dynamic pricing and demand forecasting needs are different. A bespoke solution created by a team or an external vendor may be the best option for developing a system that can meet goals, depending on the sorts of things carried out and the types of clients served.	[164–167]
13.	Customise shopping processes	AI can construct simulation models and customise shopping processes by making suggestions based on ML technologies and interacting with virtual assistants. Many companies are using AI to communicate with their clients. Amazon utilises AI to propose goods based on prior purchases, views, and searches. These intelligent technologies are constantly growing and are even approaching the point where they can outperform humans in certain areas. AI takes over the human function in recognising marketing trends since it has more excellent knowledge, data analysis, and input. These can analyse data to easily forecast target consumers' purchasing patterns and decisions and enhance user experience to present the audience with what they truly need.	[168–170]
14.	Digital advertising	AI is frequently employed in digital advertising to ensure maximum success; it is used across platforms such as Facebook, Google, and Instagram to deliver the best possible expert. Appropriate advertisements are offered by analysing user information such as gender, age, interests, and other factors. Marketers may use AI technology to detect microtrends and even anticipate trends. They will then be able to make strategic judgments. Consequently, companies can decrease digital advertising waste and ensure that their investment yields the most significant returns possible. AI influences the future of digital marketing because it leverages the power of IoT and connected devices.	[171–174]
15.	Better customer experience	Intelligent technology solutions are increasingly used by businesses and their marketing departments to improve operational efficiency and consumer experience. By using these platforms, marketers may acquire a more sophisticated, complete picture of their target consumers. The data gathered through this strategy can then be used to boost conversions while also minimising marketing staff effort.	[175–177]
16.	Assisting marketers	AI helps marketers to interact with their clients effectively. The AI marketing components include the most cutting-edge technologies for bridging the gap between a large amount of customer data available and probable actions that could be taken in future. The rise of digital media has resulted in an avalanche of big data, allowing marketers better to analyse their campaigns and transfer value across channels. Effective AI-powered solutions give marketers a centralised platform for handling massive volumes of data.	[178–180]
17.	Increased customer satisfaction and revenue	In marketing, AI can be applied in a variety of ways. Each application has advantages, such as reduced risk, increased speed, improved customer happiness, increased revenue, etc. AI platforms can make quick decisions on allocating expenditures across media channels and ensuring that clients are consistently engaged and campaigns are maximised in value. AI can help deliver personalised messaging to customers at the right time in their lives. This technology could also help marketers identify at-risk customers and provide information to entice them to return to the business. AI-powered dashboards give more detailed information about what is working, allowing it to be reproduced across channels and allocate funds appropriately.	[181–184]
18.	Development of a predictive model	AI-powered tools can assist in collecting data, developing a predictive model, and testing and validating that model on real customers. AI enables the delivery of personalised, tailored emails to every consumer. Machine-learning algorithms may also assist in identifying disengaged consumer groups on the verge of churning or leaving for a rival. AI-powered churn prediction aids in the analysis of omnichannel events and the identification of declining consumer engagement. It can provide relevant offers, push notifications, and emails to keep users engaged. More customers are engaged when AI-powered churn prediction is paired with personalised content creation, resulting in higher lifetime value and income.	[185–187]
19.	Learning about customer preferences	Marketing teams may use AI to learn about customer preferences and specific demographic data on a detailed, personalised level. This enables marketers to build tailored experiences depending on their customers' preferences. Marketing teams may then utilise this data to create a more thorough picture of the customer, including whether a user would have viewed a title without the image and how it affects future messages.	[188–190]
20.	Make better decisions	By analysing quantitative and qualitative data, AI enables humans to gain better insight and, as a result,	[191–193]

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Table 1 (*continued*)

S. No	Applications	Description	References
		help in better decisions. AI in Google Ads allows account managers and marketers to focus on higher-level choices such as campaign plans. Deep learning is a more sophisticated subset of ML. It is the processing of large amounts of data, including abstract and scattered data, to discover complex patterns and correlations that can be used to understand a consumer's interaction, leading to better individual targeted campaigns and ROI. As AI becomes more widely available, agencies can now use it to analyse data, predict trends, and improve the quality of their brand. As a result, how a business handles digital marketing is rapidly evolving. Companies can create more innovative, more targeted advertisements by utilising AI. Incorporating AI into the agency's digital marketing strategy can increase sales while saving money.	
21.	Target audience	Companies must understand and meet the needs and expectations of their customers. AI marketing assists businesses in determining who their target audience is to provide a more personalised experience for each of their customers. AI elevates conversion management solutions to new heights. Marketers can now compare sophisticated inbound communication to traditional metrics to answer difficult strategic questions. As consumer expectations evolve with technological advancements, there is a growing interest in providing highly tailored and customised experiences as efficiently as possible in the e-commerce, retail, and enterprise spaces.	[194–197]
22.	Deliver the right message in time	AI solutions give marketers a better understanding of their customers and prospective customers, allowing them to deliver the right message to the right person at the right time. Creating a truly comprehensive profile is collecting data during each consumer interaction. Marketers can use AI solutions to refine marketing campaigns and build highly personalised content by taking these profiles a step further. AI can tap into the abundance of consumer data hidden in keyword searches, social profiles, and other online data for more innovative and effective digital ads.	[198–200]
23.	Assist businesses	AI plays a significant role in assisting businesses in understanding their customers' needs and providing a personalised user experience. Companies can target and reach customers more efficiently by collecting their purchase history and social media data. AI technology plays a significant role in ad performance optimisation. AI technology is used in social media to drive automated ads, suggest best practices, and highlight performance issues. Simultaneously, AI tools can optimise targeting and ad spending, improving performance even in complex campaigns.	[201–204]

Table 1 (*continued*)

S. No	Applications	Description	References

the area of ML concerned with algorithms inspired by the human brain's neural networks. Deep learning algorithms "teach" computers to understand user queries, text, images, and speech patterns. The computer then applies its knowledge to provide relevant, helpful answers and solutions based on the users' needs. Deep learning with AI allows brands to respond to user demands more effectively and to create poignant, hyper-relevant content and ads at all times.

AI digital marketing and data analysis strategies are far more efficient and accurate than human capabilities. It enables personalising the audience's user experience, engaging them, and increasing eCommerce sales. AI collects, analyses, and forecasts user behaviour. With this information, brands can target advertisements based on user's preferences. AI is a highly beneficial tool in content marketing and, quite possibly, the epicentre of content development's future. There is still much work before AI can function autonomously without human intervention. AI and humans can work together to significantly reduce costs, increase efficiency, and boost organisational productivity. Incorporating AI into traditionally organised analytics can open up a new universe of possibilities. Understanding, explaining, and predicting consumer behaviour are examples of recent implementations.

AI technologies analyse large data sets by employing advanced computer techniques and cutting-edge computing power to extract insights from accumulated data. AI can help with email marketing campaigns by speeding up, improving, and simplifying the process. Previously, digital marketing strategists were sceptical of the role of AI in digital marketing. However, as technology advances and marketing becomes intuitive, AI's usefulness quickly becomes the focus of attention and an intricate part of what it means to be a digital marketer. Several successful brands have already begun to adopt and use AI tools as part of their digital marketing strategy. Certain brands use AI to guide customers to relevant products and services in their digital marketing. ML has progressed to the point where it can quickly understand a customer's behaviour. As a result, the apparatus's quick, predictive behaviour assists marketers in making informed decisions and solving future problems with the collected data.

AI tools use natural language generation to compose email subject lines much better than humans. This is accomplished by understanding a brand's voice through the data it collects and uses to train the AI. Deep learning-powered AI generates email copy that resonates with customer segments, individuals, and target audiences. This innovation can create personalised email content recommendations on an individual level to increase conversions and engagement. ML and AI are being used in business and marketing. These technologies enable decision-makers to glean valuable insights from massive amounts of data, allowing companies to stay ahead of emerging trends. AI can help businesses navigate and analyse rapid market fluctuations, allowing them to optimise their product mix and predict trends.

Modern marketing depends on a deep understanding of customer demands and preferences and the ability to act quickly and effectively on that knowledge. Because of its ability to make real-time, data-driven decisions, AI has gained traction among marketing stakeholders. However, marketers must be cautious when deciding how to best integrate AI into their campaigns and procedures. The research and application of AI tools are still in their infancy. As a result, a few concerns should be considered when incorporating AI into marketing. AI does not know which activities to perform to fulfil marketing goals. They will require time and instruction to learn about the company's goals, customers'

preferences, historical patterns, and the overall setting and acquire expertise.

Marketing teams must guarantee that businesses utilise customer data responsibly and follow the rules. When it comes to AI, this is a challenge. Unless the technologies are expressly developed to follow particular legal requirements, they may go beyond what is permissible when exploiting customer data for personalisation. AI in marketing is growing, but significant obstacles accompany it. AI is designed to sift through massive volumes of data and conduct a variety of computations. ML and deep learning as AI components need sturdy hardware and a large computing capacity to run calculations fast. AI is no longer a revolutionary concept among technology enthusiasts, researchers, and students. However, just a few individuals know AI's potential and benefits.

When it comes to AI, there are also significant competence disparities. Instead of being narrowed, these skill disparities are increasing. Data science courses concentrating on AI development have grown more common despite a minor increase in interest in AI. However, more brilliant individuals will be necessary to allow every firm to enter AI. For many people, AI is still a novel technology. It will be difficult for them to develop faith in AI. People are hesitant to trust if they do not understand how AI algorithms generate judgments. Suppose AI systems are not trained on high-quality, timely, representative data. In that case, the tool will make poor decisions not aligned with user preferences, reducing the instrument's utility. Consumers and regulatory authorities are pushing down on how businesses utilise their data.

6. Conclusion

AI refers to techniques that allow machines to perform cognitive functions that require human intelligence. These include learning, reasoning, and interacting with the machine's surroundings. ML and deep learning are two of the most well-known AI techniques. AI can create a more personalised brand experience, making cultivating user engagement and loyalty easier. Marketers use language-based AI as sales tools, payment processors, and engagement managers to improve the user experience. Instead of figuring out the purchase process independently, customers can now rely on chatbots to do it for them. Language-based AI is rapidly improving, "learning" from previous experiences and automatically optimising to create an even better experience the next time. It can assist marketers by identifying relevant content that users want to read. Personalising content through observation, data collection, and analysis is now possible with the help of AI. This technology in digital marketing assists marketers with email campaigns, allowing them to maximise results. Email marketing is one of the digital marketing services that help reach the target audience at the right time and ensure relevant conversion strategies. Analysing data is the most critical advantage of AI in marketing. This technology will analyse massive amounts of data and provide marketers with real-world and actionable insights.

7. Future scope

Marketers may use AI to evaluate consumer behaviours and patterns, anticipate future results, and adjust advertising appropriately. It uses data, statistical algorithms, and cutting-edge AI technology to forecast future trends. As AI systems examine more data, they learn how to enhance their results and deliver the best answers over time. AI-powered ML algorithms can analyse massive amounts of historical consumer data to identify which advertisements are appropriate for clients and at what stage of the purchasing process. AI will give marketers the optimisation benefits of deploying content at the perfect moment by utilising trends and data. ML is a process that uses observations or data, such as direct experience, or instruction, to recognise patterns in data that allow you to make better decisions in the future. ML aims to enable computers to learn automatically "on their own," without human intervention or assistance so that systems can adjust their actions accordingly.

In the future, marketers can use AI to create personalised experiences for their customers and develop marketing analytics techniques to target potential customers. . Every interaction a prospect or consumer has with a product or solution is recorded and used to improve the product or service in the future. There will be a better time for marketers to start experimenting with AI strategies to help them create highly personalised experiences for their customers. With AI poised to continue growing across all industries and segments, marketers should dedicate time and resources to experiment with strategies and ensure their marketing organisation is set up for continued success, both now and in the future.

Conflict of interest

None.

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