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# Maximizing the Potential of Artificial Intelligence in Digital Marketing

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***Abstract*—The use of artificial intelligence (AI) in digital marketing has become increasingly prevalent in recent years, with businesses seeking to maximize the potential of this technology to improve customer engagement and drive sales. However, despite the promise of AI, many organizations struggle to fully leverage its capabilities in their digital marketing efforts. This study aims to address this gap by exploring how businesses can maximize the potential of AI in digital marketing. Through a comprehensive review of the literature and empirical research, the authors identify the key challenges and opportunities associated with the use of AI in digital marketing and provide practical recommendations for businesses seeking to optimize their AI strategies. The study highlights the potential benefits of using AI in digital marketing, including the ability to personalize customer experiences, optimize advertising campaigns, and improve customer engagement. However, several challenges are associated with the use of AI, such as data privacy concerns and the potential for bias in algorithms. To address these challenges, the study provides practical recommendations for businesses seeking to maximize the potential of AI in their digital marketing efforts. These include developing a clear AI strategy, investing in high-quality data, and ensuring that AI models are transparent and explainable. Overall, this manuscript provides a valuable contribution to the field of digital marketing by demonstrating how businesses can leverage the power of AI to improve customer engagement and drive sales. By following the practical recommendations outlined in this study, businesses can position themselves for success in the rapidly evolving world of digital marketing.**

***Keywords—artificial intelligence, digital marketing, customer efficiency, marketing, consumer service***

## I. INTRODUCTION

Although many people are not aware of it, artificial intelligence (AI) has become an integral part of daily life for mankind. This misconception stems from the fact that only 50% of respondents in a recent survey claimed to have dealt with AI techniques, while another 23% remained unclear [1]. AI is a technology that enables an approach to effectively perceive external input, learn from it, and then utilize that information to achieve particular production goals through flexible adaptation. Many examples of AI are running in the background of most current devices, such as cell phones, desktops, smarter televisions, etc., which shows a misconception of what customers believe about AI that is used in everyday activities. The application of AI in marketing has been found to have the highest income power and achievement [2]. The market system is one of the disciplines that is thought to be a highly promising method for development. It is predicted that investing in AI technologies until 2030 will boost the worldwide gross domestic product by around 14% [3].

Additionally, it has been predicted that AI could produce $13 trillion in goods and services by 2030, raising the worldwide gross domestic product by roughly 1.20% per year [3].In a poll of marketing professionals conducted in late 2020, 41% of participants stated that using AI in corporate advertising campaigns had improved economic expansion and increased productivity. A further 38% attributed the utilization of AI in the market sector to the development of customized customer perceptions. AI is likely to make a significant contribution to tasks that were previously carried out by humans, namely successful conversation, communication, and empathetic behavior [4–8]. This trend has been in use in certain businesses that have utilized it throughout digital marketing (DM) to open up novel opportunities [9].
A good illustration of this is intelligent virtual assistants. In the previous decades, there has been a significant transformation in market research as well as sectors, including banking, medicine, technology, and academics [10]. Due to the personalization of business-consumer contact, significant digital consequences have been established. The abundance of information serves as the primary driver of development in machine learning (ML) initiatives by businesses to improve existing market opportunities. It is estimated that in 2022, the marketplace for ML solutions is expected to increase by around 43.59% annually [11]. There are many different digital marketing (DM) strategies and techniques that employ electronic devices or digitalized sources to display, publicize, and distribute goods or facilities, as well as sectors that have successfully employed the web to promote their businesses. Webpages, social media platforms, and targeted marketing, including mailings, can frequently retain existing clients while enticing newer ones. One should initially evaluate the present level of scholarly studies in DM and contrast it with the corporate world to assess the crucial function of AI in

this field. This assessment can help evaluate the extent to which academic research on DM typically lags behind commercial progress.

### A. AI for Digital Marketing

To understand the involved process of AI that assists in DM approaches, it is essential to examine the key sub-areas of AI. An investigation should be done on each field's implementation of DM strategies separately to illustrate how DM analysis is affected by AI. Discussions have taken place over several facets of AI technology, including artificial neural networks employed in classifying processes, time-series forecasting, and brain mapping [12]. Dynamic computing includes genetic algorithms, program techniques, and other methods. Visual aspects include item identification, imaging conceptualization, and other graphics-processing techniques. Robotics refers to smart managing and self-directed inquiry. Data sources for administration, educational systems, and so forth are all included in expertise solutions. Recognition systems include voice identification and manufacturing processes, while planning includes game-playing processes as per machinery conversion. ML techniques include data gathering and decision tree modeling.

### B. Problem Statement

As enterprises have grown in recent years, academic scholars often opt to be recruited by organizations instead of DM staying at scientific facilities. The success of AI investigations with the corporate sector for DM is substantially greater, which is predictable and accounts for the widespread use of technologies beyond the institutions. Another significant factor is that, in contrast to the commercial world, which acquires and maintains trillions of information daily, scientific scholars face a requirement for data [13]. They may have enough evidence to carry out their study instead of being reliant on sparse data that AI experts use to develop their programs. The notion of AI is proven challenging for marketing professionals. Manufacturers generally refer to data analytics, intelligent devices, data retrieval, or keyword searching as 'AI' instead of 'ML,' 'data mining,' or 'prediction analyses.' Contrarily, computing experts.

A thorough understanding of client's needs and requests is necessary for novel marketing, in addition to the ability to respond quickly and efficiently following certain information. Many firms find it difficult to set up real-time, data-determined choices because they do not use AI in their marketing. Massive amounts of information are gathered during the personalization process, allowing organizations to more accurately pinpoint the behavior and preferences of a client over a variety of channels and interfaces, best match their needs with relevant information, and promote sales [14]. This is particularly true if customers are actively involved in every step of their e-commerce cycle, from awareness to evaluation, purchase, feedback, and usage. Additionally, there is ambiguity on what constitutes customization in e-commerce, but several vendors claim to provide it.

### C. Study Objectives

• To determine the variables that influence AI in digital marketing (DM)

• To anticipate and predict the forthcoming power of AI

• To assess how AI affects DM

## II. Literature Review

According to a study [15], AI consists of computerized systems that collect information to carry out actions of smart things to increase their possibility of success.

Powerful or general AI refers to a system that has consciousness and mentality and is intelligent across a variety of domains. Poor or narrow AI is task-specific (e.g., autonomous vehicles arising from narrow AI).

AI has a high global impact on the expansion of numerous processes and solutions. A study highlighted AI applications in ML and quantum computation (QC) to benefit from quicker responses to challenging issues. Data volume and complexity are growing faster than the capacity of humans to handle them successfully. People frequently struggle or are unable to handle such concerns quickly, but ML advances have made it possible and faster. The speed at which QC can solve problems will aid in limiting the workload. According to the researcher, developments in quantum data programs demand ML in AI, and the benefits would emerge despite the absence of complete QC solutions.

According to a study [16], Generated Adversarial (GA) networks are an advancement in AI that handle several significant ethical problems. Algorithm concepts are used to build neural networks (NN) and construct fictitious worlds. The established networking system transforms a vector into audio or visual matrices, which are then linked to a discriminating device to differentiate between genuine and artificial substances. Additionally, GAnetworks are used in game-theoretic dynamics to produce nearly exact copies of real-world events. However, the problem with this idea is that it could be misused to create fake reports or ads or produce a fake video that discredits someone's character.

A study [17] claims that AI streamlines marketing efforts. Deep learning (DL) powered by AI allows computation to more accurately identify customer behaviors and forecast the likelihood of groups who are likely to make more purchases. Programming provides specific data about the most probable converting sources, enabling advertisers to concentrate their attention on the most eligible sources while avoiding energy waste on poorly eligible prospects. It also facilitates the customization of products that, includes determining potential customers according to their demographics, location, past purchases, and other aspects. It also includes supervising and reporting customer information related to the actual objects.

The study highlighted how AI allows for the customization of relevant communication among consumers. Companies can use prediction modeling to gain greater knowledge of their customer's interests and make recommendations based on that information. Both Netflix and Amazon employ this strategy to promote shows and products. Building a database of informational elements enables an advertiser to lead consumers in the direction of a specific good or service, which is highly effective. Individuals can address various issues with AI, and it serves as a cost-saving strategy since 85% of customer interactions can take place without requiring human participation.

### A. Factors Affecting AI in Digitalized Marketing

#### 1) Customization

Customers appreciate customized products or services. Companies strive to make their customers happy by offering them exactly what they want. Therefore, it is essential to make it easier to gather customer data and engage in AI. Organizations can tailor their products by using ML to evaluate customer behavior trends.

*2) Real-Time Response*

Organizations that use AI can better satisfy their customers. Customers like items or services that can quickly solve their problems. For example, AI chatbots provide prompt answers and resolutions to customers. Some chatbots are equipped with sensing features like voice and touch, which provides customers with thorough and actual knowledge, making them forget that they are speaking to a system. In most cases, such bots are accessible at any time, which can increase customer satisfaction levels. In [18], the authors examined the function of chatbots in DM interactions and found that chatbots have a significant impact on customer behavior. The results of the experiment showed how important chatbot deployment is in DM interactions to ensure the execution of advertising strategies, engage with properly targeted groups, and deliver the correct content.

*3) Predicting Consumer Behavior*

AI can forecast the behavior of both current and potential customers and personalize their experience. AI can leverage data management tools to acquire customer data from all over the web, not just from a single webpage view. This enables businesses to reach specific clients and create more successful advertising tactics, as well as customize their offerings to meet the wants of their customers. Over time, the accuracy in this field would allow a firm to estimate its sales and profitability and achieve results in its operations. The process of AI gathering, analyzing, appraising, and interpreting data is constantly evolving.

*4) Increased Return on Investment (ROI)*

Visual quality detection is a consequence of ROI in which AI helps to increase ROI and promotes the sales profits of companies. Additionally, it allows companies to solve several safety issues, ensuring that transactions are processed as rapidly and effectively as possible. Customized marketing is created for a location when a recipient's behavior forms are recognized using ML technology. AI uses personalized data to propel marketing, enabling the customization of services and goods. Additionally, it assists the company in avoiding wasting resources and time on disinterested clients.

*5) Social Media (SM) Marketing*

Most scholarly articles on SM marketing examine consumer behavior, consumer desires, graphics understanding techniques, and data analysis via SM. To highlight the program's sluggish development, experts employ data mining approaches in addition to ML algorithms. Data mined through weblogs, sites, e-commerce portals, and SM is explored through research in DM, content development, and predictive promotion. It focuses on processes, and textual analytics, including ML-relied approaches, such as feature extraction, expertise solutions, consumer decision-supporting system, and textual and forecasting analysis.

In the study [19], the negative impact of subpar DM is demonstrated through an examination of SM. The study looks at user-generated information analysis techniques related to tags, sentiments, and keywords. The researchers conducted a qualitative investigation to emphasize both the benefits and drawbacks of marketing through search engines (SE) to substantiate their findings.

A study [20] examined the variables that affect SEs by using both internal and external customer engagement on a website page. Through a sizable study carried out by enterprises in the DM industry, the researchers have established SE-classifying parameters.

SE optimization is one of the most suitable versions of scientific knowledge. The majority of associated research studies in the field of SE optimization focus on evolved computing, fuzzy intellectual devices, ML technologies, and browsers to read, gather, and analyze web information. These studies aim to increase the stances of web content in SE outcomes by incorporating grade attributes using a smart learning approach.

To investigate SE optimization, keywords, and contents, the article [21] covers the Google Analytics-certified procedure in addition to the company's PageRank methodology. It employs linguistic and numerical techniques to demonstrate their function together in a dynamic setting.

According to the study, using SE optimization solutions to get more visitors to a website can boost conversion rates and revenues. The study focuses on the link between SE optimization and SE-machine, as well as the role that keywords play in DM. SEs play a crucial part in every company's online visibility, and their techniques have developed over recent years.

*6) Ad targeting and Pay-Per-Click (PPC)*

ML is widely employed in scientific investigation to optimize bid and targeted advertising programs by examining metrics that quantify the significance of different variables in terms of click-through and conversion rates [22].

*7) Chatbots (CBs)*

Compared to other DM strategies, there has been a significant advancement in the study of CBs. There is an ongoing effort in automatic robot simulations that communicate with people using AI subdisciplines, including decision-supporting solutions, neural networks, autonomy exploratory processes, etc., in sectors such as medical services, academia, online counseling, and insurance [23-24].

*8) Advertising*

Enterprises heavily rely on marketing to advertise their products and services, whether digitally or not. This appears as a critical element since it could be exploited to eliminate the bulk of physical work. User information is useful, especially when it pertains to creating distinctive advertisements. AI technology assesses the entire recorded customer information and identifies specific subjects of interest. This provides a structure for a firm's ads, enabling it to effectively support the needs of its potential clients and gain an edge over competitors in the marketplace.

*9) Semantic searching*

The number of scholarly papers related to web applications, including SEs, data retrieval, global online platforms, SM, ML, analyzing methods, NLP, querying, data managing, decision-supporting tools, and edge searching queries, outpaces comparable facets of the corporate world [25]. More than two thousand articles have been published

on web-based techniques and streamlined variants. AI is engaged to optimize processes in aspects of web design, application development, online facilities, mobile-responsive platforms, and data depiction.

*10) Voice searching*

While there is little or no DM, most experiments focus on voice searching (VS). However, there have been remarkable advances in plenty of other research disciplines. The market sector's significant effort is on individual voice assistants and speech detection, which offers easy communication techniques by allowing both program and consumer to participate equally in delivering accurate and clear replies to web searches .

## III. Methodology

The present study utilized a descriptive and empirical approach, employing a quantitative survey method to investigate the relationship between variables such as AI, technology, social networks, profitability maximization, and decision-making. Both primary and secondary data were utilized, with the former gathered from sources through online questionnaires to gather demographic information, while the latter was obtained from publications, research papers, and other relevant sources. Respondents were selected through a convenient sampling procedure consisting of DM clients. The collected data underwent a pilot test to assess the validation and consistency of the survey tool, with the scale's Cronbach's α Reliability Coefficient value of .89 indicating a high level of consistency and reliability. Of the 206 participants given questionnaires, 170 responded with all the required information.

The survey procedure consisted of standardized questionnaires comprising three distinct components. Section 1 covered the participants' data, including information on age, race, marital status, academic background, job description, and net yearly income. Subjective experiences were evaluated using relevant numeric and interval measures, while respondents' remarks were collected using a 5-point Likert scale. Sections 2 and 3 of the survey contained 10 questions about consumers' perceptions of AI factors, utilizing the Likert scale.

The primary objective of this study was to analyze the deployment of AI in the field of DM in the context of evolving trends in this area. The study aimed to evaluate the extent to which AI applications in DM, including speech, textual and picture detection, decision-making, technologies, and robotics, are utilized. The initial phase involved examining commercial websites to gather information on AI applications in marketing.

## IV. Results and Discussion

The demographic profile of the participants is presented in Table I. A total of 206 participants responded to the survey, out of which 60% were female. The majority of participants were in the under 30 years age group (42.94%). The highest percentage of participants had an arts degree (21.76%). Additionally, 50% of the participants reported a net income of ⩾5 lakhs.

Fig. 1-3 display the percentage distribution of participants by age range, gender, educational background, employment history, and net income. Fig. 4 presents the schematic of the model.

TABLE I. Demographic Data of Participants

| Variable | Features | Frequency (n=170) | % |
|---|---|---|---|
| Age | ≥30 | 73 | 42.94 |
| | 31-40 | 64 | 37.64 |
| | 41-50 | 21 | 12.36 |
| | 50 and above | 12 | 7.06 |
| Gender | Male | 68 | 40 |
| | Female | 102 | 60 |
| Qualification | Graduation in Arts | 37 | 21.76 |
| | Engineering | 25 | 14.71 |
| | Science | 24 | 14.12 |
| | Technology | 32 | 18.82 |
| | Post Grad- Arts | 26 | 15.29 |
| | Post Grad- Engineering | 7 | 4.12 |
| | Post Grad- Science | 12 | 7.06 |
| | Post Grad- Technology | 7 | 4.12 |
| Experience | Less than – 5Years | 77 | 45.24 |
| | 5 - 10 yrs. | 53 | 31.20 |
| | 11- 20 yrs. | 28 | 16.50 |
| | Above 20 yrs. | 12 | 7.06 |
| Net Income | ≥ 5 lakhs | 85 | 50.0 |
| | 5-10lakh | 52 | 30.59 |
| | Above 10lakh | 33 | 19.41 |

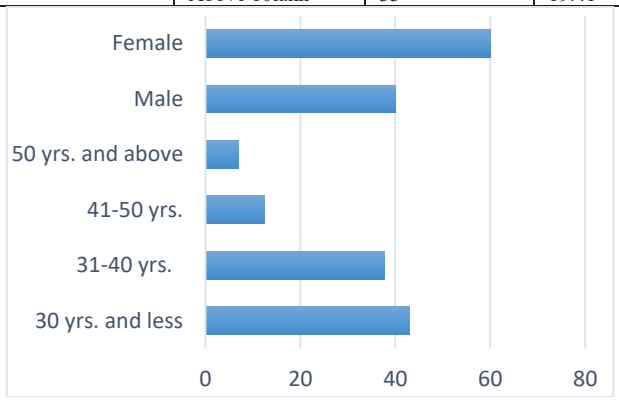


Fig. 1. Age and gender of respondents in percentage

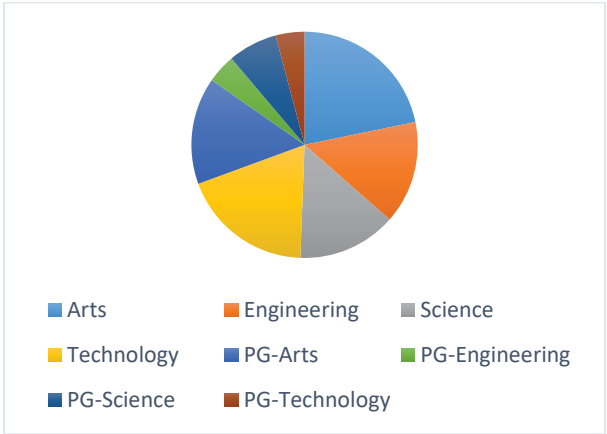


Fig. 2. Qualification of respondents in percentage

### A. Structural Model

To investigate the relationships among latent constructs, the structural model was assessed using the SE-marketing approach. Four latent constructs—AI, DM, maximizing profitability, and social networking—were represented by 15 items in the model. The various goodness-of-fit (GOF)

statistics are presented in Table II, which illustrates that the proposed measurement model and data are a good fit. The measurement model has an excellent fit for the data, as evidenced by the GOF rating of .90.

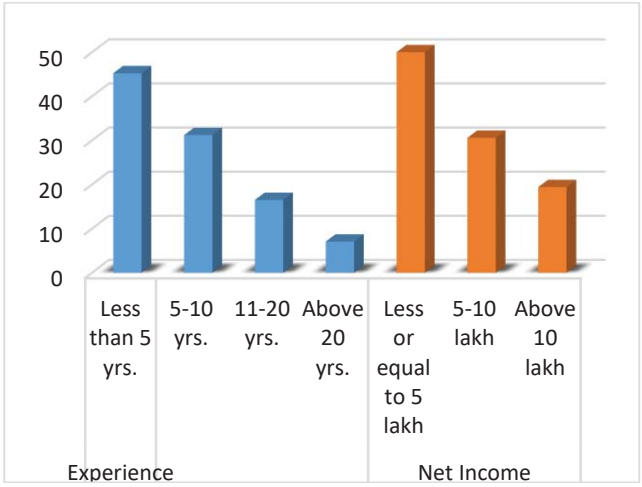


Fig. 3. Experience and net income of respondents in percentage

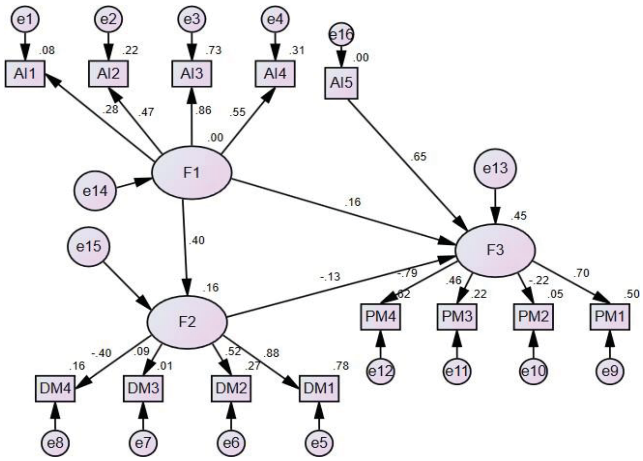


Fig. 4. Schematic of model

TABLE II. ASSESSMENT OF OVERALL FIT MEASURE OF MODEL

| Fit indices | Endorsed value | Value |
|---|---|---|
| $X^2$ | N/A | 15.39 |
| $d.f.$ | N/A | 27.0 |
| $X^2/d.f.$ | ≤ 3.0 | 1.569 |
| Normed fit (NF) index | ≥ 0.89 | 0.909 |
| The goodness of fit (GF) index | ≥ 0.89 | 0.89 |
| Non-normed fit (NNF) index | ≥ 0.89 | 0.949 |
| Comparative fit (CF) index | ≥ 0.89 | 0.959 |
| Root Mean Sq. Error of Estimate | ≤ 0.049 | 0.0349 |

### *B. Hypotheses*

$H_1$. DM is directly impacted by AI.

The statistics show that DM is directly impacted by AI ($H_1$: β= -0.12, P < 0.05). Therefore, the hypothesis is supported.

$H_{2a}$. DM is directly influenced by technological advances.

The findings indicate that technological advances have a direct impact on DM ($H_{2a}$: β= -0.618, P < 0.05). Hence, the hypothesis is supported.

$H_{2b}$. DM is directly affected by social networks.

According to the results, social networks have a direct impact on DM ($H_{2b}$: β= -0.069, P < 0.05). Therefore, the hypothesis is confirmed.

## V. CONCLUSION

Based on the data gathered from the cited investigations and surveys conducted in this study, it has been determined that AI has a significant impact on the direction of marketing, and even small and medium-sized businesses can benefit from its use. Companies that currently use non-AI-based marketing solutions should be prepared for a shift. One effective way to establish retraining for a sustainable AI strategic plan in marketing is to have strong technological (tech, information, and procedures) and organizational (personnel, talent, and structure) aspects. Reviewing the commercial and interactive approach of a firm is the initial phase of any AI marketing plan. Once the trade and advertising strategies of the corporation are established, the ideal utility scenarios to support the organization in achieving its goals must be determined. Marketing professionals can now realize possible customization and relevance through the use of AI. Connection to millions of individuals in everyday life is possible by utilizing sites like Instagram, Google, YouTube, and SE and using DM channels to accomplish mass interaction. Corporations may eventually be capable of creating customized advertising in real-time, relying on the customization capabilities of AI mixed with targeted marketing. The use of AI will shape the world in the years ahead.

It should be understood that integrating AI into every organization does not mean that people are no longer required to carry out operations. AI is a technique that streamlines a variety of labor-intensive and complex procedures, saving enterprises both expenses and time. The accuracy and dependability of AI-driven devices are significantly high, allowing them to be trusted for providing a speedy resolution. It makes it simple and quick for a business to develop a strategy. DM today has numerous possibilities for AI, connecting companies with potential clients and enhancing understanding of both current and potential clients of the company. It helps businesses to create services and goods that meet the demands of their respective clients.

## REFERENCES

[1] T. Ribeiro and J. L. Reis, "Artificial intelligence applied to digital marketing," in Trends and Innovations in Information Systems and Technologies: Volume 2 8 2020, pp. 158-169, Springer International Publishing.

[2] A. De Bruyn, V. Viswanathan, Y. S. Beh, J. K. Brock, and F. Von Wangenheim, "Artificial intelligence and marketing: Pitfalls and opportunities," Journal of Interactive Marketing, vol. 51, no. 1, pp. 91-105, Aug. 2020.

[3] E. Mogaji, T. O. Soetan, and T. A. Kieu, "The implications of artificial intelligence on the digital marketing of financial services to vulnerable customers," Australasian Marketing Journal, vol. j-autism, 2020.

[4] V. Panwar, D. K. Sharma, K. P. Kumar, A. Jain, and C. Thakar, "Experimental investigations and optimization of surface roughness in turning of en 36 alloy steel using response surface methodology and genetic algorithm," materials today: proceedings, vol. 46, pp. 6474-6481, Jan. 2021.

[5] C. P. Verma, "Enhancing Parameters of LEACH Protocol for Efficient Routing in Wireless Sensor Networks", J. Comp. Mech. and Mgmt., vol. 2, no. 1, pp. 26–31, Feb. 2023.

[6] S. Kumar, “Reviewing Software Testing Models and Optimization Techniques: An Analysis of Efficiency and Advancement Needs”, J. Comp. Mech. and Mgmt., vol. 2, no. 1, pp. 32–46, Feb. 2023.

[7] V. Patil, J. Saxena, R. Vineetha, R. Paul, D. K. Shetty, S. Sharma, K. Smriti, D. K. Singhal, and N. Naik, “Age assessment through root lengths of mandibular second and third permanent molars using machine learning and Artificial Neural Networks,” Journal of Imaging, vol. 9, no. 2, p. 33, 2023.

[8] K. Banerjee and S. Dua, “Astoundingly Smart System Furnishing Ranking of Big Data in Search Engines”, J. Comp. Mech. and Mgmt., vol. 1, no. 1, pp. 19–29, Sep. 2022.

[9] M. Faruk, M. Rahman, and S. Hasan, “How digital marketing evolved: A bibliometric analysis on Scopus database,” Heliyon, vol. 7, no. 9, p. e08603, 2021.

[10] M. H. Huang and R. T. Rust, “A strategic framework for artificial intelligence in marketing,” Journal of the Academy of Marketing Science, vol. 49, pp. 30-50, 2021.

[11] E. Tariq, M. Alshurideh, I. Akour, and S. Al-Hawary, “The effect of digital marketing capabilities on organizational ambidexterity of the information technology sector,” International Journal of Data and Network Science, vol. 6, no. 2, pp. 401-408, 2022.

[12] D. Sharma, V. Kudva, V. Patil, A. Kudva, and R. S. Bhat, “A convolutional neural network based deep learning algorithm for identification of oral precancerous and cancerous lesion and differentiation from normal mucosa: A retrospective study,” Engineered Science, vol. 18, p. 278-287, 2022.

[13] Y. K. Dwivedi et al., “Setting the future of digital and social media marketing research: Perspectives and research propositions,” International Journal of Information Management, vol. 59, p. 102168, 2021.

[14] A. Perego, S. Perotti, and R. Mangiaracina, “ICT for logistics and freight transportation: a literature review and research agenda,” International Journal of Physical Distribution & Logistics Management, vol. 41, no. 5, pp. 457-483, 2011.

[15] M. Shah, N. Naik, B. K. Somani and B. Z. Hameed, "Artificial intelligence (AI) in Urology-Current use and future directions: An iTRUE study," in Turkish Journal of Urology, vol. 46, no. Suppl 1, pp. S27-S32, Nov. 2020, doi: 10.5152/tud.2020.20291.

[16] R. E. Bawack, S. Fosso Wamba, and K. D. Carillo, "A framework for understanding artificial intelligence research: insights from practice," Journal of Enterprise Information Management, vol. 34, no. 2, pp. 645-678, Feb. 2021.

[17] M. Tanveer, N. Khan, and A. R. Ahmad, "AI support marketing: understanding the customer journey towards the business development," in Proc. 1st International Conference on Artificial Intelligence and Data Analytics (CAIDA), Apr. 2021, pp. 144-150.

[18] J. Chakraborti, A. Dutta, and B. Jana, "An empirical investigation into why startups resist the use of digital marketing," Journal of Content, Community & Communication, vol. 15, no. 8, pp. 69-83, 2022.

[19] R. Aswani, A. K. Kar, P. V. Ilavarasan, and Y. K. Dwivedi, "Search engine marketing is not all gold: insights from Twitter and SEOClerks," International Journal of Information Management, vol. 38, no. 1, pp. 107-116, Feb. 2018.

[20] L. L. Carvalho, "Search engine ranking factors analysis: Moz digital marketing company survey study," Ph.D. dissertation, University of Maryland, 2021.

[21] M. Spencer, "Just Google It:" Keywords, Digital Marketing, and the Professional Writer," ProQuest Dissertations Publishing, 2022.

[22] P. Spentzouris, I. Koutsopoulos, K. G. Madsen, and T. V. Hansen, "Advertiser bidding prediction and optimization in online advertising," in Proc. Artificial Intelligence Applications and Innovations: 14th IFIP WG 12.5 International Conference, AIAI, May 2018, pp. 413-424.

[23] I. Stanica, M.I. Dascalu, C.N. Bodea, and A.D. Moldoveanu, "VR job interview simulator: where virtual reality meets artificial intelligence for education," in 2018 Zooming Innovation in Consumer Technologies Conference (ZINC), May 2018, pp. 9-12.

[24] S. D'alfonso, O. Santesteban-Echarri, S. Rice, G. Wadley, R. Lederman, C. Miles, J. Gleeson, and M. Alvarez-Jimenez, "Artificial intelligence-assisted online social therapy for youth mental health," Frontiers in Psychology, vol. 8, Jun. 2017, p. 796.

[25] K. Kanagarajan and S. Arumugam, "Intelligent sentence retrieval using semantic word based answer generation algorithm with cuckoo search optimization," Cluster Computing, vol. 22, May 2019, pp. 7003-7013.