

The Impact of AI on Online Ads: A Review

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Abstract: *This article examines the interesting and current link between AI and digital marketing. AI app development engagement solutions are still being explored. Digital marketing, a recognized subject of marketing science, has improved customer participation via electronic services and added value to companies. Technology has given digital marketers a new field of competition and accelerated digitalization. Marketers worldwide embrace digital technologies to improve customer service and efficiency. AI helps marketers with smarter search engines, ads, content delivery, bots, ongoing learning, fraud and data breach prevention, image and voice recognition, sales forecasting, predictive customer service, language recognition, customer segmentation, and more. Artificial intelligence may help businesses identify customer needs and boost sales.*

Keywords: Machine Learning, Data Analytics, Personalization

I. INTRODUCTION

An AI computer or robot can execute brain functions. Nearly everything uses AI and tech. It helps companies reach customers at the correct time via digital marketing. "Marketers can handle massive data and client expectations," Jain. AI boosts customer satisfaction (Jain & Aggarwal, 2020). Digital marketing driven by AI employs machine learning, sophisticated analytics, and industry-specific consumer insights. Internet penetration in India is expanding, generating business opportunities.

Modern AI uses cutting-edge algorithms to infer from massive data sets. Teaching robots to think, learn, and solve problems is AI. AI has advanced quicker since early 20th-century machine learning. This rise stemmed from processing power and machine learning. Field development meets processing capacity increases. AI may provide computers human-like learning and cognition (Lake et al. 2016). AI can enhance critical business decisions (Knight 2015). even if evidence shows organizational changes are good. AI adoption faces further challenges (Chui and Malhotra 2018). Not knowing where to start, businesses struggle to integrate AI. Company-level principal component analysis failure is another AI deployment strategy scenario. Learn technological fundamentals before applying it in a corporation. This study examines employee AI perspectives to determine business AI adoption.

Digital Marketing

Different digital marketing practices, such as utilizing an electronic device or online databases to promote, sell, or display products or services, and successful online enterprises. Websites, social media, targeted marketing, and emails are utilized to keep and attract customers. We must first compare digital marketing scientific study to the business sector to determine how important artificial intelligence (AI) is. We'll then know how much academic digital marketing lags behind business advances.

Artificial Intelligence (AI) on Digital Marketing

To understand how AI influences digital marketing, we must first study the key AI subfields. We next see whether any of those domains use digital marketing alone. AI impacts digital marketing research. Many AI research topics have been explored. Neural networks are used for time series prediction, classification, and brain modeling. Evolutionary computing includes genetic programming, algorithms, etc. Vision involves object detection, conceptual picture interpretation, and image processing. Autonomous exploration, intelligent control, etc. are "robotics". Educational, managerial, and other expert systems exist. Recognition systems incorporate voice recognition, manufacturing, etc.

Planning incorporates machine translation and game play. Decision tree learning, data mining, and others are machine learning.

Statement of the Problem

Due to rapid economic expansion, university academics have joined companies as hired workers instead of research institutions. Enhanced AI research in the business sector via AI on digital marketing may explain AI progress outside of academic institutions and in technology. Scientific data shortages are another issue. Companies collect and keep billions of bytes of data everyday, enough for independent research. AI scientists improve models with less data. AI seems hard for marketers to explain. Data analysis, smart systems, data extraction, and keyword searches employ "artificial intelligence" instead of "machine learning," "data mining," or "predictive modeling." In contrast, computer scientists.

Objectives of the study

- Identify elements affecting digital marketing with AI
- Forecast future potential of AI
- Analyze effect of AI on marketing

Factors influencing Artificial Intelligence on digital Marketing : Customized experience

Every consumer likes personalized gifts, greetings, and offers. Every firm wants to satisfy clients by giving them what they desire. It's important to acquire customer data and invest in AI for this reason. Machine learning analyzes client behavior to help firms customize goods.

Real-Time Reaction

Businesses that use artificial intelligence may better keep their customers' loyalty. Consumers like goods and services that promptly assist in resolving their problems. AI chatbots, for instance, let users respond and solve problems quickly. Certain chatbots possess additional senses, including speech or touch. Customers like this since it gives them an almost direct encounter and makes them feel as if they are speaking with a human rather than a computer. The majority of the time, these chatbots are accessible around-the-clock, which may increase client satisfaction.

Customer Behaviour Prediction

AI can anticipate present and prospective customer behavior and personalize client satisfaction. Data management systems allow artificial intelligence to gather user data from the internet. More than one person visits your website. The firm may target potential customers, generate more effective marketing efforts, and adjust its offerings to present customers. Data collection, analysis, interpretation, and assessment are continually evolving in AI. Over time, its accuracy will help organizations estimate sales and ROI and flourish.

Increasing the Return on Investment

Increasing ROI by recognising image quality is possible with artificial intelligence. This boosts corporate revenue. It also solves security difficulties and ensures fast, efficient payment processing. After identifying a user's behavioral tendencies using machine learning, a location-specific ad is developed. Business uses personal data and AI to customize products and services. It also saves the company time and money on disengaged customers.

Enhance the Search Sessions

Users have also benefited immensely from the advancement of technology, as shown by the fact that they seem smarter! Consumers are searching for a range of instruments or programs that may connect them to superior goods and services. Consequently, companies need to include AI into their plans. AI is useful for deciphering customer behavior trends. These days, an essential component of every AI technology is speech recognition.

Advertising

Businesses mostly depend on advertising to promote their goods and services, both online and off. This seems to be a significant component, especially considering that it can be utilized to eliminate most physical labor entirely. In example, customer data is really helpful when it comes to offering distinctive marketing. The artificial intelligence technology assesses all of the client data gathered and identifies their areas of interest. This gives a company's ads structure and makes it simple for them to align with the preferences of potential clients. Businesses benefit from this by having an edge over rivals in the market.

Search Engine Optimization (SEO)

SEO suggests possessing one of the best potential scientific editions. The vast majority of related scientific research in the field of search engine marketing, or SEO, focuses on evolutionary computations, fuzzy intelligent systems, machine learning techniques, and web crawlers for the reading, gathering, and analysis of website data. All of these efforts are directed toward the improvement of website page ranking positions in search engine results through the integration of ranking factors via an intelligent learning model.

Social Media Marketing

The slow growth of social media marketing research, which focuses on consumer behavior, intents, picture perception processes, social media data analysis, and machine learning models and data mining, is evident. Digital marketing, content creation, and prescriptive marketing use deal procedures, text mining, and machine learning-based techniques like extractive summarization, expert systems, customer decision support systems, text analysis, and predictive analysis to analyze data from blogs, websites, e-commerce sites, and social media.

Pay-Per-Click (PPC) and Ad Targeting

Bidding and ad targeting using optimal advertising models are common in scientific study using machine learning. It evaluates criteria to determine the impact of different parameters on clicks and conversions. Machine Learning reveals fresh data and patterns.

Chat bots

In contrast to other digital marketing strategies, chatbot research has increased the efficacy of digital marketing. There appears to be a significant ongoing research effort to develop automated robotic simulation software that interacts with humans by utilizing AI subfields like decision support systems, neural networks, autonomous exploratory procedures, etc. This effort spans health care, education, digital counseling, and insurance.

Semantic search

Comparable business sector aspects, such as search engines, information retrieval, global websites, data mining, social networking, internet, learning algorithms, machine learning, information analysis, natural language processing systems, query processing, information management, decision support systems, user interfaces, web searches, etc., are all covered in a large number of scientific publications that are related to web development. Web technology and optimized versions have been used to explain over 2000 articles. Artificial intelligence (AI) is being used to optimize web development processes, ranging from online design and development to web applications, web services, mobile-friendly websites, and data representation.

Voice search

The majority of study focuses on voice search, and there is little to no research on digital marketing. Nonetheless, significant advancements are made in other scientific domains. The most significant research in marketing focuses on speech recognition and personal voice assistant technologies, which offer flexible methods of interaction where users and systems participate on an equal footing and can enable clear and concise responses to online searches.

Applications of Artificial Intelligence in Digital Marketing

Digital marketers were first hesitant to use artificial intelligence (AI) in their work, but as AI has grown and shown results, it has become clear that AI will significantly alter the marketing landscape.

Generating Content

These days, machines may generate original material from scratch using data put into code. To save time and money, they might be useful. Using data and information, AI is able to generate news articles and reports. Many major news organizations, including BBC News, The New York Times, The Washington Post, and others, increasingly utilize automated journalism. Facebook also use AI to weed out false news.

Product Recommendation and Content Curation

In addition to producing content, this assistance also includes making product and service recommendations based on user search, interest, and behavior. Artificial intelligence is capable of accurately interpreting the behavior of the intended market and identifying better options than what you are now considering in terms of goods or services. Netflix suggests material to you according to your interests. Artificial intelligence (AI) technology is often used to provide users with tailored content suggestions that they would find interesting. Examples of this kind of recommendation include things like "if people buy X product, they might like Y product too," or "similar products just like Amazon."

Web Design

You may still have your website without the assistance of a programmer or designer by using Grid, which leverages artificial intelligence to create your website depending on the data you give, such as content, calls to action, photos, and so on. They can quickly and affordably make the website seem professional.

Predictive Analysis

Data is used by artificial intelligence to forecast likely future events. All that is involved in predictive analysis is the utilization of data, machine learning, and statistical algorithms.

Digital Advertising

Artificial intelligence is being utilized extensively in digital advertising to guarantee optimum success. It is being employed on platforms such as Facebook, Google, and Instagram to provide optimal user experience. Examining user data, including gender, age, interests, and other details, to display advertising that are appropriate for them. Marketers may anticipate trends and even identify microtrends with the use of AI technology. As a consequence, they can make strategic choices; firms may cut down on wasteful digital advertising expenditures and make sure their investment yields the most returns.

Online Search engine

Marketers must produce and modify content in accordance with the evolving nature of content searching. Google's algorithm, voice search, and other AI advancements are examples of recent improvements. Additional developments include Google Home, Apple's Siri, Microsoft's Cortana, and Amazon Echo, which can all do searches with only a button push or voice command.

Email Marketing

Using AI, brands are personalizing emails to connect with their intended audience. They may now tailor material according to the tastes and actions of their customers. Through the analysis of millions of data, machine learning, also known as autonomous learning, can now identify the optimal time of day and suggested frequency of interaction with the user. They can now tell which headlines and subjects get the most clicks, as well as which material grabs the most attention.

II. RESEARCH METHODOLOGY

This study was descriptive and empirical. Using the research instrument, empirical quantitative analysis examined the relationship between artificial intelligence, technology, social networking, profit maximization, and decision making. The study used online demographic surveys, scholarly papers, and other sources. Digital marketing clients were convenience-sampled. A pilot study used data to evaluate the instrument's validity and reliability. Cronbach's Alpha dependability Coefficient of 0.899 indicates scale dependability and consistency. Only 170 of 200 questionnaire respondents had intelligible responses. Organized Chennai digital marketing customers were questioned utilizing three-part questionnaires. The first section rates the respondent's age, gender, marital status, education, employment position, gross yearly income, and consumer experience using nominal and interval scales. Five points were given for replies. Parts 2 and 3 used the Likert scale for 10 consumer AI perception questions. As AI becomes more prevalent, this study investigates its use in digital marketing. The study initially evaluated marketing portals to identify how AI applications in digital marketing (voice, text, image recognition, decision-making, technology, and robotics) may be employed.

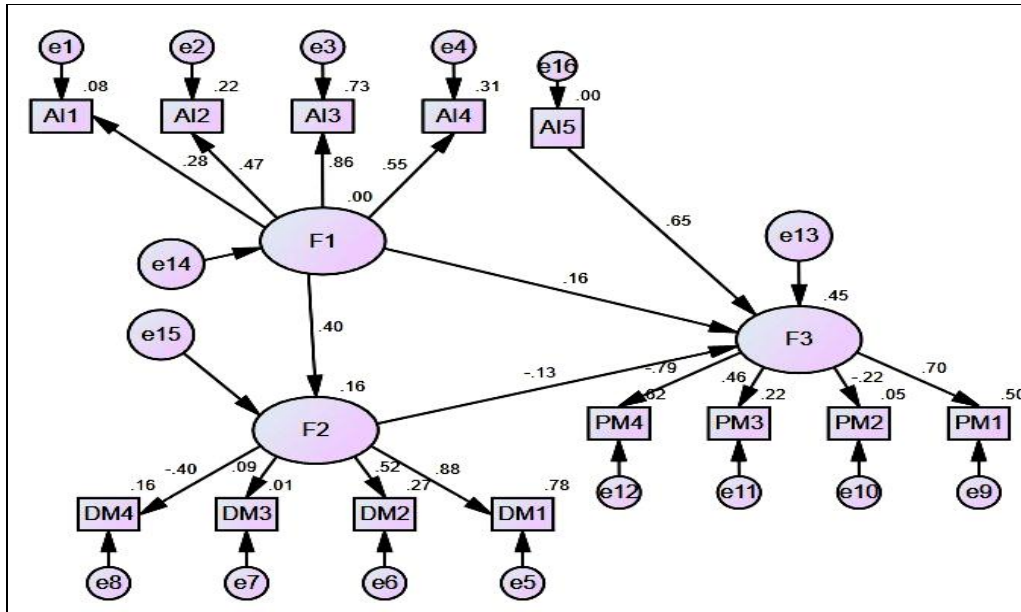
Table.1 Personal profile of the respondent

Particular	Items	Frequency (n=170)	Percentage	
Gender	Male	69	40.6	
	Female	101	59.4	
Age	30 and below	74	43.52	
	31-40	63	37.05	
	41-50	20	11.76	
	50 and above	13	7.64	
Education Qualification	Graduation in Arts	45	26.47	
	Science	25	14.7	
	Engineering	37	21.7	
	Technology	31	18.2	
	PG- Arts	25	14.7	
	PG-Science	13	7.64	
	PG- Engineering	8	4.7	
PG- Technology	6	3.5		
	Experience	Below – 5Years	75	44.11
	5 to 10 years	52	30.58	
	11 to 20 years	30	17.64	
Above 20 years	13	7.64		
Gross Income	Slakhs and below	84	49.411	
	5 to 10 lakhs	53	31.17	
	Above 10 lakhs	33	19.41	

Table 1 lists respondents' personal profiles. A majority of responses are women (59.4%). The majority of responders are 30 or younger (74%). Major responders were arts graduates (45%). The majority of respondents earn 5lakhs and 84% less.

The Structural Model

The SEM technique was used to examine the structural model so the effects among the four latent constructs were tested. The model included 15 items describing 4 latent constructs: Artificial Intelligence, Digital Marketing, Profit Maximization, and social networking. The various goodness-of-fit statistics are shown in Table.2. and present a good fit between the data and the proposed measurement model. The goodness-of-fit value of 0.90 shows that the measurement model has a good fit with the data.



Hypotheses

H1. Artificial Intelligence has a direct effect on Digital Marketing.

The data indicates that Artificial Intelligence has a direct effect on Digital Marketing (H1: $\beta = -0.12$, $p < 0.05$). Hence the hypothesis is accepted.

H2. Technology has direct effect on Digital Marketing.

The data indicates that Technology has a direct effect on Digital Marketing (H2: $\beta = -0.62$, $p < 0.05$). Hence the hypothesis is accepted.

H2b. Social networking has a direct effect on Digital Marketing.

The data indicates that social networking has direct effect on Digital Marketing. (H3: $\beta = -0.07$, $p < 0.05$). Hence the hypothesis is accepted.

III. CONCLUSION

Artificial intelligence, massive data sets, machine learning, and best practices are transforming corporate IT. Companies become more competitive, efficient, and responsive. Technology constantly opens new marketing options. As television gave mass advertising and reach, the Internet and mobile phones brought targeting and backdrop, and artificial intelligence will change how people interact with information, technology, companies, and services. AI makes marketing relevant and tailored. Search engines, Facebook, YouTube, and Google affect billions of people daily, and digital ad platforms enable mass communication. AI-powered personalization will let firms create tailored marketing instantaneously. Future world uses AI.

AI does not replace business workers. AI streamlines difficult and time-consuming activities, saving firms money and time. AI tools are fast, accurate, and reliable. Fast and uncomplicated corporate planning is possible. AI has great promise in digital marketing. It links companies and consumers. Business learns a lot about current and future consumers. This helps companies create customer-focused goods and services.

REFERENCES

- [1]. Buck JW, Perugini S, Nguyen TV (2018) Natural Language, Mixed-initiative Personal Assistant Agents.
- [2]. Casillas J, Martínez López FJ (eds) (2010) Marketing Intelligence Systems, STUDEFUZZ 258, pp. 1–8.
- [3]. Chai JY, Horvath V, Nicolov N, Stys M, Kambhatla N, Zadrozny W, Melville P (2002) NaturalLanguage Assistant: A Dialog System for Online Product Recommendation. *AI Magazine*, 23, 63-76.
- [4]. Chi L, Huang C, Chuang K (2016) Mobile-friendly and streaming web-based data visualization. 2016 Conference on Technologies and Applications of Artificial Intelligence (TAAI), 124-129
- [5]. Chui, M., Manyika, J., Miremadi, M., Henke, N., Chung, R., Nel, P., & Malhotra, S. (2018). Notes from the AI frontier: Insights from hundreds of use cases. McKinsey Global Institute.
- [6]. D'Alfonso S, Santesteban-Echarri O, Rice SG, Wadley G, Lederman R, Miles CR, Gleeson J, Alvarez-Jimenez M (2017) Artificial Intelligence-Assisted Online Social Therapy for Youth Mental Health. *Front. Psychol*
- [7]. De Bruyn, A., Viswanathan, V., Beh, Y. S., Brock, J. K. U., & von Wangenheim, F. (2020). Artificial intelligence and marketing: Pitfalls and opportunities. *Journal of Interactive Marketing*, 51, 91-105.
- [8]. Eshak MI, Ahmad RB, Sarlan AB (2017) A preliminary study on hybrid sentiment model for customer purchase intention analysis in social commerce. 2017 IEEE Conference on Big Data and Analytics (ICBDA), 61-66
- [9]. Gervais A, Shokri R, Singla A, Capkun S, Lenders V (2014) Quantifying Web-Search Privacy. *ACM Conference on Computer and Communications Security*
- [10]. Gkikas, Dimitris & Theodoridis, Prokopis. (2019). Artificial Intelligence (AI) Impact on Digital Marketing Research. 1251-1259. 10.1007/978-3-030-12453-3_143.
- [11]. Isah H, Neagu D, Trundle PR (2014) Social media analysis for product safety using text mining and sentiment analysis. 2014 14th UK Workshop on Computational Intelligence (UKCI),1-7
- [12]. Jain, H., Vikram, A., Kashyap, A., & Jain, A. (2020, July). Weapon detection using artificial intelligence and deep learning for security applications. In 2020 International Conference on Electronics and Sustainable Communication Systems (ICESC) (pp. 193-198). IEEE.
- [13]. Kanagarajan K, Arumugam S (2018) Intelligent sentence retrieval using semantic word based answer generation algorithm with cuckoo search optimization. *Cluster Computing*, 1-11
- [14]. Krasotkina O, Mottl V (2015) A Bayesian Approach to Sparse Learning-to-Rank for Search Engine Optimization. In: Perner P (eds) *Machine Learning and Data Mining in Pattern Recognition. MLDM 2015. Lecture Notes in Computer Science*, vol 9166. Springer, Cham
- [15]. Marketing. In: Dash S, Bhaskar M, Panigrahi B, Das S (eds) *Artificial Intelligence (AI) and Evolutionary Computations in Engineering Systems. Advances in Intelligent Systems and Computing*, vol 394. Springer, New Delhi