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AI-driven Marketing: Transforming Sales Processes for Success in the Digital Age

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Abstract

In the era of digital transformation driven by disruptive technologies, organizations are striving to overcome challenges and enhance customer value through innovative solutions across all business domains. Artificial intelligence (AI) stands out as a pivotal technology expected to significantly influence marketing strategies in the foreseeable future. This paper examines the anticipated role of AI solutions in marketing decision-making across the five stages of the marketing process. Through a systematic review of research articles published from 2020 to 2022, this study identifies and categorizes AI applications in marketing. The applications are then aligned with the five stages of the marketing process: analysis, strategy development, tactical implementation, customer relations management, and value proposition creation. The analysis reveals that current AI applications predominantly focus on understanding and predicting customer behavior in the initial analysis stage and on executing tactical marketing initiatives. The paper concludes with actionable insights for marketing practitioners and suggestions for future research directions.

Keywords: AI marketing, machine learning, decision-making, marketing process

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Introduction

Over the past two decades, technology has emerged as a fundamental driver of organizational processes, ushering in the era of digital transformation. This transformation entails the integration of computer software and technological applications into all facets of business operations, marking a shift from analog to digital methodologies.

As technology continues to advance, the automation of various organizational functions through smart machines, artificial intelligence (AI) bots, and mobile applications is poised to become increasingly prevalent. Digital transformation is primarily motivated by objectives such as enhanced profitability, operational efficiency, competitive advantage, employee productivity, and overall customer satisfaction, as highlighted.

In this context, AI emerges as a cornerstone technology with transformative potential across diverse industries. Alongside other disruptive technologies like the Internet of Things (IoT), robotics, and Blockchain, AI is positioned to address challenges and deliver enhanced value to customers. Notably, AI has been identified among the essential technologies shaping the future, underscoring its significance in driving innovation and addressing contemporary business needs.

The convergence of disruptive technologies has given rise to what is often termed as the fourth industrial revolution. This revolution is characterized by a symbiotic relationship between various elements, promising solutions to economic challenges, workforce restructuring, and improvements in production and service quality through innovative technologies or "next tech". Consequently, the future of work is expected to undergo significant transformations, necessitating radical changes in management practices, business strategies, and corporate culture.

Historically, technological advancements such as mechanization during the first industrial revolution and the proliferation of information and communication technologies in the late 20th century have revolutionized business processes, leading to improvements in speed, efficiency, and accuracy. AI and other emerging technologies are poised to continue this trajectory, driving development across industries and everyday life.

AI, characterized by its ability to simulate human decision-making and cognitive processes, holds immense promise across various domains. Defined by John McCarthy as machines capable of performing tasks characteristic of human intelligence, AI encompasses a range of technologies such as machine learning, natural language processing, and computational intelligence [1]. The application of AI has expanded significantly in recent years, positioning it as a key driver of the fourth industrial revolution and automation.

Machine learning, often used interchangeably with AI, refers to the ability of machines to learn from data without explicit programming. By analyzing datasets and identifying patterns, machines can derive insights and adapt algorithms to improve performance over time [3]. This self-learning capability distinguishes machine learning from traditional software coding, enabling algorithms to evolve based on data analysis results.

Within the realm of AI, two main categories exist: general (strong) AI and applied (weak) AI. While strong AI aims to replicate human cognitive functions and handle diverse tasks, weak AI is tailored to automate specific tasks within various industries. Examples of weak AI include voice assistants, process automation tools, face recognition programs, and credit scoring tools [11].

The pervasive influence of AI extends across all aspects of business and everyday life, with applications ranging from virtual assistants on smartphones to data analysis tools. AI offers opportunities to analyze large datasets, regardless of format or source, and derive actionable insights to support organizational decision-making.

In human decision-making processes, AI can be integrated in various ways, ranging from complete delegation to AI, to human-to-AI decision-making interactions. These diverse applications of AI are expected to reshape business practices, public sector operations, and workforce dynamics globally, driving automation, improving service quality, and fostering cost reduction to enhance competitiveness [8].

AI in Marketing Decision-Making

Artificial Intelligence (AI) holds immense promise for revolutionizing marketing practices, with expectations running high for its future applications. Marketers anticipate AI to profoundly impact customer segmentation, personalize experiences based on individual data, enhance understanding of consumer behavior, and make predictive analyses based on historical data. Moreover, AI is poised to map individual customer journeys, optimize experiences, conduct micro-segmentation, and develop predictive models for future behaviors, thus reshaping marketing practices through automation and predictive modeling.

Marketing data is typically unstructured, sourced from diverse platforms and formats such as social media, behavioral data, app usage, geolocation services, transaction history, and browsing activity. AI leverages this data to cluster customers into groups based on online behavior, preferences, and transactions, enabling data-driven marketing strategies driven by predictive algorithms.

The insights derived from this vast pool of unstructured data facilitate personalized product recommendations, targeted advertisements, and customized offerings, primarily in digital marketing spheres. Integrating AI with advanced technologies like virtual and augmented reality promises even more realistic and visually engaging customer interactions in the future. Additionally, biometric facial recognition technologies enable real-world personalization by identifying individual customers and tailoring offerings based on AI-driven predictive algorithms. Many of these technologies are already in practice, alongside robust marketing analytics tools.

However, as highlighted by the defining characteristic that sets AI apart in marketing is its ability to analyze vast amounts of data swiftly and accurately, enabling marketers to derive actionable insights and make informed decisions with unprecedented efficiency.

Analytics tools encompass the entire analytics process, extending beyond data collection and aggregation to include complex predictive and prescriptive analytical tools, as well as campaign management.

According to the primary application of artificial intelligence in marketing revolves around making decisions concerning various personalized engagement marketing strategies, significantly impacting individuals' daily behaviors. Personalization involves passive tailoring of ads within the marketing mix to attract customers, while customization is active and occurs when customers actively seek products or services. Both processes rely on collected customer data, whether first-party (company data) or third-party data. However, the success of personalization and customization hinges on factors like data quality, volume, analytical capabilities, and the implementation of insights.

Predictive behavioral patterns and personalized offerings are generated based on various parameters, including previous purchase history, online behavior, social media activity, and demographic data. AI solutions are also employed in social listening, analyzing social media conversations and images to understand customer preferences better. Consequently, AI can enhance the company's value proposition by targeting customers with preferred goods and services, leading to higher satisfaction, retention, and more efficient navigation through the sales funnel.

While AI-driven solutions are increasingly visible in tactical marketing practices, their application in strategic marketing decision-making is still nascent. suggests that in the future, AI agents will play a more extensive role in strategic decision-making, impacting areas such as business model selection, market entry strategy, communication channel choice, and pricing decisions. This shift toward more prescriptive AI models is expected to enhance decision-making across all segments of the marketing process, resulting in improved experiential-based learning and overall process quality.

The marketing process, as outlined by comprises five steps, each involving strategic or tactical decision-making: understanding the marketplace and customer needs, designing a customer-driven marketing strategy, constructing an integrated marketing program (marketing mix), building profitable relationships with customers, and capturing value to create profitable relationships and customer equity. Decision-making occurs at each stage and is interrelated, with marketing research and analysis providing a foundation for strategy development.

Traditionally, marketing managers relied on expertise, intuition, and experience for decision-making. However, with the advent of abundant marketing data and the shift toward data-driven decision-making, there's an expectation to base decisions on reliable data. The study aims to explore current AI-enabled marketing solutions and their application in supporting decision-making across various marketing process stages.

Method

A systematic literature review was conducted on the most recent journal articles available in academic databases spanning from 2020 to 2022. To ensure relevance and consistency, the following criteria were established for the inclusion and exclusion of reviewed studies:

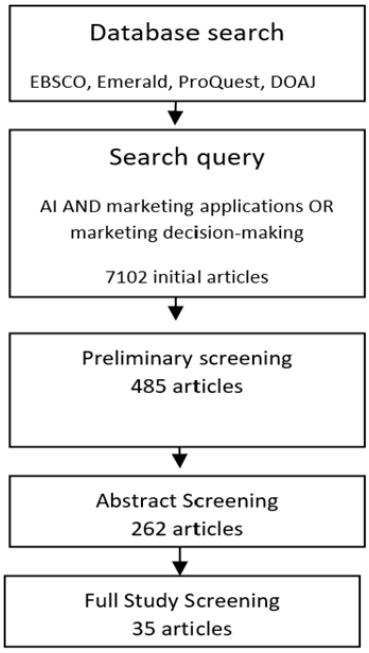
Criterion 1: Articles focusing on the practical applications of AI solutions in marketing.

Criterion 2: Articles published within the timeframe of 2020-2022.

Criterion 3: Articles published in the English language.

Criterion 4: Articles that are not directly related to or loosely related to the practical application of AI solutions in marketing were excluded.

Subsequently, specific search strings and keywords were determined, and an extensive review of studies from the designated academic databases was conducted. The outlined process is depicted in Figure 1.



The research comprised five distinct steps, delineated in Graph 1. Initially, four scholarly databases were pinpointed: EBSCO, ProQuest, Emerald, and DOAJ. Subsequently, search strings and keywords were devised, leading to the commencement of the initial search. This initial inquiry generated a total of 7102 results. Following this, a preliminary screening phase was executed to eliminate irrelevant articles and duplicates identified across multiple databases. Subsequent steps involved evaluating the abstracts of articles to ascertain their relevance to the study's objectives. Finally, a thorough review of the full-text studies was conducted. The resultant sample consisted of the 35 most pertinent studies, as elucidated in the results section.

Results

Following a systematic review of scholarly journals across four academic databases, various applications of AI throughout distinct stages of the marketing process have been discerned. These applications are aligned with the five sequential stages of the marketing process:

1. Analysis: Comprehending the marketplace and discerning customer needs and desires.

2. Strategy: Formulating comprehensive marketing strategies.

3. Tactics: Crafting the constituent components of an integrated marketing mix.

4. Customer Relations: Establishing a CRM system conducive to customer retention and fostering loyalty.

5. Value Proposition: Cultivating customer equity.

The findings are summarized in Table 1 below.

Stage	Area of application	Articles
Analysis	Text analytics for sentiment analysis Machine learning to discover insights from large datasets and improve efficiencies of theexisting processes Predictive analytics Automated image analysis Choice modelling Determining consumer preferences based onthe conjoint analysis model	Ayyub, et al. (2021); Brei, V.A.(2020); Grandinetti, R. (2020); Lee et al. (2020); Micu et al. (2022); Neeli, A. K. (2020). Urban, G., Timoshenko, A., Dhillon, P., & Hauser, J. R. (2020); Verma, S., Sharma, R., Deb, S., & Maitra, D.(2021) Villarroel Ordenes, F., & Silipo, R. (2021); Yanamandram, V., Akter, S., Hossain, M., & Gunasekaran, A. (2022);
Strategy	Creative analytics Decision support systems and expert systems Predicting outcomes in emerging marketing environments Forecasting Pricing decisions	Brei, V.A. (2020);Grandinetti, R. (2020). Stone, M., Aravopoulou, E., Ekinci, Y., Evans, G., Hobbs, M., Labib, A., . . . Machtynger, L. (2020).; Mogaji, E. and Nguyen, N.P. (2021); Wisetsri,et al (2022)
Tactics	Campaign automation Creative optimization, product development Advanced targeting and attribution Programmatic sampling Retargeting Programmatic media buying Marketing analytics Sales promotion Purchase prediction Recommendation systems Dynamic pricing Personalization – advertising and search Customer acquisition User engagement in social media Add targeting Email targeting	Al Ghamdi, l (2021); Brei (2020); Cabrera-Sánchez et al. (2020); Cortinas et al. (2021); Enache, M. C. (2020); Huynh, T., Nguyen, H. D., Zelinka, I., Nguyen, K. V., Pham, V. T., & Hoang, S. N. (2021); Kim et al. (2021); Koehn et al.(2020). Ming-C., & Kai-Hsiang, C. (2021); Micu et al.(2022); Neeli, A. K. (2020); Nair, K., & Gupta, R. (2021); Nestic, S., Aleksic, A., Gil, L., & Ljepava, N. (2022); Rafieian and Yoganarasimhan (2020); Serravalle, F. and Pantano, E. (2021), Sehtya A (2021); Verma, S., Sharma, R., Deb, S., & Maitra, D. (2021). Villarroel Ordenes, F., & Silipo, R. (2021). Yin, J., & Qiu, X. (2021)
Customer relations	CRM Churn management Automated implementation of CRM Chatbots	Brei, V.A. (2020); Khoa, BT (2021); Ho, R. C. (2021). Ming-C., & Kai-Hsiang, C. (2021);Hollebeek, L.D., Sprott, D. E., & Brady, M. K. (2021); Neeli, A. K. (2020).Rana et al. (2021). Yau, A.K., Saad, N,M,,Chong, Y, M (2021); Sidaoui, K., Jaakkola, M., & Burton, J. (2020)
Value proposition	Reinforcing customer journey Evaluating brand image	Nufer, G., & Muth, M. (2022); Rana et al (2021)

Through an extensive literature review, it was observed that the majority of AI-enabled solutions are concentrated in two primary stages of the marketing process: the initial stage encompassing marketing research and consumer needs comprehension, and the subsequent stage involving the formulation of marketing tactics and the creation of a cohesive, integrated marketing mix. Conversely, the fewest AI applications were found in the

In the final stage of the marketing process, which involves capturing volume and creating customer equity, AI applications are notably scarce. Only a handful of instances of AI-based solutions utilized in crafting marketing strategies were uncovered.

Here's a comprehensive overview of major AI applications and solutions for each step of the marketing process:

Stage 1: Analysis

AI-based solutions in this phase primarily focus on text analytics, sentiment analysis, and predictive and big data analysis tools. Additionally, the emerging field of big data precision marketing, which integrates marketing concepts with machine learning, is gaining traction. AI solutions here also encompass automated image analysis, choice modeling, and determining consumer preferences based on conjoint analysis models.

Stage 2: Strategy

Relatively fewer studies discuss artificial intelligence systems for making strategic managerial decisions in marketing. However, AI is seen as a valuable decision support system for creating marketing strategies and aiding in strategic marketing decision-making. It can also assist in pricing decisions, predicting outcomes in emerging marketing environments, and serving as decision support and expert systems.

Stage 3: Tactics

AI technologies find their widest application in creating marketing mix and integrated marketing campaigns. Particularly in digital marketing, numerous AI-based solutions are already in use, ranging from campaign automation and personalization to advanced targeting, retargeting, and recommendation systems. Marketing analytics tools are also utilized for campaign optimization, retargeting, and creating personalized pricing and content. AI solutions could also support creativity and new product development by providing data-driven recommendations and options.

Stage 4: CRM

In this stage, AI solutions are primarily related to chatbots and other automated solutions for customer relationship management. Chatbots, in particular, are becoming increasingly popular across various customer service areas. Some

studies suggest that AI in customer relationship management can also be leveraged for developing customer churn predictive models.

Stage 5: Value proposition

AI-enabled solutions are relatively underrepresented in this stage. However, AI could be utilized to quantify brand evaluation based on various brand attributes. Additionally, AI can reinforce the customer journey lifecycle from brand awareness to building loyalty and brand equity through tools like Chatbots, Recommenders, Virtual Assistance, and Interactive Voice Recognition (IVR).

Overall, while AI is prevalent in several stages of the marketing process, there is room for further exploration and utilization, especially in strategic decision-making and value proposition creation.

Conclusion

The current study conducted a systematic review of recent scholarly articles focusing on the application of AI-enabled solutions across various stages of the marketing process. The findings reveal that AI and machine learning technologies are predominantly leveraged to facilitate decisions concerning marketing mix creation, including promotional activities, pricing strategies, and product development. Conversely, their presence is notably limited in stages associated with generating customer equity.

Nonetheless, there exists a discernible trend towards the increased integration of AI systems across all facets of marketing. As technology continues to advance, this trend is anticipated to persist. The augmentation of managerial decision-making through AI-driven decision support expert systems is projected to expand in the foreseeable future, aiming to enhance human decision-making in business contexts. While traditional managerial decision-making heavily relied on intuition and individual expertise, contemporary marketing decision-making emphasizes a combination of data-driven analysis and intuitive reasoning. Although current AI solutions are unable to function as standalone decision-making systems, ongoing technological advancements will likely drive further automation, optimization, and augmentation of expert systems in marketing decision-making processes.

The evolution of marketing expert systems capable of supporting decision-making across all stages of the marketing process holds significant potential for enhancing managerial effectiveness by furnishing relevant, credible, and timely data, predictions, and data-driven recommendations. This evolution also underscores the need for a new breed of marketers proficient in interpreting and harnessing data gleaned from diverse platforms to derive actionable insights.

Consequently, future educational initiatives should adopt an interdisciplinary approach to groom future decision-makers adept at leveraging available tools effectively.

The limitations of the present study primarily stem from its design and specified search terms. Thus, expanding the search parameters may uncover additional insights. Moreover, given the burgeoning volume of publications in this domain, it is reasonable to anticipate that forthcoming studies will offer further elucidation on aspects of the marketing process not yet adequately addressed.

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