"The Role Of Artificial Intelligence In Industrial Marketing, Considering Future Sales And Distribution"

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Abstract

Artificial intelligence (AI) has been found to be capable of imitating people and carrying out operations in 'intelligent' manner, based on a growing body of research on Intelligent Systems and AI in industrial marketing. Integration of AI into industrial marketing is poised to revolutionize future sales and distribution tactics. Through the application of artificial intelligence, the industrial sector may significantly improve its market intelligence, client interaction, and operational efficiency. Businesses are able to obtain significant insights into market trends, client preferences, and competitive landscapes by utilizing various advanced data analytics and machine learning algorithms nowadays. A further benefit of artificial intelligence is that it makes predictive analytics possible, which enables businesses to make more accurate demand projections and improve inventory management. There is a significant improvement in logistics, a reduction in lead times, and a reduction in costs when AI-powered solutions are utilized in the distribution sector. With the further development of artificial intelligence, it is projected that its position in industrial marketing will trigger a paradigm change, resulting in a sales and distribution strategy that is more nimble, data-driven, and customer-centric in the industrial sector. The study presents various research directions concerning the implementation, utilization, and reception of artificial intelligence technology in marketing. It also explores the impact of this technology on the labor market and the skills required by marketers. Additionally, the study investigates the significance of institutional support for the integration of AI in marketing, as well as the ethical considerations and data protection issues associated with it.

Keywords: Artificial Intelligence, Industrial Marketing, Future sales, Marketing Research

1. Introduction

The field of industrial and technology evolution in marketing has seen a significant surge in research speed as scholars aim to investigate the manner in which technical breakthroughs impact firms' capacity to manage consumer wants and provide solutions (Kumar et al., 2019). A large number of studies that evaluate the impacts and applications of various technologies on marketing performance may be found within the current corpus of research on marketing. However, only in recent years has research focused on the overlap between AI and industrial marketing gained significant attention (Vaishya et al., 2020). Recent calls for research have encouraged further exploration of AI-related topics and their roles in marketing. Studies use a concept of artificial intelligence as "computational agents that act intelligently". This concept differs from prior perspectives, which held that AI was restricted to robots that could demonstrate intellect comparable to that of humans (Adi et al. 2020).

1.1 Artificial intelligence based industrial marketing segments

As a matter of strategic importance, artificial intelligence is becoming an increasingly important component in marketing. Several firms are improving their performance by leveraging AI-based systems, such as Microsoft Cognitive Services, Amazon Lex, Google Assistant, or IBM Watson. These companies are among the expanding number of enterprises that are becoming more successful (Boon et al., 2018). These platforms are helping these companies improve their performance.

Fig. 1: Marketing applications of AI

(Source: Sharma et al., 2019)

Through the use of this strategy, they are able to enhance their market forecasting and automation, as well as expand their customer contact across all marketing channels (Ameen et al., 2021). A new research among corporate leaders has identified a key area for the use of artificial intelligence in sales and marketing. According to the poll, fifteen percent of organisations in the United States are now using AI, and seventy percent are projected to utilise it by the year 2022 (MIT Technology Review Insights, 2020). According to the list that was created by the Society for Industrial and Organisational Psychology (SIOP, 2020), artificial intelligence is considered to be the most significant advancement that has occurred in the workplace. According to the definition of marketing artificial intelligence, which states that it is "the development of artificial agents that, given the information they have about consumers, competitors, and the focal company, suggest and/or take marketing actions to achieve the best marketing outcome," studies are in agreement with this concept's definition (Angus and Westbrook 2019).

There have been a number of notable contributions made in recent times, notably beginning in 2017, which is a reflection of the effectiveness of artificial intelligence in marketing operations. It is possible to trace the attention that academics have paid to artificial intelligence all the way back to the 1980s, when research was conducted that concentrated on expert systems and robotics. Two of the most important characteristics that have contributed to its present appeal among researchers and practitioners in the field of industrial marketing are the expansion of Big Data, the availability of processing power, and the evolution of artificial intelligence methodologies and technical enablers (Barnes, 2020).

1.2 Emerging Landscape: AI's Influence on Industrial Marketing

Recent surveys conducted by experts on this subject have provided significant insights into the significance of using artificial intelligence into industrial marketing strategies. It has the potential to offer significant opportunities to ease decision-making in the field of marketing. In 1955, John McCarthy was the first person to use the phrase "artificial intelligence," which allows us to trace the origins of AI back to that year. His work described artificial intelligence as "making a machine behaves in ways that would be called intelligent if a human were so behaving". Artificial intelligence has the potential to "interpret external data correctly, learn from such data, and exhibit flexible adaptation". Machine learning, deep learning, neural networks, and programmes specifically designed for natural language processing are some of the methods that might be utilized to achieve this purpose. There are plenty of instances that are based on artificial intelligence (Belanche et al., 2019). According to Secinaro et al. (2021), for instance, when someone submits a photo on Facebook, the platform is able to automatically recognize their face as well as the faces of their friends and tag them. Both Amazon's Alexa and Google Home are capable of performing the duties of virtual assistants in the event that someone is not present at home. These assistants may take care of the home, regulate the temperature of the room, manage calendars, and direct the lighting. When someone makes a request to return an item purchased from Amazon, the company's Chabot will always be available to provide assistance (Belk, 2016).

A possible illustration of the definition of artificial intelligence in marketing might be found in the aforementioned business recognitions (Gregory et al., 2021). Simple marketing transactions may be implemented with the help of artificial intelligence. These include interpreting emails or phone conversations in order to automate responses, scanning online comments left by consumers, and smart shopping by proposing items to clients (Bock et al., 2020). Artificial intelligence has the ability to utilize machine learning methods in order to analyses enormous amounts of client digital footprints. These digital footprints can include reviews, videos, photographs, subscriptions, browser history, activity on webpages, and even facial expression data (Bonnin and Alfonso 2019).

2. Literature Review

Bozorgi et al. (2017) analyzed that the consumer information, providing product suggestions, supplying product physical locations inside a shop, and responding to simple client requests, such as Virchbox AI being able to anticipate what a customer wants. The long-term goal is for artificial intelligence (AI) to become an indispensable component of each and every business enterprise across the whole world. The developing trends in AI-driven automation represent many notable changes in the AI landscape. The company has restructured its ideas, pursuits, and financial ventures in the realm of artificial intelligence implementation. This constitutes indisputable evidence of the prevailing reality. This technology possesses a high level of sophistication, enabling it to accurately identify and distinguish both human faces and objects. This capability holds great importance for a wide range of commercial applications on a global scale.

Buhalis and Sinarta (2019) discussed that object detection may be used to differentiate between and analyses photos. Facial recognition can be used to identify persons for the sake of security. Artificial intelligence treats human photos in the same way as cookies do, which leads to more tailored services depending on the preferences of clients. Facial recognition is being used by certain companies to determine the emotions of their consumers and, as a result, to create product suggestions that are more suitable for those clients.

Butterworth (2018) noted that artificial intelligence (AI) in the field of digital marketing primarily emphasizes user retention and the conversion of leads. Through the utilisation of advanced artificial intelligence chatbots, intelligent email marketing, interactive website design, and other digital marketing services, it may effectively direct people towards the company's objectives. The impact of artificial intelligence on digital marketing depends on several elements. Machine learning (ML) is a branch of artificial intelligence (AI) that focuses on computer programs that collect data and independently acquire knowledge from it.

Calvano et al. (2019) found that social media accounts, menus, online reviews, and websites, it gathers data from several additional sources. Subsequently, artificial intelligence utilizes the gathered information to produce and provide material that is relevant to the viewer.

Casprini et al. (2020) observed that AI software makes it possible to do in-depth online analyses of eateries and the patrons that frequent them. When businesses include artificial intelligence into their marketing plan, they are able to make greater use of the data that is available to them and reach out to potential consumers with appealing advertisements at times that are more convenient for them.

Chae and Ko (2016) revealed that utilising artificial intelligence (AI) for advertising on social media and digital platforms like Facebook and Instagram greatly improves the customer's digital marketing experience, resulting in a highly pleasurable experience. Before providing customers with offers that are suitable for their needs, these platforms do a comprehensive analysis of the information they provide. Additionally, artificial intelligence also helps marketers recognize and anticipate trends.

Huang and Rust (2021) did their research on that the money is spent wisely and avoids the organization from spending more than necessary on digital advertising. The word "computer vision" refers to the capacity of a computer to identify things, situations, and actions that are depicted in photographs. Analysis of medical images, recognition of faces, public safety, and monitoring of security are some of the applications. If robots are equipped with the appropriate combination of computer vision and artificial intelligence, they will possess the ability to anticipate future events and adjust their actions accordingly, based on the probability of changes occurring.

Rathore et al. (2021) observed that the process of understanding the customer journey and constructing client profiles has been eased by artificial intelligence. Brands are able to give relevant customized content for the various customer profiles in a quick and easy manner, regardless of the stage of the marketing funnel they are in or the avenues they explore. Artificial intelligence solutions in digital marketing are able to assess, on the basis of past data, which material is most likely to generate repeat visits from clients to the website. AI determines which clients are most likely to cancel their subscription to a certain service and evaluates the characteristics that are common among those customers who have terminated their subscription. Marketers may utilize these information to strategically plan future campaigns and implement techniques that foster long-term commitment from individuals.

Vinuesa et al. (2020) conducted research on the digital marketing applications of artificial intelligence are capable of sifting through billions of data points on the internet and determining precisely what the business requires to operate. The document will provide comprehensive details regarding the optimal pricing strategy that maximizes conversions, the most favorable publication time, the most captivating subject line, and additional pertinent information. The majority of marketers remain current on the most recent trends. As employment becomes more convenient, unconventional and inventive modes of thought become feasible. Those consumers who benefit also experience a rise in value.

3. Objectives of the study

1. To study the applications of AI in industrial marketing.

2. To analyze the AI in market trends, optimizing sales and distribution plans in the industrial sector.

3. To improve customer experience by using AI tools to enhance industrial marketing strategies, ensuring better future sales and distribution outcomes.

4. Research Methodology

4.1 Typology of extant literature reviews and methodology

The researchers choose to examine existing literature in the targeted field to ensure the relevance of their paper. The authors provide a definition of a collection of literature as data that may be transported across different periods and locations and analyzed for purposes other than their original intent, while also maintaining a physical presence. As part of a literature analysis, several publications, journals, and books relating to artificial intelligence in marketing were analyzed. After that, the authors conducted an in-depth comparison and analysis of these papers in connection to the research problem.

4.2 Sample of articles and data collection

The structure of this article is often adhered to, consisting of conceptual ideas related to the application of artificial intelligence in marketing. The primary aim of this study is to address the research objectives, while also offering an in-depth analysis of the implementation of artificial intelligence in marketing contexts. This study utilized individual papers that were published within the domains of artificial intelligence and marketing, serving as units of measurement for its analysis. The aggregation of sample papers is conducted by doing an extensive search throughout the Web of Science (WOS) database with a curated set of specifically chosen keywords. The compilation consists of scientific works that were published in academic journals. The growing interest among academics, as evidenced by a significant rise in recent scholarly publications, underscores the need of mapping the intellectual framework of the area and enhancing comprehension of the foundational aspects of this study issue.

4.3 Selection of keywords

The selection of keywords is of the highest significance since they are the words that make up the sentences that one generates. The following search terms have been selected by the authors to be provided by the AI stream in order to catch the greatest amount of articles that are possible: Strings such as "marketing," "new product," or "customer relationship," or "selling," or "market planning," or sale, or "marketing planning," or brand, or "selling capability," or "new product development capability," or "customer relationship management capability," or "marketing planning capability" were also utilized by the authors in order to capture a greater number of marketing activities. Several phrases, including "artificial intelligence," "machine learning," and "robot," were

utilized in connection with these strings. (AI streams) and (marketing streams) were used to construct the final sample copy of the article. Keywords without quotation marks imply a search for phrases containing those keywords, whereas quotation marks indicate a search for the exact phrase.

4.4 Data analysis and insights

In light of the fact that artificial intelligence in marketing has relatively few publications before to 1982, researchers filter out papers that were published before 1982 and those were not written in English. Only papers listed by the Web of Science (WOS) database were eligible for inclusion in the research. The research did not include items that were similar to book reviews, letters to the editor, and other related pieces. The researchers employed manual selection to exclude duplicate articles and those that were not set in a commercial context. There were 610 articles produced over the years 1982 to 2019, after all of the duplicates were eliminated. The thorough data selection method assures that the dataset is a reasonable representation of the artificial intelligence field (Alowais et al., 2023). This set of data does not include every single article that has ever been published in AIM. For the purpose of conducting the bibliometric study, the researchers converted all 610 publications into the WOS citation format and then supplied the data to the R programme. Both VOS viewer 1.6.5 and Pajek 5.0.1 are examples of software systems that are utilized for the purpose of doing network analysis and main path analysis separately. All of the important marketing categories that are connected to actions involving AI. When faced with marketing situations that incorporate AI-powered systems, it is imperative to carefully consider factors such as pricing, strategic planning, product management, promotion, and location management. Marketing for artificial intelligence applications requires considering additional factors such as targeting and positioning, scenarios, thinking models, product design, and customer requirements. These elements are crucial for the success and effectiveness of the marketing strategy.

5. Results

5.1 Bibliometric results: Fundamental Statistics

An average of 10.67 citations were created for each of the 610 articles, which resulted in a total of 7951 references being referenced. According to the data presented in table 1, research groups have conducted extensive investigations into several topics, including artificial intelligence and marketing. On average, there were 3.89 writers working on each paper while the study team was working.

Table. 1: Artificial intelligence in industrial marketing interface

Contents	AI industrial marketing segments
Total no. of articles	610
Time duration	1982 to 2019
Average citations	10.67
Co-authors	3.89

5.2 Scientific production of publications with AI tools in Industrial marketing

Fig. 2 illustrates the annual scientific production of publications that explored the aforementioned subjects. Between the years 1982 and 2012, the number of yearly productions was somewhere in the neighborhood of twenty-five or less. The article aims to identify the keywords, topic, context, research methodology, and findings in order to formulate its themes. This involves identifying the common qualities that may be categorized to characterize the content that was examined.

Prior to the 1980s, the majority of artificial intelligence research was concentrated on solving issues involving mathematics and logical thinking. This was due to the significant technological obstacles that were present at the time. The research on artificial intelligence in marketing was not sufficiently progressed. There have been significant advancements in artificial intelligence throughout the course of the last decade. The level of personalization in business-consumer interactions is on the rise, leading to the generation of substantially large digital footprints. The level of personalization in the interactions between companies and their customers is on the rise, leading to the generation of substantial amounts of digital footprints. Marketing research utilising artificial intelligence is expanding due to the development of increasingly complex algorithms, the availability of vast quantities of data, and increased processing power.
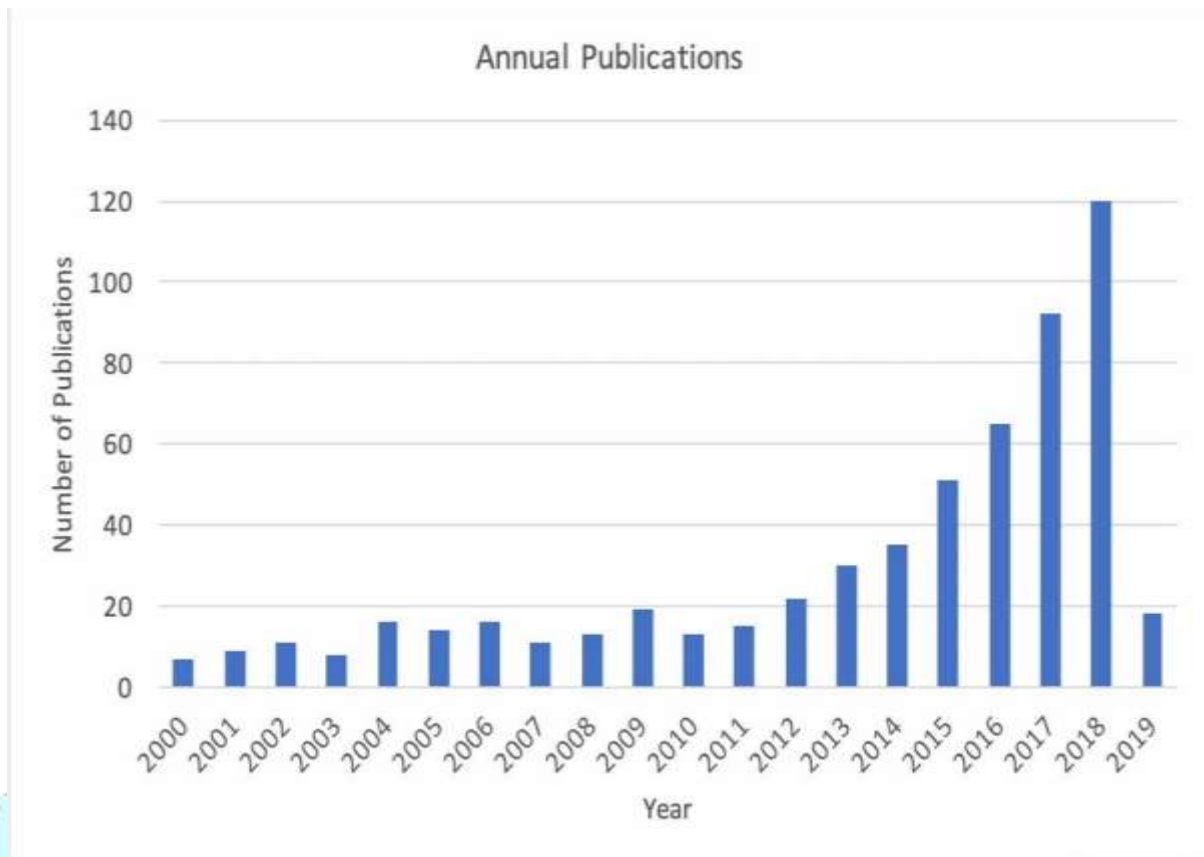
Fig. 2: Annual scientific production of articles

(Source: Rathore et al., 2021)

The various AI tools were used in Industrial marketing. The use of this technique has the capacity to significantly improve the examination of marketing and commercial datasets in real-world scenarios, especially in situations where decisions are not pre-determined. Additionally, it has the potential to aid academic researchers in their exploratory analysis.

Table. 2: AI tools used in Industrial marketing

Video generation	10%
Content generation	60%
Image generation	11%
Search engine optimization	48%
Coding/Website development	25%
Chabot's	23%

The findings demonstrated that artificial intelligence technology significantly improves marketing strategies by efficiently processing data pertaining to customers and providing information about their preferences in a timely manner. Both marketing analysis and the use of artificial intelligence in the real world are areas that marketers aspire to become proficient in throughout the course of their careers (Harman, 2012). It is therefore substantially

more likely that successful campaigns will be carried out by marketers who have a full grasp of the core AI technology and tactics that are applicable to the marketing instrument that is being utilized. By enhancing their understanding of the underlying linkages between information and assisting them in the development of models to handle the ever-changing nature of digital commerce, artificial intelligence will give businesses with a key competitive edge. Furthermore, by utilising AI and machine-learning technology, decision models may accurately predict future events with greater accuracy and thoroughness. This allows for personalised interactions and brings economic benefits to the organisation.

The ability of artificial intelligence to gather enormous volumes of data in record speed is made possible nowadays. In artificial intelligence, several subfields work in different ways. Even if certain aspects, such as personality attributes, remain the same over time, client personas may undergo some minor adjustments as a result of shifting trends. Research in AI mostly concentrated on solving issues involving mathematics and logical reasoning; yet, because to the significant technological obstacles, there was not a rush in AI research. Increasing the ability of researchers to recognize novel phenomena through the use of documents is the primary objective of content analysis. Concepts or groups of subjects that provide a summary of the initial material that was studied are frequently included in the results.

Conclusion

AI technologies play an important role in enhancing the effectiveness of sales, especially in the domains of sales forecasting and prediction. Within this realm of study, sales managers may acquire enhanced comprehension on the utilisation of artificial intelligence to optimise their sales endeavours, as well as discerning the optimal circumstances and locations for AI implementation. The customer relationship management business is poised to benefit greatly from the use of AI technology. Artificial intelligence, namely virtual assistants and chatbots, may serve as service providers and frontline personnel, therefore enhancing the efficiency of customer-employee interactions. Research exploring the correlation between artificial intelligence and frontline personnel may offer potential advantages to marketing and sales management. AI tools have the ability to enhance the process of producing new goods. Research on the application of artificial intelligence throughout the whole product development process might potentially expedite the development of new products, enabling faster market entry compared to competitors.

The utilisation of AI techniques can enhance advertising and industrial marketing. Businesses may effectively reach their target consumers by utilising AI solutions, which use quick reactivity and extensive data to offer tailored advertising messages at the right time. Research may examine the differences in advertising appeal adjustments that take place in consumer markets compared to corporate markets. Artificial intelligence empowers businesses to customise notifications to more effectively meet the needs of customers with more timeliness and precision.

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