

"The impact of artificial intelligence on digital marketing."

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Abstract. The following paper outlines the current and potential relationship between digital marketing and artificial intelligence (AI). It discusses ways that AI can be integrated into app development. Digital marketing, a genuine branch of marketing science, has created value for organizations by leveraging electronic services to increase customer engagement. The digital era has revolutionized industries by allowing them to monitor various processes, such as branding, promotion, advertising, production, and channel distribution. Business managers can make more accurate, data-driven decisions by analyzing data and gaining insight into customer behavior. The massive amount of data generated daily has made customers' journeys and experiences extremely complex. Organizations are investing significant resources to fill in the gaps of missing information and map out potential customers. This abundance of data has created a chaotic environment that marketers must navigate. Customer data changes constantly, which presents an ongoing challenge for decision-makers. Smart applications are necessary within organizations to better analyze, categorize, optimize, and target audiences. Technology-savvy customers are compelling industries to make substantial financial investments in sophisticated solutions. Marketers must identify their needs in this highly complex data-driven world and seek advanced technological solutions. The business world is increasingly implementing smart apps that directly impact marketing and decision-making. Intelligent data-driven models can help predict customer behavior based on variables of interest. Data mining, artificial intelligence, machine learning, and deep learning can complement marketing science. Some benefits that AI can provide include user profiling, data classification, content optimization, optimized targeting of audiences, predictive models, and the optimization of search engine ranking factors, all leading to highly accurate results.

Keywords: Artificial Intelligence, Digital Marketing, Big Data, Customer Behaviour, Decision Making, Predictive Modelling.

1. Introduction

In the early 20th century, digital marketing experienced significant growth due to advancements in technology. This led to an increased importance of digital promotion,

advertising, distribution, and customer experience [1]. Since the coining of the term "Digital Marketing" in 1988, there has been a radical expansion in the business world, from small operations to large-scale global businesses. With the technological advances in artificial intelligence (AI), data mining, and computational analysis, digital marketing has transitioned from a data-driven approach to a new knowledge-based decision-making system [2]. To conduct effective marketing, user, and data analysis, there is a need for data storage and analysis. Successful and profitable marketing campaigns rely on targeted audiences. Marketing managers can benefit from technology to identify the factors that impact market share, leading to effective and efficient decision-making. While AI has a wide range of applications in various scientific fields, its application in Marketing Science has been challenging [3]. Due to the qualitative, quantitative, and strategic nature of the problems that may arise, digital marketing decision-makers require more than just an efficient computational approach. Factors such as knowledge derived from professional experience, expertise in the field, judgment calls, and a multidimensional and constantly changing environment make decision-making a challenging task. The vast amount of daily data allows marketers to develop applications combining scientific multifactor data to foster the development of smart, knowledge-based decision-making patterns.

2. Digital Marketing

Digital marketing has revolutionized market perception and sales methods by leveraging the power of the Internet. In the digital era, consumers have gained a voice and the ability to express their opinions, thereby influencing choices. This has provided brands with opportunities to engage with customers dynamically, while users can easily seek out information, products, and services. Digital marketing has enabled businesses to expand their reach and create value for both consumers and companies. Building trust and rapport with customers is a brand's primary objective. Personalization in digital marketing allows industry professionals to tailor content to be more human-centric and user-friendly. User-generated content and interactions play a significant role in influencing perceptions of a brand. Aspects such as content, timing, comments, interface, reviews, speed, and images are pivotal in the digital era. Brands that create a warm and customer-oriented environment tend to receive positive responses from users. Targeted audiences, user profiles, and consumer behavior engagement play a crucial role in creating high-quality services, generating significant revenues, and delivering a great user experience.

2.1 Digital Marketing Customer Lifecycle

Digital marketing platforms were chosen based on the PRACE model, which stands for Plan, Reach, Act, Convert, and Engage.

Plan: The first step for any organization is to analyze and plan to identify strengths, weaknesses, opportunities, and threats in the market and to determine market share.

Reach: This stage marks the beginning of the customer's lifecycle. The primary goal is to attract potential customers by providing an engaging experience that will drive them to make a purchase and build awareness of the brand, products, and services.

Act (Interact): This stage aims to draw potential customers in and inform them about the products or services offered by the organization. It involves persuading potential clients to visit the company's website or social media business pages, known as lead generation. The company must create a carefully designed pathway for visitors to follow and maintain interaction with the company.

Convert: Conversion optimization is a marketing tactic where potential customers are converted into organization members or customers and encouraged to take specific actions. Conversion also refers to any desired action set as a goal by marketers, such as "Purchased," "Added to Basket," "Registered as a member," etc.

Engage: After the desired conversion is achieved, it's important to take all necessary actions to satisfy customers and encourage continued interaction with the organization through email, social media comments sharing, purchasing, or reviewing. This post-sale behavior builds awareness, creates trust, and leads to potential new purchases or attracts new customers.

2.2 Digital Marketing Platforms

Plan Platforms: Google Analytics tracks and reports website traffic, analyzes advertising data and monitors social media traffic, browser technology, mobile and tablet website visits, user behavior, keyword searches, landing pages, geolocation, etc. This provides an overview of website behavior, helping marketers identify potential opportunities, strengths, weaknesses, and miscalculations. Salesforce CRM helps companies manage their relationships and interactions with customers and potential customers. It maps business needs, solves problems, and identifies opportunities, allowing companies to manage their work remotely.

Reach Platforms: Websites consist of multiple web pages that can be accessed from a browser. They provide information on different subject areas, which is key to reaching internet users and potential customers. Blogger enables simple users to create blogs and allows multi-user commenting and posting. Posts are displayed in chronological order, with the most recent displayed first. MailChimp helps industries find, reach, and engage potential customers through product selling surveys, news sharing, specific offers, and newsletters. SEMrush conducts SEO scans and reviews search engine ranking factors to create optimal content for high-quality and high-ranking search engine results. Alexa provides technical support, problem-checking, and reports to monitor website conditions and stay aligned with search engine ranking policies.

Google Ads creates advertisements for businesses, products, and services, increasing brand awareness, driving traffic, and increasing customer engagement. Ads consist of text, website links, landing page links, and site links. When the number of clicks exceeds the total budget, the ads stop running.

Act Platforms: Hootsuite monitors, manages, and schedules posts to multiple social media profiles, providing broadcast digital services like post scheduling, account/page monitoring,

content management, social media insights, team management, security, and post/page boosting.

Convert Platforms: Crazy Egg records user actions and keeps visual records to understand user behavior on a website. It conducts A/B testing to optimize the content, buttons, shapes, colors, fonts, images, etc., to increase user experience and potential conversions.

Engage Platforms: Google AdWords Remarketing can re-engage the audience of an organization through remarketing and retargeting techniques, reaching potential customers who have left the website without making a purchase.

3 Artificial Intelligence (AI)

3.1 Artificial Intelligence (AI)

Artificial Intelligence (AI) is the study of computational procedures used to perform tasks that require human-like intelligence. Communication and learning are primary ways in which humans demonstrate intelligence, both involving mental skills such as synthesis, analysis, decision-making, judgment, organization, reasoning, hypothesis, and interpretation. AI encompasses knowledge representation, search, perception, and inference. To produce results, AI must define and process data in suitable forms. Success is achieved through sophisticated search algorithms to find optimal solutions and draw inferences for each situation.

The AI process involves data selection, preprocessing, transformation, and data mining, ultimately leading to evaluation and decision-making based on the results.

3.2 Artificial Intelligence (AI) and Digital Marketing in Business

According to Domo.com, internet users generate 2.5 quintillion bytes of data daily. Due to the overwhelming amount of advertisements and data across marketing channels, it's important to personalize data and target audiences to increase conversions and revenues. Companies can boost their revenues by optimizing digital marketing campaigns, channels, audiences, and market performance, measuring the impact on customers and revenues, and improving customer satisfaction through personalized content. Utilizing artificial intelligence (AI), data mining, predictive modeling, and machine learning can help marketers identify strengths, weaknesses, opportunities, threats, and market needs, as well as analyze users and target audiences. Effective and efficient data processing can categorize customers' needs, increase ROI, improve customer satisfaction, and drive growth. AI processes data from websites, sales, analytic reports, and social media insights, and produces optimized, accurate, and highly predictive results.

3.3 Artificial intelligence (AI) 'runs' the RACE.

Artificial intelligence (AI) powers the RACE, providing data-based intelligent decision applications.

Reach: Smart Content Curation categorizes and suggests content based on past purchased products. Programmatic Advertising targets specific audiences and delivers relevant advertisements. Content Creation applications generate human-centric content using personalized keywords or phrases to target specific customer groups. Natural Language Processing extends customer reach through voice searches and commands via personal digital assistants.

Act: Propensity Modeling processes previous user data to predict behavior. Ad Targeting predicts which advertisements perform best for specific user groups at different stages of the buying process. Predictive Analytics anticipates customer behavior before they begin the buying process. Lead Scoring assesses the value of potential sales leads based on data analysis predictions.

Convert: Dynamic Pricing identifies potential customers needing extra motivation to convert by adjusting prices. Retargeting creates user profiles to identify those likely to revisit a website for a purchase. Web & App Personalization tailors content and interfaces to increase conversion rates. Chatbots respond to user queries, make suggestions, and complete orders.

Engage: Predictive Customer Service targets clients with offers, coupons, and information after purchases to boost engagement and prevent churn. Marketing Automation employs optimized content and timing to engage customers effectively. Dynamic Emailing involves using sophisticated techniques to promote products and services that are relevant to the recipients. According to a survey by eMarketer.com on the differences between artificial intelligence (AI), predictive modeling, and machine learning, it seems that marketers do not fully understand the distinctions. Instead of using terms like "machine learning," "data mining," and "predictive modeling" in various discussions, they tend to use the term "artificial intelligence" interchangeably.

3.4 Artificial Intelligence (AI) in Digital Marketing Business Platforms

Here is the revised text:

Some of the most representative AI software applications have been researched and presented. Reach AI Platforms: RankBrain continuously sorts search results and helps Google process AI, revolutionizing various industries. For instance, RankBrain is a crucial component of Google's search algorithm, continuously optimizing search results. Siri provides personalized voice-command assistance, handling queries and tasks. Gupshup facilitates targeted marketing campaigns, transactions, lead qualification, and automatic meeting scheduling. Meetcortex generates optimized content for the audience and schedules content deployment. Atomic Reach analyzes and creates content for conversions. SAS offers automated predictive analysis solutions, while Phrasee creates unique marketing language. Evergage converts website visitors to customers and provides individualized interactions. SentientAscend personalizes web and app experiences, optimizing for high conversion rates. Messenger Chatbot aids in building chatbots for business use. Seventh Sense sends individualized emails to customers at optimal times. It identifies customer needs to maximize open and response rates. Siri is personalized to each user and handles voice commands like answering questions, making

suggestions, and performing tasks. Gupshup sends personalized campaigns to targeted customers, enables transactions from right within the campaign, qualifies leads and routes them to the right salesperson, schedules meetings automatically, etc. Meetcortex creates better content by producing photo, video, and text content optimized for the audience and manages to reach customers through content deployment at the right times to drive results. Atomic Reach delivers content marketing value, understands what content drives conversions, and creates optimized content for that purpose. Act AI Platforms: SAS delivers intelligent, automated predictive analysis solutions. Phrasee creates a unique marketing language for businesses that sounds human. Evergage converts website visitors from targeted audiences to customers and interacts individually with users, creating leads. Convert AI Platforms: SentientAscend provides high conversion by web & app personalization and smart website testing. Messenger Chatbot enables businesses to build chatbots to drive awareness, acquire customers, enable transactions, etc. Engage AI Platforms: Seventh Sense sends individual emails to customers at optimal time and frequency. It identifies customers' needs and sends emails when they are most likely to be opened and responded to.

Research Proposal

Over the last few years, search engines have been used by millions of users for retrieving information. A search engine is assembled using sophisticated algorithms and it is highly challenging for someone to understand or predict the outcome of search queries. Websites and webpages are ranked by search engines based on a system of ranking factors. There are nearly 200 known factors, each weighing differently. Marketers aim to drive traffic to websites to increase conversion and sales, which heavily relies on the quality of search engine optimization a website has. Various attempts have been made by IT engineers and marketers to prove the importance of search engine ranking factors. Despite search engines using over 200 factors to rank webpages, the proposal here is to use only a subset of them and still manage to successfully rank a webpage. This will be achieved using a decision tree algorithm and a genetic algorithm wrapper. Each subset will be evaluated for fitness using a fitness model and then classified using a decision tree algorithm. Only the best subsets will progress to the next generation. In conclusion, this research highlights the adaptability of artificial intelligence (AI) in our daily lives. It is a powerful field of Computer Science that has applications in every area of science, benefiting some and posing risks to others. Therefore, it is essential to have organizations that focus on keeping AI research predominantly in academic settings rather than private research. AI also plays a crucial role in solving digital marketing problems. Due to its contribution, digital marketing success relies on proper data management and handling, personalized content, targeted audiences, adaptive services, and correct timing. Data enables industries to sell their products by targeting the right audiences at the right time, in the right language, and with the right message, resulting in high revenues for marketers.

Businesses either invest in research centers to provide them with applications or establish in-house research laboratories to optimize digital marketing techniques. This benefits customers through quality content, services, and experiences. Digital marketing is more dynamic than

ever before and often generates sales unexpectedly. Additionally, the use of AI in marketing has led to a decrease in unemployment and the creation of new jobs. Data generation and processing generate new knowledge, allowing us to offer customers the products they need while conserving the planet's resources.

References

1. Sismeiro C, Bucklin RE, *Modeling Purchase Behavior at an E-Commerce Web Site: A Task Completion Approach*. *Journal of Marketing Research*, 306–323
2. AAAI. <http://www.aaai.org/Magazine/ailandscape.php>
3. Carvalhosa P, Portela F, Santos MF, Abelha A, Machado J, *Pervasiveness in Digital Marketing – A Global Overview*. In: Rocha Á., Correia A, Adeli H, Reis L, Costanzo S (eds) *Recent Advances in Information Systems and Technologies*. WorldCat 2017. *Advances in Intelligent Systems and Computing*, vol 571. Springer, Cham
4. Wierenga B *Marketing and Artificial Intelligence: Great Opportunities, Reluctant Partners*. In: Casillas J, Martínez-López FJ (eds) *Marketing Intelligent Systems Using Soft Computing*. *Studies in Fuzziness and Soft Computing*, vol 258. Springer, Berlin, Heidelberg
5. Blythe J *Digital marketing and social media*. In: *Principles and Practice of Marketing*, SAGE Publications, Chap. 18, pp 668–704
6. Ryan D, Jones C, *Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation*. Kogan Page Publishers, London
7. Smart Insights Homepage. <https://www.smartinsights.com/digital-marketing-strategy/race-a-practical-framework-to-improve-your-digital-marketing>
8. Smart Insights. <https://www.smartinsights.com/digital-marketing-strategy/10-marketing-trends/attachment/customer-lifecycle-b2c-retail>
9. Google Analytics. <https://analyticsacademy.withgoogle.com>
10. Computer Hope. <https://www.computerhope.com/jargon/w/website.htm>
11. Blogger. <https://www.blogger.com>
12. Alexa. <https://www.alexa.com>
13. Google Ads. <https://support.google.com/google-ads/answer/6319?hl=en>
14. Google Ads Remarketing. <https://support.google.com/google>
15. Encyclopaedia Britannica. <https://www.britannica.com/technology/artificial-intelligence>
16. Datorama. <https://cdn2.hubspot.net/hubfs/2635477/How%20AI%20is%20Transforming%20Marketing>
17. Smart Insights. <https://www.smartinsights.com/tag/artificial-intelligence-ai-for-marketing>
18. The Financial Brand. <https://thefinancialbrand.com/71350/ai-machine-learning-analytics-marketing-banking-trends>
19. eMarketer. <https://www.emarketer.com/content/why-marketers-struggle-to-define-artificial-intelligence>

20. *Top Rank Marketing.* <http://www.toprankblog.com/2018/02/artificial-intelligence-transforming-marketing>
21. *Apple Siri.* <https://www.apple.com/ios/siri>
22. *Gipshup.* <https://www.gupshup.io/developer/overview>
23. *Meetcortex.* <https://www.meetcortex.com>
24. *Atomic Reach.* <https://www.atomicreach.com/platform>
25. *SAS.* <https://www.sas.com>
26. *Phrasee.* <https://phrasee.co>
27. *Evergage.* <https://www.evergage.com>
28. *SentientAscend.* <https://www.ascend.ai>
29. *Backlinko.* <https://backlinko.com/google-ranking-factors>
30. *Zhu V, Wu G, Yunfeg M Research and Analysis of Search Engine Optimization Factors Based on Reverse Engineering, Proc.3rd International Conference on Multimedia Information Networking and Security, 225-228.*