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Artificial Intelligence in Marketing: Literature Review and Future Research Agenda

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Abstract. The aim of this study is to identify the general usage of AI in marketing among practitioners, as existing literature often focuses on specific objectives such as branding, innovation, and understanding competitors' weaknesses. To achieve this, a Systematic Review employing the PRISMA (Preferred Reporting Items for Systematic Reviews) method was conducted, ensuring a systematic approach and adherence to proper research protocols. Additionally, Vos Viewer was utilized to visualize the bibliographic data sets. The results provide a comprehensive definition of AI, highlighting keywords extracted from selected references. The study analyzes the diverse applications of AI in marketing, identifies specific AI applications applicable to marketers, explores the adoption of grand theory and middle theory in marketing research, and contributes to the existing body of knowledge. Among the latest technological advancements, AI stands out as a transformative force in marketing. Practitioners worldwide are actively seeking the most suitable AI solutions for their marketing functions. Therefore, this systematic literature review underscores the significance of AI in marketing and charts the course for future research directions. While systematic literature reviews on AI have been attempted in various domains, few studies have specifically focused on AI implementation within the field of marketing as a whole.

Keywords: Artificial Intelligence, Digitization, Marketing, Technology, Vos Viewer

1. Introduction

Unlike human intelligence, artificial intelligence (AI) is an intelligent agent machine system that senses the environment to successfully achieve its goals. Artificial intelligence describes a machine (computer) that simulates the cognitive and affective functions of the human mind. Systems with AI ability are designed to observe and react to their environment(Russell & Norvig, 2020). They understand the environment and take appropriate action and remember situations that may occur anytime soon. For example, AI, with the help of historical data, can predict the time of machine breakdown and can alert us to previous actions. Moreover, data absorption is another significantly important feature of AI because the system work with large amounts of data by collecting them according to the requirements (Feng et al., 2018; Lim et al., 2023). There is a huge amount of data handled by organizations like Google and Amazon, which is impossible for humans to analyze. Also, AI systems store a lot of information about many people on many machines from various sources. All of these appear in the system asynchronously or simultaneously. Therefore, it could be concluded that the development of artificial intelligence is phenomenal and experts have been working hard to advance the concept of AI for decades. The work resulted in several major innovations such as big data analytics and machine learning applications across a wide range of sectors and contexts.

Next, the implementations of AI had been found in different contexts in today's business scenarios. In this case, the implementation of AI-powered Apps is not limited to just marketing; instead, it is widely used in other sectors such as medical, e-commerce business, education, law, and manufacturing. AI continues to be implemented to benefit many different industries. As organizations move towards Industry 4.0, AI & other new technologies are also developing in parallel (Haque et al., 2023; Kaplan & Haenlein, 2019). Based on these facts and trends, then it could be concluded that basically, AI technology was created with the sole purpose of make human's life easier (Feng et al., 2019; Rabetino et al., 2021). This system is designed to solve problems more quickly, accurately, and effectively in receiving orders. There are many advantages of AI that can be utilized, even in everyday life without us realizing it. AI is currently being implemented in various devices, one of which is smartphones. One of the most popular examples of the implementation of AI technology on smartphones is Siri. This feature is a virtual personal assistant that is applied on nearly all Apple products, such as the iPhone and iPad. Siri can help you find information, get directions, send messages, open apps, and even make voice calls.

In regard to the context of marketing, it is predicted that AI could also affect future online marketing trends (Stone et al., 2020; Yang et al., 2021). In this era, people have interacted with some form of AI in their daily activities, such as automated email filtering features. On a smartphone, users may be able to populate a calendar with Siri, Cortana, or Bixby, while in the context of a vehicle, the implementation of AI could surely assist users or drivers in driving. AI can also automate business processes, learn insights from past data, and generate consumer and market insights through program-based algorithms (Davenport et al., 2020). Technologies such as Machine Learning (ML), Deep Learning, and Natural Language Processing (NLP) train machines to handle big data to generate market intelligence (Davenport et al., 2020; Morsi, 2023; Yusupa et al., 2023).

In terms of adopting AI within the context of marketing, designing an appropriate AI-based marketing analysis tools can assist companies in determining the conformity of product designs with customer needs and the resulting customer satisfaction (Dekimpe, 2020). Some examples including topic modeling which could adds system capabilities for service and design innovation (Antons & Breidbach, 2018), preference weights system assigned to product attributes during product search help marketers understand product recommendation systems and align marketing strategies for meaningful product management (Dzyabura & Huser, 2019; Wanof & Gani, 2023; Zalmi et al., 2023), and deep learning technologies which can personalize recommendations of places of interest and help explore new places (Guo et al., 2018). In this case, AI offers the ability to customize offerings to suit customer

needs (Kumar *et al*., 2019). Furthermore, AI can support marketers in the strategy and planning of marketing activities(Susilo & Smith, 2023) by assisting in segmentation, targeting, and positioning (STP). In addition to STP, AI can help marketers visualize the strategic orientation of a company (Huang & Rust, 2017). Text mining and machine learning algorithms can be applied in sectors such as banking and finance, arts marketing, retail, and tourism to identify profitable customer segments (Dekimpe, 2020; Muna et al., 2023; Netzer et al., 2019; Pitt et al., 2020; Valls et al., 2017). The combination of data optimization techniques, machine learning, and causal forests can also narrow target customers (Chen et al., 2010; Mardiana, 2023; Simester et al., 2019).

Therefore, it could be understood that the use of technology is indeed an absolute requirement for business actors because the rapid development of technology within various fields of business is unavoidable (Kaartemo & Nyström, 2021; Lobschat et al., 2021; Wilson et al., 2019) . Innovation using technology has become a demand and will definitely occur in the development of marketing both offline and online in the future (Masnita *et al*., 2019). Now, the use of AI in the world of marketing is adopted to map how consumers behave. AI works by performing knowledge management independently by imitating how humans think and act, whether humans act as consumers, producers or competitors. Knowledge management can map consumer tastes, the types of goods or services most often searched for in search engines, and how consumers tend to buy based on the visualization of the appearance of the goods they see (Alyazidi et al., 2020).

Although there have been studies related to the use of AI in marketing in recent years, research on AI still finds many different concepts and goals. In this case, it should be noted that AI has gradually become an important field in the world of marketing with all its stakeholders. However, the problem is that several studies that have been synthesized by previous studies still have different concepts that may still deviate slightly from issues regarding the use of AI in marketing, in which, much of the previous studies which were conducted within the field of artificial intelligence tend to put more focus toward the service aspect of the company rather than the marketing aspect itself in general. For example, previous papers or studies conducted by (Belanche et al., 2020; Daniel Belanche, Luis V. Casaló, Jeroen Schepers, n.d.; Do et al., 2023; Flavián et al., 2021) try to underline or explain the implementation of the artificial intelligence (AI) technology (within the form of robots) within the service sector of a business (such as the hospitality or tourism sector). In regard with these papers or studies, despite for the fact that service is actually one concept which exist within the field or marketing, however, all of these aforementioned previous studies tend to put much focus on the context of service itself rather than on the context of marketing in general. Furthermore, another study (Goel et al., 2022) also tend try to synthesize the impact of AI toward improving the quality of the service offered by companies toward their customer within the hospitality and tourism sector. Meanwhile, another study (Hentzen et al., 2022) within the field of artificial intelligence also try to assess the impact of the implementation of AI toward improving customer services within the financial services sector, in which, despite being related with the field of marketing, however such study still put much focus on the context of service itself rather than the basic context of marketing in general.

Furthermore, previous research which attempt to conduct a systematic literature review on AI tend to put or shift their focus on the implementation of AI toward various fields other than marketing. For example, a systematic literature review conducted (Civit et al., 2022) attempted to understand and review some publications concerning the adoption of AI within the field of music, while another systematic literature review conducted (Devagiri et al., 2022) attempted to uncover some literatures concerning the implementation of AI in the form of Augmented Reality (AR). Moreover, another review within the field of AI tried to review some research discussing the application of Artificial Intelligence (AI) in helping medical practitioners combating COVID-19 pandemic. Another review performed (Riahi et al., 2021) also tried to review and discuss several literatures discussing the adoption of AI on supply chain. Meanwhile, within the field of Business Management, previous systematic literature review attempted (Giuggioli & Pellegrini, 2022) tend to analyse some studies which discuss the

usefulness and adoption of AI for entrepreneurs, while similarly, (Ledro et al., 2022) specifically conducted a review concerning some studies discussing the implementation of AI-based technology to improve companies' customer relationship management (CRM). Therefore, since none of these studies attempted to conduct a systematic review to discuss the implementation of AI within the field of marketing, this is the gap that current study tried to fill in by performing a systematic literature review within the context of AI in marketing.

Therefore, based on the results of these previous studies, it could be understood that the adoption of AI in marketing is in its infancy, in which there is a dearth of systematic literature reviews showing patterns of in-depth research in AI-driven consumer markets, in which, such statement was supported by several authors who also argue that some studies which try to assess the impact of AI implementation toward improving the effectiveness of marketing strategies implemented by companies was still a rarity and still at it's infancy. For example, (Bolton et al., 2018; Stone et al., 2020) argue that there are still little studies which try to determine the application of AI toward companies' strategic marketing decision-making process. In the other hand, (Karimova & Goby, 2020) also argue that despite there have been few studies which try to assess the implementation of AI within the field of marketing, there have been little studies which try to determine how AI can be promoted as the marketing tool which companies can implement in order to boost the quality of the service offered toward the customers. Therefore, based on these explanations and gaps, several objectives that this study attempt to achieve were: What are the AI applications available in marketing? how can marketing utilize the AI technology to maximize customer satisfaction, market share and profitability? and What are the trending topics and future research directions for AI adoption in Marketing?

2. Methods

This paper attempts to fill that research gap through a systematic review of the literature on AI in the marketing research domain. We used (Rowley & Slack, 2004) guidelines to conduct a literature review. Methodologically, the literature review uses a five-step process described in the following section. The comprehensive review protocol helps in identifying research themes and future research directions. Research objectives are formulated to generate identification and understanding of previous studies related to artificial intelligence and marketing.

2.1. Search strategy

The search was carried out through the Science Direct, EBSCO, Google Scholar, and Crossref. The four publishers are quite representative in publishing quality articles, and publishing journal articles in various scientific fields, including social science (Pulikowski & Matysek, 2021). All of the published articles included in this literature study have gone through a rigorous peer review process. The keywords applied are "artificial intelligence" AND "marketing" and data mining was carried out in December 2021.

2.2. Study selection

Initial search strings included words such as "marketing" and "artificial intelligence." Synonyms used for artificial intelligence such as machine learning, deep learning, natural language processing, etc., are used with boolean operators (operators or programming languages that have a true or false meaning which are used to search for keywords in order to compare one another, which used to compare two values is called a comparison operator or relational operator. The result of comparing two values is a value of type boolean (true and false)) such as "OR" to get a universal set of papers. The Boolean operator "AND" is used to get a set of intersection papers covering marketing and artificial intelligence. An in-depth review of research papers on each theme offers insight into research gaps and helps chart future research directions. Research gaps translate into research objectives that future researchers can solve.

Articles collected at the initial stage are then selected and filtered based on 6 (six) inclusion and exclusion criteria, as shown in table 1, with the following criteria: year of publication, language used, article types, publication title, subject area, and status of the paper. Based on the screening, 76 articles were obtained.

2.3. Improving the initial results (Inclusion and exclusion criteria)

The inclusion and exclusion criteria were applied to the search results to extract the most relevant articles for the literature review. To achieve the research objectives, the search results were limited to only articles published in journals because they represent "certified knowledge" (Ramos-Rodríguez and Ruiz-Navarro, 2004). Therefore, the conference papers, book chapters, comments, erratum etc., were excluded from the search results. In regard to both of these inclusion and exclusion criteria, authors decided to limit the search criterion on only articles which were published between 2012 to 2022. In this case, such criterion was implemented or adopted mainly in order to ensure that only the most-updated version of articles will be assessed and included in this study in order to ensure and maintain the relevance of the concept or theories that were discussed within this research. Moreover, authors' decision to only included open access articles as another inclusion criterion was based on the fact that open access articles could be freely accessed by the public in general as compared to closed access articles, which in turn enable authors to gather and analyse larger amount of AI or marketing related articles as compared to the closed access ones.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication year	2012 - 2022	Other than 2012 – 2022
Language	English	Non English
Article Types	Research Article	Non Research Article
Publication title	• Business Research • Retailing & Consumer Service • Industrial Marketing Management	• Non Business Research • Non Retailing & Consumer Service • Non Industrial Marketing Management
Subject area	Business, Management & Accounting	Non Business, Management & Accounting
Paper status	Open Access	Closed Access

After obtaining 76 eligible articles, these articles then were filtered again based on the quality applied to get articles that are in accordance with the topic and research problem. In this case, after filtering all 76 articles, it could be concluded that a total of 46 articles which matched the topic and the problem that this study attempts to uncover will be further analysed in this study.

2.4. Data analysis

There are two types of analysis done in this study, which are the Systematic Literature Review and Bibliometric Analysis. Bibliometric analysis of the data was carried out using R software for performance analysis of scientific actors such as the most relevant authors and sources. Content analysis and performance analysis of each scientific actor offer the intellectual structure of the research domain, in which two researchers analyzed Science Direct, EBSCO, Google Scholar, and Crossref data for inter-rater validity.

Structured data analysis was carried out in three Phases. Phase 1 data analysis focuses on the performance of scientific actors such as the most relevant sources and the most relevant authors in the research domain. Bibliometric analysis based on total citations and citation indexes helps in evaluating the performance of scientific actors. Phase 2 analysis uses co-occurrence and co-citation analysis for

conceptual and intellectual network analysis. According to (Chen et al., 2010), the co-citing network of research papers shows the intellectual structure, the co-citing network of concepts shows the conceptual structure, and the co-author citation network shows the social structure of the research domain. Phase 3 analysis focuses on emerging trends and future directions of AI research in Marketing.

Table 2. Quality Criteria

Quality Criteria
1. Is AI clearly stated?
2. Is the concept of AI related to marketing?
3. Can AI be applied in marketing?
4. Are the research objectives clearly defined?
5. Are the research results clearly stated?

The selection process can be seen through the PRISMA flow, four stages are carried out starting from identification, screening, eligibility, and inclusion, so that the process is illustrated in Figure 1.

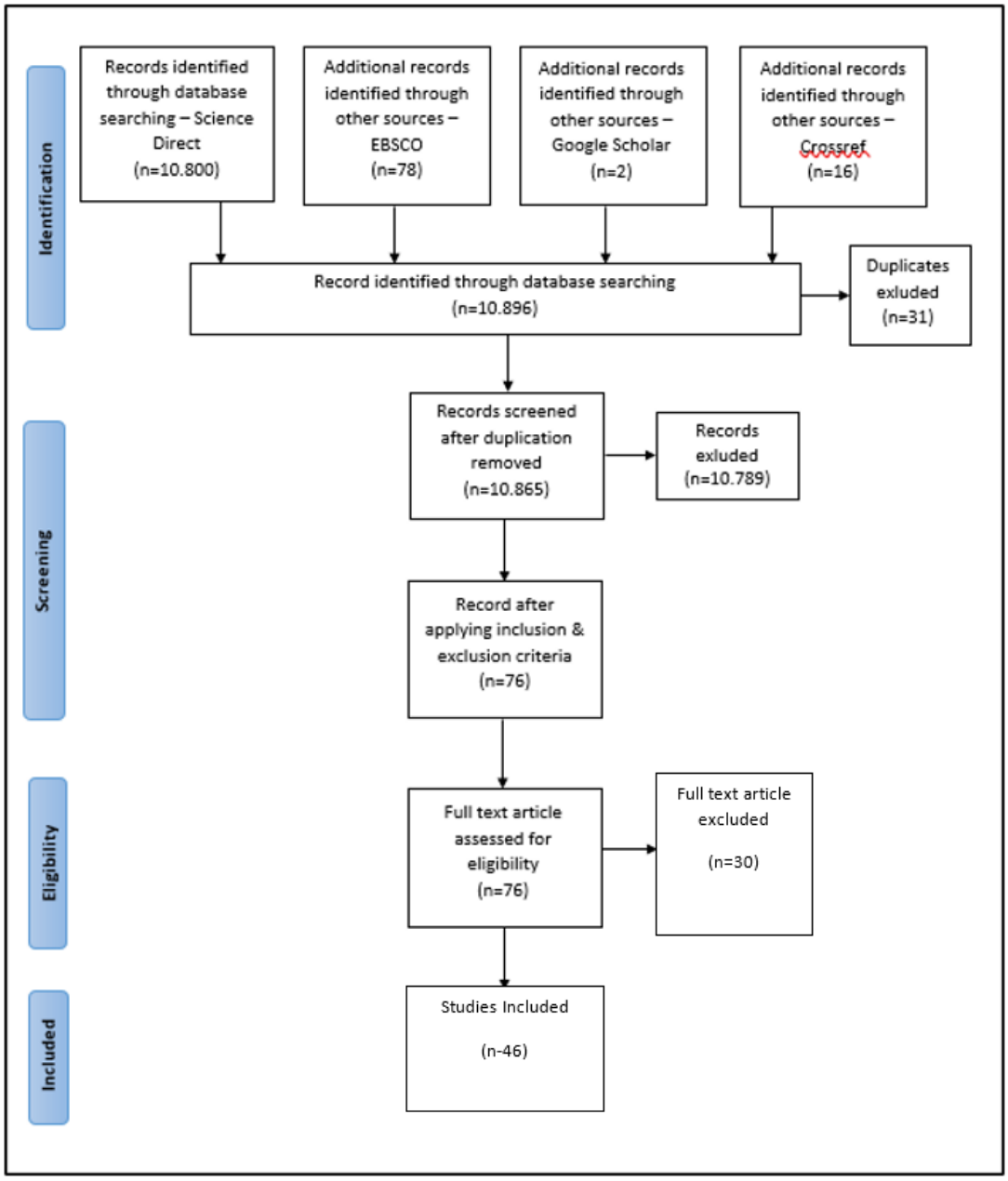

Fig.1: PRISMA SLR: “artificial intelligence” AND “marketing”

2.5. Identification of research gaps and future research directions

Articles related to artificial intelligence in marketing are reviewed to understand theoretical evolution, methodological evolution, and emerging research themes. Thematic coding was used for qualitative data analysis. Thematic coding is a form of qualitative analysis that involves recording or identifying sections of text or images that are linked by a common theme or idea, allowing data to be indexed into categories for the development of a thematic framework (Gibbs, 2012). In this case, various authors had underlined the usefulness of thematic coding in assisting researchers in developing a structured literature review toward certain object or topic(McCartney & Fu, 2022; Probst & Bucholtz, 2015; Song et al., 2021). Furthermore, an in-depth review of research papers on each theme offers insight into research gaps and helps chart future research directions. Research gaps were then translated into research objectives to be solved by the future researchers. Moreover, several previous studies or papers which discussed the topic of artificial intelligence within the context of marketing were also assessed, in which, the details of these papers were presented on table 3 below.

Table 3. Previous Studies which were Conducted within the field of Service Marketing in regard with the concept of AI

Topic Discussed	Main Concept
Belanche *et al*. (2021) assess the effect of robots' perceived physical human-likeness, perceived competence, and perceived warmth toward customers' service value expectations and, ultimately, their loyalty intentions	The implementation of AI (in a form of Robot) toward increasing customers' loyalty intentions
Eriksson *et al*., (2020) assess the role of Artificial Intelligence in assisting company to formulate marketing strategy	The presence, role and importance of AI in helping companies to develop strategic marketing decision management
Karimova & Goby (2021) assess possible associations between anthromorphism and archetypes frequently used in marketing and the concept of artificial intelligence (AI)	Exploring the effect or role of both antrhomorphism and archetype toward the creation of theory on AI marketing
Flavián *et al*., (2021) assess the effect of both customers' technology readiness and service awareness toward their usage intention to use analytical AI investment services	The implementation of AI toward enhancing customers' usage intention within the banking and financial services
Paschen *et al*., (2019) discuss the role of AI in enhancing the knowledge-based marketing strategies implemented by B2B companies'	The contribution of AI toward knowledge-based marketing of firms classified as B2B companies
Chen *et al*., (2022) determine customers' level of knowledge and perception toward the concept of AI within the realm of marketing communication	Customers' personal interpretation and perception toward the concept of AI marketing communication
Davenport *et al*., (2020) discuss the role of artificial intelligence in changing the future of marketing	How AI could dramatically change both company's marketing strategies and the behaviour of customers
Goel *et al*., (2022) assess the adoption of AI by the customers within the hospitality and tourism sector	Integrating several factors which drive consumers' adoption of AI and robots within the hospitality and tourism sector

3. Results and Discussion

3.1. Relevant sources

Table 4 presents the some of the most relevant sources based on the maximum number of articles published in different journals. Most of the papers on artificial intelligence in Marketing have been published in a journal named Expert Systems with Applications. The number of articles published in the next two most relevant journals (Journal of Business Research and Knowledge-Based Systems) were still far behind from Expert Systems with Applications. Next, to understand the most influential sources, the top five most relevant sources are compared on the H-index and G-index. Once again, the expert system with applications topped the charts with the highest H-Index and G-Index. Of all

indicators, expert systems with applications are the most relevant sources.

3.2. Relevant authors

Table 4 presents the most relevant authors identified based on the maximum number of articles published, total citations, and citation index (H-Index and G-Index). Liu Y has secured the top rank among all researchers with 9 article publications. Two other researchers Chen Y and Liu J have also shown their interest in the use of AI technology in the marketing domain. Next, the author's impact was assessed with the help of total citations (TC), number of articles published (NP), year of publication (PY_start) and citation index (g and h indices). Liu Y has an h-index of 5 with 97 TC, while Casillas J has an h-index of 7 with 203 TC. Casillas J has more citation records than Liu Y. It is evident from Table 4 that both citation records and h-impact are independent. Research on a specific topic or sector may have a greater impact, whereas research work may receive fewer citations. Moreover, various studies presented on table 3 had underlined the differences of findings, concept and themes focused by each and every author regarding the implementation of AI toward the concept of marketing in general.

Table 4. Most Relevant Authors

Author	h_index	g_index	TC	NP	PY_start
Liu Y	5	9	97	9	2010
Chen Y	5	8	100	8	2010
Liu J	4	8	307	8	2013
Casillas J	7	7	203	7	2009
Chen G	5	7	158	7	2009
Li S	3	7	51	7	2010
Zhang C	4	6	40	7	2014

Source: Authors' Own Work

Moreover, this study uses Vos Viewer version 1.6.16 to visualize a bibliography, or a data set containing bibliographic fields (title, author, journal, etc.). Vos Viewer is used for bibliometric analysis, looking for topics that still have opportunities to be researched, looking for the most widely used references in certain fields, and others (van Eck & Waltman, 2010; Fernandez et al., 2019). It is regarded as one of the most useful software or tool which could help researchers or academicians in finding research gaps concerning some specific topics among many studies which had been conducted on such topics (Florido-Benítez, 2022).

The results of the selection process included and excluded in the PRISMA process resulted in 46 articles. All of these articles were those which were included (as illustrated on figure 1) due to the fact that these articles had fulfilled all the inclusion set in this article. These articles (46 articles) were further analyzed using Vos Viewer, resulting in 7 clusters, 422 links with a total link strength of 2881. The clusters formed in groups based on the words in each article, indicated by color grouping. The formation of clusters can be seen in figure 2.

There are 3 visualization views in Vos Viewer: Network visualization, overlay visualization, and density visualization. Network visualization shows the network between visualized terms. Figure 2 is an illustration of the results of mapping or absorption of scientific journal article data. From the picture, it is known that there is a relationship between topics and absorption capacity in terms of article titles and keywords, not the whole article.

Co-citation analysis offers the intellectual structure of the research domain. Research domains are classified into different clusters with the help of centrality index calculation. Figure 2 presents the co-citation network analysis. Clusters were prepared based on strong relationships between articles. Because there are many papers in one cluster, the author only selects a few with the most citations. The author has selected a total of five clusters. In each cluster, the number of papers varies from two to five. They then studied and discussed the research focus and suggestions of each cluster.

In cluster one, the author's main focus is on trust factors that directly impact sales and distribution in manufacturing and service organizations. The authors discuss that trust leads to a long-term relationship between buyers & suppliers, leading to counter-market uncertainty. The author proposes here to continue the relationship & trust between buyers & suppliers regardless of industry segment to gain competitive advantage. The author suggests that research be carried out in making a marketing model by considering future relationships.

In cluster two, the author discusses the relationship between market orientation & business performance. The author has also discussed how the market is evolving towards customer-centricity. The focus also shifts to intangible areas such as skills, knowledge & interactions. The authors have provided future research directions to address the effect of additional factors on market orientation & the relationship between market orientation & market share.

In cluster three, the author describes the creation of value for customers. To create long term value for customers in order to gain competitive advantage, organizations prepare structural equation models based on theoretical-methodological & statistical analysis. There is a great opportunity to apply these concepts to add value, especially in the retail sector.

In cluster four, the author discusses the benefits of data science in various fields such as finance, marketing, consumer research, and management. The authors also discuss the role of typological theory in causal relationships. The authors suggest future research works on predictive validity, not just fit validity, to address the problems of a changing business environment.

Cluster five discusses consumer sentiment & word of mouth on online platforms. Data captured through online platforms can be used for dynamic analysis of an organization. This data will direct the organization to take steps to gain a competitive advantage in the market. The study proposes a framework for capturing user-generated data. The author proposes to use data not only from product reviews but also from textual communications.

Overlay visualization shows the traces of research history. Figure 3 is an over-visualization image, showing the relationship between topics and year descriptions. Figure 3 presents a trend analysis illustrating the overall change in the research topic over time. If we divide the whole trend into three phases, the initial phase shows a basic understanding of the research topic. Researchers are interested in drawing an initial picture with a basic understanding of the research. Research topics develop after moving towards the middle phase of the trend. in the last phase from 2017 to 2019, researchers are moving towards the inclusion of new technologies in their work such as Big data, Neural Networking, Machine learning, and more.

According to (van Eck & Waltman, 2010), emotions are very important for understanding human preferences and processing emotions through sentiment analysis by using artificial intelligence to detect consumer polarity. The growing proliferation of social networks mandates computational algorithms to understand big data and provides deep learning about polarizing consumer sentiment. User generated content on social networking sites provides deep consumer insights for better decision making (Tripathy et al., 2016)

Developed an optimization framework for analyzing object-level video ads. Deep convolutional neural networks based on facial features help to recognize human gender, and heuristic algorithms solve optimization problems (van Eck & Waltman, 2010). To make artificial intelligence more realistic, computational intelligence must combine human language, reasoning, and emotion. (Poria et al., 2015) combines computational intelligence techniques with linguistic and emotive algorithms through natural language for polarity detection in large social data. Sentiment flows through contextual routes and content routes outline realistic scenarios and illustrate the influence of dynamic polarity on consumer behavior. (Wünderlich et al., 2015) studied intelligent services through intelligent systems based on real-time data and continuous communication. The value generated by intelligent services depends on autonomous decision making and object-oriented attachment. (Giatsoglou et al., 2017) also emphasizes

sentiment analysis and opinion mining for deeper consumer insights. Textual snippets in different languages were used as vectors for polarity determination to represent high and weak inflection language groups.

Density visualization shows the density/emphasis on the research group. Density can be used to see parts of research that are still rarely done. Figure 4 presents the semantic knowledge and machine learning for deeper consumer insights that will offer future researchers a new strategic imperative (Cambria, 2016). Psychologically driven and brain-inspired reasoning algorithms will further increase the predictability of consumer behavior. Psychological theories addressing consumers' cognitive and affective needs combined with technical tools will help design intelligent sentiment mining systems. Hybrid machine learning techniques will help in better classification of sentiments in the future (Moradi et al., 2019; Tripathy et al., 2016). Optimization models based on existing marketing theories will encourage the application of AI in marketing (Gao & Liu, 2022; Guo et al., 2018; Mogaji & Nguyen, 2021).

The overt and covert use of emotional expression on social media adds to the complexity and accuracy of predicted behavior. Linguistic patterns for deep learning can help detect sarcasm and can increase the predictability of sentiment. The development of micro text resolution and anaphora to complete dynamic sentiment analysis will further enhance the capabilities of future researchers (Poria et al., 2015; Sonawane & Kolhe, 2022). Co-creation of knowledge-based systems increases market acceptance, and future researchers should try to create collaborative market intelligence (Bhattacharyya, 2021; Toledo & Leon, 2019; Wünderlich et al., 2015). Future researchers should work on high-inflection languages and consider emotional lexicon for sentiment analysis of big data such as Twitter datasets (Giuggioli & Pellegrini, 2022).

It's no longer a debate that companies that deliver great customer experiences will be winners in the Fourth Industrial Revolution — where intelligence comes first. The Fourth Industrial Revolution has conceptualized companies to have integrated data about customers and products across all channels and products by using that data to better understand the end customer experience and its visibility across all functional areas. In this context, AI and ML have played an important role in big data analytics to anticipate and deliver guided experiences to meet customer expectations. Through this systematic literature review, the authors provide a holistic view of using AI to improve customer experience. Leveraging AI and predictive analytics is key to offering a customer experience that builds advocacy and customers for life. Event-driven architecture combined with AI and predictive analytics is the future. There is no end state, but it is a journey that all companies must begin as we enter the Fourth Industrial Revolution.

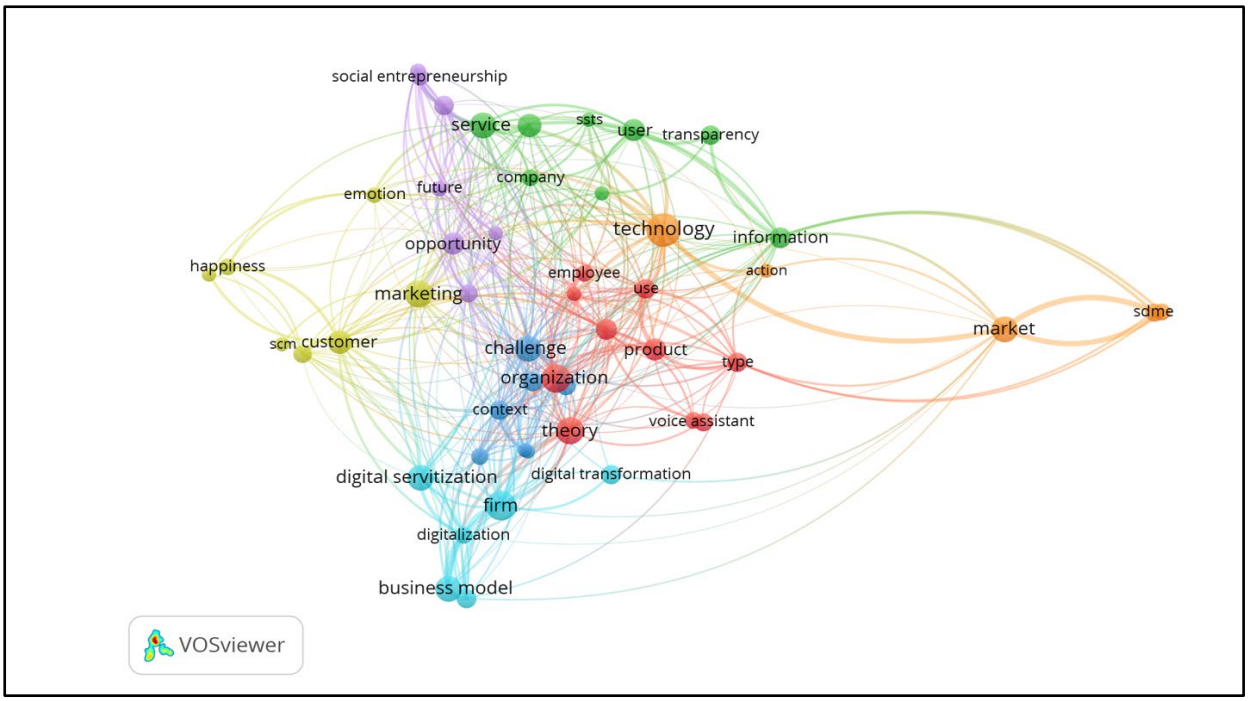

Fig.2: Network Visualization 46 Articles

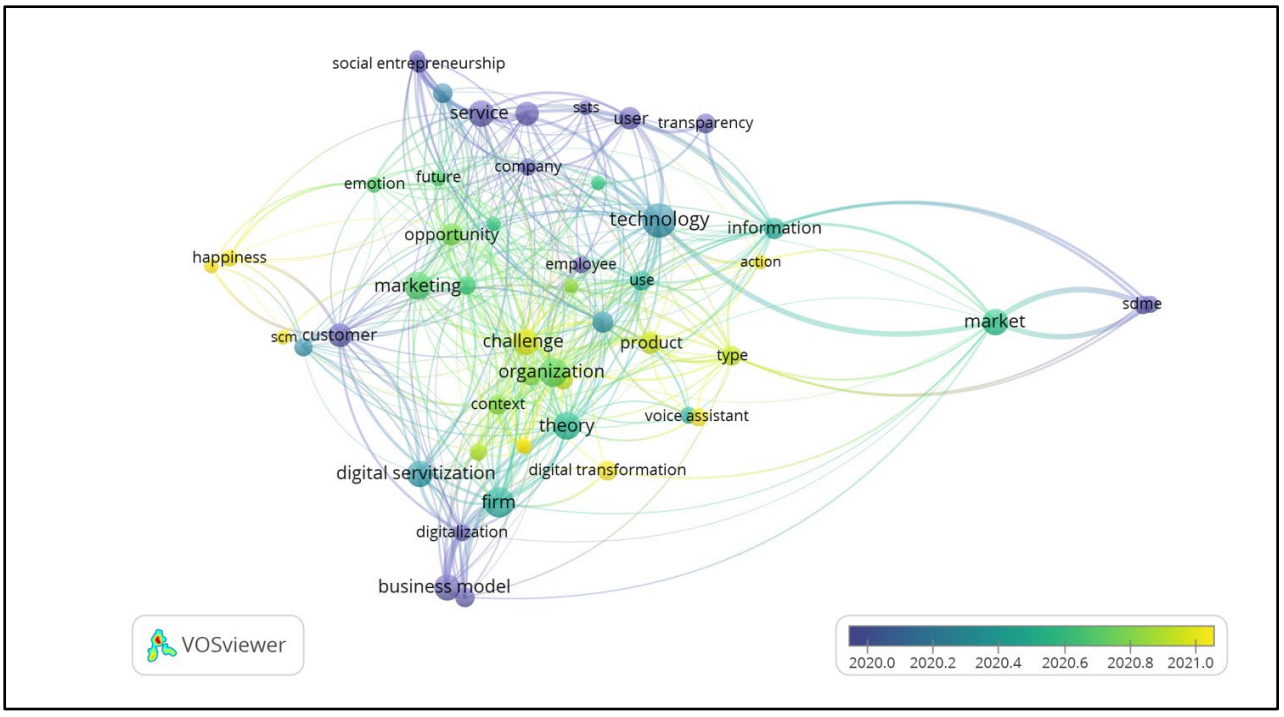

Fig.3: Overlay Visualization 46 Articles

4. Conclusion, Implications and Future Research Agenda

4.1. Conclusion and Managerial Implications

Implementing the five-step methodology for a systematic literature review suggested by Rowley and Slack (2004), this study uncovers that there are abundances of studies within the field of marketing that tried to discuss the implementation of AI-based technology in order to improve companies' marketing performance. In this case, by carrying out a Co-citation analysis to understand the intellectual structure

of the research domain, it could be concluded that research domains could be classified into different clusters with the help of centrality index calculation. In cluster one, the authors mainly focus on trust factors that directly impact organizational performance and emphasize a relationship-based marketing model. In cluster two, the researcher discusses the relationship between market orientation & business performance. In cluster three, the author uses a structural equation model based on a theoretical methodology to explore value co-creation with customers. In cluster four, the author discusses the benefits of data science in various fields such as finance, marketing, consumer research, and management. The authors also discuss the role of typological theory in causal relationships. Cluster five focuses on emerging technologies and techniques such as consumer sentiment for consumer insights and organizational dynamic analysis. The study proposes a framework for capturing user-generated data.

Meanwhile, this research also attempted to achieve several research objectives presented within the introduction section of this article. First, in terms of the first objective (what are the AI applications available in Marketing?), based on the results obtained in this atudy, it can be understood that AI-based technology could actually be implemented or utilized by various companies in order to boost their marketing performance. For example, various service companies (such as hotels, airlines, etc) could implement various AI-based system in order to enhance the effectiveness of the services offered to the customers. For instance, within the hotel industry, hotels had implemented various self-service technology which designed to improve the speed and the quality of the service given to all guests, while similarly, many airports and airlines had also adopted an AI-based self-check in system which enable all passengers to check in, drop their baggage, or process their boarding pass all by themselves without needed to interact with the check-in agents stationed at the airports. Furthermore, the implementation of various SEO, AI-based predictive analytics system could also help companies to further understand their customers' demands and preferences, thus enabling these forms to personalize their service or product toward each consumer. In the end, all of these systems could help companies to maintain their operational efficiency, while improving their marketing effectiveness at the same time, which in turns could enable companies to achieve their marketing objectives.

Next, in regard to the second research objective proposed in this study (how can marketing utilize the AI technology to maximize customer satisfaction, market share and profitability?), as what had been explained before, AI-based system or technology could help improve companies' marketing effectiveness and efficiency, which in turns enable companies to satisfy all of the marketing objectives that they desire. In this case, while companies might have to spend more money in order to adopt and implement all of these new AI-based technology, these systems, once being operated and programmed properly, could enhance customers' experience with the companies, along with increasing the speed of the service offered to these customers. Moreover, aside from service companies, implementing AI-based system can also assist non-service companies to understand what kind of goods that customers expect from these companies, thus enabling companies to formulate and produce goods which designed to fulfil customers' expectations and preferences. Furthermore, these systems also enable companies to better understand the general profile of their customers, thus helping companies in crafting some strategies designed to offer individualized or personalized goods or services to each customer. All of these actions could eventually enhance customers' satisfactory level toward the companies, which, in turns, could enhance companies' revenues, market share, profitability, and longevity in the market or industry.

Furthermore, in regard to the third objective (What are the trending topics and future research directions for AI adoption in Marketing?), authors find that there are still several topics which could be explored and considered by academicians or researchers in order to better understand the adoption or implementation of Artificial Intelligence within the field of marketing in general, such as the topic of AI and Marketing within the Non-Service Sector, AI, Marketing and Data Mining, AI and Marketing within the Service Sector, AI and Social Media Marketing Strategy, AI and Marketing Theories, and AI, Word-of-Mouth and Customer Advocacy among others.

4.2. Theoretical Implications

This study attempted to thoroughly understand the adoption of AI within the field of marketing in general from various research which had been conducted for the past 10 years. In this case, while there have been abundances of authors who tried to conduct a systematic literature review toward the context of AI, however, most of these studies tend to put more focus on some papers or articles discussing the implementation of AI within various fields (such as business, healthcare, music, entrepreneurship, etc) other than marketing in general. Therefore, this study proved that the adoption of AI within the realm of marketing is an interesting topic which each and every marketing researcher could explore. For example, marketing scholars could try to explore how effective it will be for business owners to implement AI–based systems in order to track customers' preferences and match these data with the products that the company was offering, in which, data generated from this system could assist these owners to identify whether or not their current products matched their customers' preferences, and what kind of modifications needed to be done on the product (if it turns out that the specifications of the products turned out to be different or deviated from what the customers' preferences. Other than that, another example of AI-based research that scholars could conduct within the field of marketing would be about the effectiveness of implementing AI-based technology within the service sector in the developing countries, considering that compared to developed countries, the tendency of developing countries to accept, develop or adopt new technologies tend to be slower compare to developed countires, which in turns could reduce the effectiveness of this system in improving customer experience and service quality within the service sector in the region.

Moreover, studies concerning how AI-based technology could be applied to improve academic institutions' capability of assessing and understanding both of their prospective and current students' behaviors, which in turns could enable these institutions to craft suitable and appropriate marketing strategies aim to boost the number of students enrolled in these institutions could also serve as another example of topic that scholars or researchers could explore concerning the implementation of AI within the realm of marketing within the field of education or academic. Meanwhile, research about the utilization of AI-based marketing systems to assist companies in better understanding consumers' behaviour and willingness to purchase green products also serve as another example that marketing scholars could explore in order to understand the role of AI in helping companies to improve their marketing strategies toward eco-friendly (green) products.

Additionally, considering the rapid development of both technology and internet which had been ongoing for the past decades, companies around the globe were currently tasked with designing new marketing initiatives and plans which designed to improve customers' experiences, while improving the efficiency of the companies' marketing activities at the same time. In regard to this phenomena, AI-based technology could serve as an ultimate solution designed to help companies achieve their marketing objectives, while providing both the highest goods and service quality to their customers. Therefore, further understand how effective all of these systems in enhancing companies' marketing performance should be an important topic that every marketing scholar need to explore in order to deepen and increase the number of marketing literatures concerning the adoption of AI-based system within the field of marketing.

4.3. Limitations and Suggestions for Future Research

Despite the rigorous nature of this research, there are still some limitations. First and foremost, this study was specifically conducted within the realm of AI (artificial intelligence) in Marketing. It is suggested that future studies should aim to replicate these findings in other fields to assess the implementation of AI. Second, this study aimed to gain a comprehensive understanding of the adoption of AI in marketing by analyzing various research conducted over the past 10 years. To enhance the depth of knowledge on this topic, it is recommended that future authors integrate additional studies spanning a timeframe of more than 10 years.

In order to draw attention to emerging trends and issues in eWOM research, the most cited papers published during 2014-2019 were carefully analyzed. According to, future researchers should use the application of semantic knowledge and machine learning for deeper consumer insights. The next generation sentiment mining system should employ a psychologically motivated and brain-inspired method of reasoning (Cambria, 2016). Apart from sentiment analysis, hybrid machine learning techniques should be used to classify sentiments (Tripathy et al., 2016). Future optimization models should use established theories in industrial design, marketing, and advertising (Zhang et al., 2018) and deep learning linguistic patterns to detect sarcasm because irony can reverse the polarity of sentences (Poria et al., 2015). According to Giatsoglou et al. (2017), future researchers should work on high-inflection languages and consider the emotional lexicon for sentiment analysis of big data such as Twitter datasets. Moreover, several additional agenda for future studies within the context of AI and marketing proposed by the authors in this study were presented on table 5.

Table 5. Future Research Agenda

Topic	Potential Research Question
AI and Marketing within the Non-Service Sector	- How AI could be further incorporated by goods-related corporations to improve the quality of goods marketed to the customers?
	- Could AI boost both the brand image and brand equity of products marketed by the company?
	- Could AI assist non-service companies to bolster their relationships with their customers through the product sold in the market?
	- Could Robot be used to improve non-service companies' marketing capabilities to better promote or market their products?
AI, Marketing and Data Mining	- Could the implementation of AI-related technology help companies in better understand the characteristics of their target customers?
	- Does the implementation of AI-related system assist companies in better segmenting their market?
	- Could AI assist companies in obtaining as many data as possible regarding their target markets in an accurate way?
AI and Marketing within the Service Sector	- How AI could assist airlines in improving their service quality toward their respective passengers during the post COVID-19 era?
	- To what extend that AI could play such an important role in improving the level and the quality of service given by service companies toward their customers in a better way than human employees could perform?
	- Could AI be implemented by universities (or educational institutions) to improve the service that were offered or perform toward the students?
	- Could robots truly replace the important role of human within the service industry?
AI and Social Media Marketing Strategy	- Could AI-based data mining technology be implemented to assist companies in order to better understand customers' responses and attitude toward the company's social media marketing activity in promoting their products?
	- How AI could be used to better track customers' demand, taste and preferences toward certain product category based on their social media activities?
	- Could companies utilize and optimize AI-based technology to better promote their products on various social media platforms?
AI and Marketing Theories	- Other than attribution theory, could the other marketing-related theories (such as TRA, TPB, VBN or C-A-B theories) be used to better predict both firms and customers intention or willingness to adopt and use AI-based technology (such as robots) within both the context of non-service and service companies?

Topic	Potential Research Question
	- Does culture influence customers' acceptance (or adoption) of AI-based system within the service sector?
	- Does culture influence customers' acceptance (or adoption) of AI-based system within the non-service sector?
AI, Word-of-Mouth and Customer Advocacy	- Could AI-based technologies be implemented or used to bolster positive word-of-mouth toward the others by the companies' existing customers?
	- Does AI could really drive or motivate current customers to influence their peers toward buying or using the products or services marketed or offered by the companies?
	- Which kind of strategies that companies should undertake in order to enhance customers' level of advocacy, loyalty and e-WOM intention toward the others?

In regard to several research questions about the first topic presented on table 5 (regarding AI and Marketing within the Non-Service Sector), Integrating AI into businesses that sell goods can effectively enhance the quality of products offered to customers. AI empowers companies to analyze customer feedback and reviews, detect patterns and trends, and utilize this valuable information to refine their product offerings. For instance, AI enables companies to identify the most significant features desired by customers and pinpoint areas for improvement. This ability facilitates prioritizing product development efforts and making informed decisions about future features to incorporate. Moreover, AI has the potential to amplify both brand image and brand equity for marketed products. By utilizing AI-powered image recognition software, companies can efficiently sift through extensive collections of images to identify top-performing ones. Furthermore, the software can classify images based on specific trends, enabling companies to create more targeted advertisements that align with the images viewed by website visitors. Additionally, the problem-solving capabilities, accuracy, and customization offered by AI services positively impact brand image. These three aspects, along with brand image, strongly influence the three components of customer equity—value equity, brand equity, and relationship equity. Furthermore, AI can assist non-service companies in cultivating stronger customer relationships through their marketed products. AI-powered chatbots, for example, can enhance customer service by promptly and accurately addressing frequently asked questions. This improvement contributes to higher customer satisfaction and loyalty. Additionally, AI enables companies to analyze customer data and identify patterns and trends that inform enhancements in customer experience. Moreover, non-service companies can enhance their marketing capabilities by incorporating robots. Retail stores, for instance, can utilize robots to deliver personalized recommendations based on individual customer preferences. Moreover, robots can play a vital role in marketing campaigns, creating captivating and resonating content for customers.

Next, in regard to several research questions about the second topic (regarding AI, Marketing and Data Mining), AI offers the capability to analyze customer data, enabling the creation of targeted segments and the automatic adjustment of campaigns to personalize the messaging for each segment. This results in the delivery of more accurate, relevant, and dynamic segments, as well as more engaging and personalized marketing content and offers. The implementation of AI in segmentation and targeting processes reduces both time and costs while enhancing marketing performance and return on investment (ROI). Next, customer segmentation involves categorizing customers based on various characteristics, such as age, in order to gain a better understanding of the customer base. By recognizing the distinctions among customer groups, organizations can make informed decisions about product development and marketing strategies. AI can analyze customer data to generate precise and targeted segments, subsequently adapting campaigns to personalize the content for each segment. Moreover, AI enhances the accuracy, relevance, and dynamism of these segments, resulting in the delivery of more personalized and captivating marketing content and offers. Furthermore, AI aids companies in acquiring accurate and comprehensive data about their target markets by leveraging customer data to create targeted

segments. This approach allows for the creation of more precise, relevant, and dynamic segments while facilitating the delivery of personalized and engaging marketing content and offers.

Furthermore, in regard to several research questions about the third topic (regarding AI and Marketing within the Service Sector), AI has the potential to enhance service quality in the airline industry, particularly in the post-COVID-19 era, by delivering a personalized experience for each passenger. Through AI, airlines can predict passengers' preferences and needs by analyzing their travel history, enabling the provision of tailored recommendations. Additionally, AI can assist in optimizing operations by accurately forecasting flight delays and cancellations. In service-oriented companies, AI can surpass the capabilities of human employees in elevating the level and quality of service provided to customers. By analyzing customer data, AI enables companies to offer personalized customer experiences and provide tailored recommendations. Furthermore, AI can automate repetitive tasks like addressing frequently asked questions, allowing human employees to focus on more intricate responsibilities. Next, Universities and educational institutions can leverage AI to enhance the services they offer to students. AI can personalize learning experiences based on students' learning styles and preferences, ensuring a more tailored approach. Additionally, AI can automate administrative tasks such as grading and scheduling, freeing up faculty members to concentrate on teaching and research. Meanwhile, while robots have limitations in replacing the crucial role of humans in the service industry, they can collaborate effectively with human employees to enhance customer service. Although robots excel at automating repetitive tasks like cleaning and restocking shelves, they cannot replicate human empathy and emotional intelligence. Therefore, integrating robots into service environments alongside human workers can lead to improved efficiency and effectiveness in customer service.

Next, in regard to several research questions about the fourth topic (regarding AI and Social Media Marketing Strategy), The implementation of AI-powered data mining technology can greatly benefit companies in gaining insights into customers' responses and attitudes towards their social media marketing efforts in promoting products. By analyzing customer feedback across social media platforms like Facebook, Twitter, and Instagram, valuable data can be collected. This data can be leveraged to identify patterns and trends, empowering companies to enhance their marketing strategies and effectively target their audience. Additionally, AI can play a crucial role in tracking and understanding customers' preferences, tastes, and demands within specific product categories by analyzing their social media activities. Through AI algorithms, customer behaviors on social media platforms can be analyzed, revealing patterns and trends that provide valuable insights into customers' desires. This knowledge can be utilized to develop highly targeted marketing campaigns, customized to meet the individual needs of each customer. Moreover, companies have the opportunity to harness and optimize AI-based technologies to enhance their product promotion across diverse social media platforms. By employing AI algorithms to analyze customer behavior on these platforms, companies can identify patterns and trends that facilitate the development of more effective marketing campaigns. This includes determining the optimal posting times and identifying the most engaging content types for each platform, resulting in maximized promotional impact.

Then, in regard to several research questions about the fifth topic (regarding AI and Marketing Theories) and the sixth topic (regarding AI, Word-of-Mouth and Customer Advocacy), AI-based technologies possess the capacity to significantly impact the strategies employed by companies in their word-of-mouth (WOM) marketing efforts. Through the utilization of AI, companies can analyze customer data, including feedback, reviews, and interactions on social media platforms, in order to gain valuable insights into customer sentiments. This wealth of information allows for the identification of patterns and trends pertaining to customer opinions and preferences. By comprehending the factors that drive customers to speak favorably about a company or its products, AI can aid in the creation of precise campaigns and personalized recommendations, which in turn encourage customers to share positive WOM. Moreover, AI algorithms can successfully pinpoint influential customers who are more inclined to engage in positive WOM, thereby enabling companies to concentrate their efforts on cultivating and

nurturing these pivotal advocates. Furthermore, AI has the capacity to stimulate customer advocacy and impact the purchasing decisions of their peers. Through the analysis of customer behavior, preferences, and social connections using AI algorithms, companies can identify influential customers or brand ambassadors who possess the ability to sway the opinions of others. AI aids in comprehending the motivating factors behind customers' recommendations of products or services and in determining the most effective channels of communication for reaching their peers. By offering personalized recommendations, customized incentives, and focused referral programs, AI can amplify customers' motivation to actively endorse and influence their peers towards the purchase or utilization of the products and services provided by the companies.

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