



Daffodil
International
University

**“The Impact of AI and Automation on Digital
Marketing Strategies: A Case Study of RNS
Technology Ltd.”**

Date of Submission: 20 July, 2025



Daffodil
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University

Internship Report

on

**The Impact of AI and Automation on Digital Marketing Strategies:
A Case Study of RNS Technology Ltd.**

Supervised by:

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Date of Submission: 20 July, 2025

Letter of Transmittal

Date: 20 July, 2025

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Subject: Submission of Internship Report on The Impact of AI and Automation on Digital Marketing Strategies: A Case Study of RNS Technology Ltd.

Dear Sir,

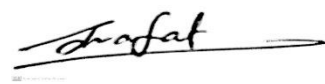
I am Arafat Zia, ID 232-14-036, currently working at RNS Technology Ltd. I am delighted to submit my internship report on The Impact of AI and Automation on Digital Marketing Strategies: A Case Study of RNS Technology Ltd.

During my internship, I worked in the digital marketing sector, leading a team in this domain. This report reflects my experiences and contributions in the marketing department of RNS Technology Ltd. and has been prepared as part of the MBA program at Daffodil International University.

I am very grateful for the opportunity to work on such an engaging project and for the support provided throughout my internship. I have put forth my best efforts to meet the objectives of the report and hope it fulfills its intended purpose.

I kindly request your approval of this report so that I may proceed to obtain my graduation certificate.

Sincerely Yours,



.....
(Arafat Zia)

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Declaration

I hereby declare that the report titled “**The Impact of AI and Automation on Digital Marketing Strategies: A Case Study of RNS Technology Ltd.**” has been prepared and submitted by me to the Department of Business Administration at Daffodil International University in partial fulfillment of the requirements for the Master of Business Administration (MBA) degree.

I was guided and inspired by my supervisor, Professor Dr. Mohammed Masum Iqbal, Department of Business Administration, Faculty of Business & Entrepreneurship, Daffodil International University. Furthermore, I confirm that this report has not been submitted, either in full or in part, to any other university or institution for any degree or similar awards.



.....
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Letter of Acceptance

This is to certify that the internship report entitled “**The Impact of AI and Automation on Digital Marketing Strategies: A Case Study of RNS Technology Ltd.**” is prepared by **Arafat Zia**, ID: 232-14-034, as a requirement of the MBA program under the Department of Business Administration and the Faculty of Business and Entrepreneurship at Daffodil International University.

The report is recommended for submission.



.....
Professor Dr. Mohammed Masum Iqbal
Department of Business Administration
Faculty of Business and Entrepreneurship
Daffodil International University

Acknowledgement

My internship with “RNS Technology Ltd.” provided a valuable opportunity for learning and professional growth. As part of the MBA program, every student is required to complete an internship after the completing course requirement and submit a report to the department. This internship allowed me to gain comprehensive insights into the organization.

I extend my sincere gratitude to my esteemed supervisor Professor Dr. Mohammed Masum Iqbal for granting me this internship opportunity. Despite his busy schedule, he provided consistent support and guidance throughout the program, helping me navigate and understand the internship experience and report preparation.

Lastly, I would like to express my heartfelt thanks to my family and friends for their unwavering encouragement, without which this assignment would not have been possible.

Executive Summary

In today's fast-evolving digital marketplace, RNS Technology Ltd. is at the forefront of leveraging Artificial Intelligence (AI) to revolutionize digital marketing strategies. As consumer interactions increasingly occur through digital channels, the integration of AI offers unparalleled opportunities to enhance marketing effectiveness and drive business growth. RNS Technology Ltd. actively explores the transformative impact of AI in key areas such as personalized targeting, content optimization, and automation of repetitive tasks—allowing for more efficient workflows and highly relevant customer engagement. By embracing tools like intelligent search engines, advanced chatbots, and predictive analytics, the company improves critical performance metrics, including customer engagement, conversion rates, and return on investment (ROI). Applications of AI within the organization's digital marketing strategy range from personalized content recommendations and programmatic advertising to AI-driven content creation, smart web design, automated email campaigns, dynamic pricing, and customer behavior prediction. These capabilities enable RNS Technology Ltd. to stay agile and responsive in a highly competitive digital landscape. With a forward-thinking approach, the company continues to lead with innovation, delivering measurable value to its clients and maintaining a strong competitive edge through a strategic fusion of AI technology and deep consumer insight.

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Chapter-01

Introduction

1.1 Introduction

Rapid advancements in technology—particularly in Artificial Intelligence (AI) and Machine Learning (ML)—have profoundly reshaped various industries, with digital marketing standing out as one of the most significantly impacted sectors. Today, the integration of AI and ML offers an exceptional opportunity to revolutionize how businesses engage with customers and develop their marketing strategies.

AI enables machines to mimic human intelligence, allowing them to perform tasks that traditionally required human cognitive abilities. As noted by Dr. N. Thilagavathy (2021), AI equips machines with the ability to think and act like humans, which is evident in our everyday interactions—even if we don't always recognize it. From route optimization in navigation apps to smart assistants like Siri, Alexa, and Google Assistant, AI is deeply embedded in our daily lives. Whether it's receiving personalized content on Netflix, optimized shopping experiences on Amazon, or curated social media feeds, AI is consistently working in the background to enhance user experience.

This invisible yet powerful influence extends seamlessly into the domain of digital marketing. AI-driven marketing is transforming traditional practices by enhancing pay-per-click (PPC) advertising, personalizing websites, predicting customer behavior, and generating content. As businesses recognize these benefits, the adoption of AI and ML technologies is expanding rapidly.

According to Sasikumar (2022), companies are using AI in two major ways: firstly, to forecast product demand and develop comprehensive customer profiles at the backend; and secondly, to enhance customer experience, thereby strengthening brand reputation and increasing sales. AI significantly boosts the efficiency and effectiveness of various marketing activities—leading to better customer engagement, faster conversions, and stronger ROI.

However, despite these advancements, many marketers still lack awareness of the full potential of AI compared to traditional marketing tools (Brenner, 2020). Digital marketing today involves utilizing digital channels—such as websites, social media platforms, email, and search engines—to advertise, promote, and connect with customers. This contrasts with traditional marketing methods that rely on offline channels like print ads, billboards, and direct mail.

The advantages of digital marketing are numerous. It provides cost-effective solutions, allowing marketers to define budgets, control ad spending, and reach global audiences with ease. Advanced targeting capabilities based on factors like age, gender, location, interests, and behavior enable highly

personalized customer experiences, which are proven to increase engagement and conversions. Email marketing campaigns, social media strategies, and PPC ads tailored to individual preferences lead to more impactful and measurable outcomes.

Another major benefit of digital marketing is the ability to track and measure campaign performance in real time. Tools like Google Analytics, Google Ads, and Google Search Console allow marketers to analyze website traffic, user behavior, and conversion rates insights that are often difficult to obtain through traditional marketing channels.

In regions like South Asia, companies are increasingly embracing digital strategies to tap into new market opportunities. As consumers spend more time engaging with mobile apps, websites, and digital customer service platforms, businesses are investing in social and video-based digital channels that deliver high returns on investment. Some companies have even reported a reduction in customer churn by up to 40% as a result of more targeted and intelligent marketing efforts.

In conclusion, digital marketing empowered by AI and ML is playing a crucial role in modern business growth. It allows organizations to reach global audiences, run efficient campaigns, and generate higher revenues by attracting and converting more visitors. As technology continues to evolve, companies that effectively leverage AI and digital marketing tools will be better positioned to thrive in an increasingly competitive and data-driven marketplace.

1.2 Origin of the Study

This report is initiated as part of the course requirement for the MBA program at the Faculty of Business and Entrepreneurship, Daffodil International University. As practical alignment is a crucial component of the MBA program, completed internship at RNS Technology Ltd. was conducted to gain real-life exposure to marketing activities. The study focuses on "The Impact of AI and Automation on Digital Marketing Strategies: A Case Study of RNS Technology Ltd." under the supervision of Professor Dr. Mohammed Masum Iqbal, Department of Business Administration, Faculty of Business & Entrepreneurship, Daffodil International University.

1.3 Objectives of the Study

The objectives of the study are following:

- 1) To examine how the integration of AI and automation into its digital marketing services of

RNS Technology Ltd.;

- 2) To assess the effectiveness of AI-driven tools in optimizing campaigns, customer engagement, and ROI of RNS Technology Ltd.;
- 3) To compare traditional marketing methods with AI-powered strategies to determine improvements in efficiency and outcomes of RNS Technology Ltd.;
- 4) To make some recommendations to enhance AI adoption in the digital marketing services of RNS Technology Ltd.;

1.4 Scope of the Study

This study aims to examine the transformative impact of Artificial Intelligence (AI) and automation technologies on digital marketing strategies, with a focused case analysis of RNS Technology Ltd. As organizations increasingly rely on digital platforms to engage with customers, this research seeks to explore how AI and automation are reshaping marketing operations, enhancing customer experiences, and driving business performance.

1.4 Methodology of the Study

i. Research Design:

This study adopts a mixed-methods research design, integrating both primary and secondary data sources to explore the impact of Artificial Intelligence (AI) and Machine Learning (ML) on digital marketing. The research aims to investigate the applications, benefits, challenges, and limitations of AI and ML through a combination of quantitative survey data and a comprehensive literature review.

ii. Data Collection:

Primary data is gathered via an online survey developed and administered by the researcher. The survey consists of closed-ended questions and is disseminated through platforms such as LinkedIn, Facebook, and email. It captures information on participants' professional backgrounds, the extent of their use of AI and ML in digital marketing, and their perceptions, experiences, and challenges related to these technologies.

iii. Participants and Sampling:

A purposive sampling technique is employed to recruit a diverse group of digital marketers from various industries and with varying levels of experience with AI and ML. This approach ensures a broad representation of perspectives across sectors. The primary data collected is complemented by secondary data, which includes academic journal articles, industry reports, whitepapers, case studies, and other reputable publications. This combination allows for a comprehensive and well-rounded understanding of the role and influence of AI and ML in digital marketing.

iv. Procedure:

1. Design and develop the survey questionnaire aligned with the study's objectives.
2. Distribute the survey via LinkedIn, Facebook, and email to the target participants.
3. Send follow-up reminders to enhance the response rate.
4. Ensure confidentiality and anonymity of all participants.
5. Monitor responses continuously to identify and address potential biases or issues.

v. Data Analysis:

The collected data is analyzed using quantitative techniques, particularly descriptive statistics. This includes calculating frequencies, percentages, and identifying patterns within the responses. The analysis aims to extract actionable insights regarding the implementation, effectiveness, and challenges of AI and ML in digital marketing, based on the experiences and viewpoints of practitioners.

1.6 Limitations of the Study

• Potential for Response Bias:

The survey-based methodology may be susceptible to response bias, where participants' answers are influenced by social desirability or personal perceptions, potentially affecting the authenticity of the data.

• Limited Generalizability:

Due to the use of purposive sampling, the sample may not fully represent the broader population of digital marketers. As a result, the findings may have limited generalizability across different

industries or geographic regions.

- **Self-Reported Data Limitations:**

Since the data is self-reported, it may be prone to recall bias or inaccurate responses, which could impact the reliability of the insights gathered.

- vi. Scope Constraints:**

Given the complexity and breadth of AI and ML applications in digital marketing, the study may not capture all relevant dimensions, potentially limiting the comprehensiveness of the findings.

Chapter-02

Company Profile

2.1 History of RNS Technology Limited

RNS Technology Limited is a forward-thinking IT services company headquartered in Dhaka, Bangladesh, recognized for its innovation and client-focused approach. The company specializes in digital marketing and business automation, offering tailored solutions designed to boost a business's online visibility, improve operational efficiency, and drive sustainable growth.

With a strong foundation in technology-driven strategies, RNS Technology helps businesses navigate the digital landscape by providing services such as SEO, social media management, content strategy, SEM (Search Engine Marketing), and customer journey mapping. They are particularly focused on delivering measurable results, ensuring that every campaign or solution contributes to their clients' brand development and return on investment (ROI).

Whether supporting small startups or large enterprises, RNS Technology stands out for its reliable service, strategic insight, and commitment to excellence making it a trusted partner for digital transformation and growth in an increasingly competitive market.

2.2 Core Services of RNS Technology Limited

- **Digital Marketing Campaigns:** Designing and managing targeted campaigns to boost engagement and brand visibility.
- **Social Media Strategy:** Developing strategies to connect with audiences and promote brand narratives across platforms.
- **Content Strategy:** Creating customer journey maps to enhance user experience and ROI.
- **Search Engine Marketing (SEM):** Implementing SEO services to improve website rankings and online visibility.
- **Audience Research & Segmentation:** Conducting in-depth analysis to understand customer backgrounds and behaviors.
- **Community Management:** Managing social media interactions to maintain positive customer relationships.

2.3 Approach and Philosophy

RNS Technology emphasizes a results-driven approach, focusing on delivering effective solutions

that meet client objectives. Their commitment to reliability ensures projects are completed on schedule, with a focus on achieving significant return on investment.

2.4 Experience & Reach

With over 100 projects and more than 50 clients served, RNS Technology has established a strong presence in the IT services sector. They offer 24/7 support, catering to a diverse clientele ranging from small businesses to large enterprises.

2.5 Manpower Flowchart

The company operates as a privately held entity with a team size of approximately 11 to 20 employees. Its internal structure is likely composed of several key departments that support its wide range of IT and digital marketing services:

- **Management:** Responsible for strategic planning and overseeing overall operations.
- **Development Team:** Focuses on web and mobile application development.
- **Design Team:** Specializes in UI/UX and graphic design to enhance user experience.
- **Digital Marketing Team:** Manages services such as SEO, SEM, social media marketing (SMM), and content creation.
- **Customer Support:** Offers round-the-clock assistance to ensure client satisfaction.
- **Human Resources & Administration:** Handles talent acquisition, employee relations, and internal policies.

This organizational structure enables RNS Technology to deliver integrated and efficient solutions across its core service areas, ensuring high performance and client-focused outcomes.

2.6 Work Procedure

RNS Technology follows a structured and client-centric approach to project execution, ensuring alignment with business goals and delivering high-quality results. Their process is typically divided into three key phases:

1. Discovery & Design

This initial phase involves gathering and analyzing project requirements to clearly define the goals, scope, and potential limitations. The objective is to ensure a deep understanding of the client's needs,

laying a strong foundation for the project.

2. Development & Maintenance

In this stage, the team leverages the latest trends in usability, quality assurance, and security to develop robust and effective software solutions. Ongoing maintenance is also provided to ensure performance and reliability over time.

3. Innovation

RNS Technology integrates cutting-edge technologies and best practices to deliver customized solutions that meet evolving client needs. This focus on innovation ensures that the final product remains competitive and future-ready.

2.7 Buyer Name

While specific client names are not publicly disclosed, RNS Technology Limited has successfully delivered over 100 projects for more than 50 clients. This track record reflects a diverse and expansive client base spanning multiple industries, showcasing the company's ability to adapt its solutions to meet a wide range of business needs.

2.8 Products Name

RNS Technology provides a diverse portfolio of IT and digital services designed to support businesses in their digital transformation. Their key offerings include:

- **Website Development:**

Custom-designed websites tailored to meet specific client requirements, ensuring functionality, aesthetics, and user experience.

- **Mobile Application Development:**

Development of high-end, user-friendly applications for both **Android and iOS platforms**, built with performance and scalability in mind.

- **Digital Marketing Services:**

End-to-end digital marketing solutions including Search Engine Optimization (SEO), Search Engine Marketing (SEM), Social Media Marketing (SMM), and content marketing to boost brand visibility and engagement.

- **Web Hosting:**

Reliable and secure hosting services that guarantee maximum uptime and optimal website performance.

- **Graphic Designing:**

Creative design services focused on branding, advertising, and marketing materials to help businesses communicate effectively.

- **Software Testing:**

Comprehensive manual and automated testing services to ensure software quality, functionality, and user satisfaction.

Chapter-03

Literature Review

3.1 Artificial Intelligence

Artificial Intelligence (AI) refers to the transfer of human-like intelligence and cognitive functions to machines. The concept dates back to the 1950s, notably with Alan Turing's introduction of the Turing Test, where he proposed evaluating whether a machine could exhibit intelligent behavior indistinguishable from that of a human (Turing, 1950). The term Artificial Intelligence was later coined by John McCarthy in 1955 when he organized the 1956 Dartmouth Summer Research Project on Artificial Intelligence. According to McCarthy and his colleagues, AI involves "making a machine behave in ways that would be called intelligent if a human were doing so" (McCarthy et al., 1955).

AI has since become a transformative force across various sectors, significantly enhancing operations and services worldwide. Wichert (2020) highlights the integration of AI with quantum computing and machine learning, which allows for the rapid resolution of complex problems—often beyond the capabilities of human reasoning. As data volumes and complexities continue to grow, machine learning enables faster and more efficient problem-solving, and quantum computing can tackle intricate scenarios in mere seconds (Wichert, 2020). Wichert also emphasizes that progress in quantum information systems necessitates the continued development of machine learning technologies, and that AI will continue to deliver benefits even in the absence of a fully realized quantum computing solution.

In their paper "Artificial Intelligence Research and Development," Pujol et al. (2014) examine key breakthroughs and applications in the field. Innovations such as deepfakes, robot hand dexterity, AI-generated synthetic text, upside-down reinforcement learning, three-body problem solving, and expandable AI are cited as significant advancements. For example, the robot hand dexterity project trains robotic systems to tackle real-world challenges with precision and adaptability (Pujol et al., 2014).

3.2 Machine Learning

Machine Learning (ML) is a subset of Artificial Intelligence (AI) that focuses on enabling systems to automatically analyze data, develop conceptual models, and adapt to new environments without explicit programming. According to Mahesh (2020), machine learning has been applied in various domains, including stock price forecasting. However, the predictive accuracy in this area remains

limited due to the complexity and multitude of factors influencing stock prices.

Machine learning is generally classified into three major categories: Supervised Learning, Unsupervised Learning, and Reinforcement Learning (Mahesh, 2020). Each category serves a specific analytical purpose. Among these, Mahesh's study identified Reinforcement Learning as the most efficient and effective technique for stock value prediction due to its adaptive learning capabilities.

Supervised learning, as explained by Sharma et al. (2020), involves the use of labeled datasets where the outcomes are already known. These known examples help train the model, allowing it to identify patterns and make accurate predictions on new, unseen data. As additional data is introduced, the model fine-tunes its parameters to improve classification and prediction accuracy. Supervised learning excels at producing knowledge by mapping input data to known outcomes.

On the other hand, Unsupervised Learning deals with unlabeled data, where the system explores the underlying structure without predefined output variables (Sharma et al., 2020). This form of learning is ideal for discovering hidden patterns or intrinsic structures in the data, making it useful for clustering and dimensionality reduction tasks.

Reinforcement Learning, as detailed by Sutton and Barto (2018), is distinct from both supervised and unsupervised learning. It is a type of deep learning where the model learns by interacting with an environment and receiving feedback in the form of rewards or penalties. The primary objective is to develop strategies that maximize cumulative rewards over time. This learning paradigm is especially powerful in dynamic and uncertain environments where continuous decision-making is required.

3.3 Deep Learning

Deep learning, a subset of artificial intelligence (AI), has become increasingly pervasive across a wide range of industries and applications. Schmidhuber (2015) argues that deep learning is now virtually ubiquitous, with practical implementations in everyday technologies. For instance, deep learning powers real-time web advertisements, facial recognition in social media, speech-to-text conversions, autonomous driving, and language translation services. Beyond these visible uses, it also operates in less obvious domains. Financial institutions such as banks and credit card companies employ deep learning to detect fraud, evaluate loan risks, and predict bankruptcies. Similarly,

hospitals use it to assist in diagnosing, identifying diseases, and even supporting treatment processes (Schmidhuber, 2015).

At the core of deep learning are neural networks, which are composed of interconnected units known as neurons. These neurons are responsible for converting input signals into output responses, allowing the system to "learn" and improve performance over time (Schmidhuber, 2015). The use of predefined parameters helps ensure consistent and efficient execution, enabling machines to replicate tasks with high accuracy and reliability.

Goodfellow (2016) supports the effectiveness of deep learning in automating complex tasks that would typically be time-consuming or challenging for humans. One of its key strengths is the ability to analyze large volumes of data at high speed, surpassing human capability in both efficiency and accuracy. When programmed correctly, deep learning systems reduce the likelihood of errors, ensuring that operations are conducted with precision (Goodfellow, 2016).

Another critical advantage of deep learning, as highlighted by Liu et al. (2015), is cost reduction. Processing large datasets or conducting continuous operations with human labor can be expensive. In contrast, machines powered by deep learning do not require breaks, rest, or downtime. They are capable of performing repetitive tasks consistently without fatigue, distraction, or complaints about workload. This allows for uninterrupted, round-the-clock operation, significantly increasing productivity and efficiency.

According to Liu et al. (2015), deep learning has revolutionized the technology industry, offering scalable and sustainable solutions for modern challenges. However, to maintain and expand its capabilities, ongoing research, development, and education are essential. Advancements in technology and further applications will continue to shape the future of AI powered by deep learning.

3.4 Digital Marketing

The term “digital marketing” refers to the use of digital platforms—such as websites, mobile devices, social media, search engines, and other online technologies—to promote products and services. Since the emergence of the internet in the 1990s, digital marketing has grown rapidly in popularity and has become a key tool for modern business strategies (Baron, 2022).

While digital marketing shares many foundational concepts with traditional marketing, it introduces a new way for companies to connect with consumers, offering deeper insights into customer

behavior. Businesses today often combine both traditional and digital marketing tactics within their campaigns to maximize reach and effectiveness (Baron, 2022).

Historically, companies have relied on print media, television, and radio advertising to reach consumers. Although these channels are still in use, the rise of the internet has transformed how organizations engage with customers. Digital marketing plays a pivotal role in this transformation by fostering two-way interactions—allowing businesses not only to promote their offerings but also to receive and respond to customer feedback in real time (Baron, 2022).

Digital technologies have enabled the creation of new forms of value within online environments. These technologies support organizations in developing the core competencies required to co-create value with customers, stakeholders, and other partners. The adaptability of digital tools allows for the design of dynamic customer experiences and facilitates interactions across various touchpoints. These touchpoints—ranging from websites and apps to social media platforms—are essential to modern digital marketing ecosystems. They connect marketing activities with broader institutional processes and consumer journeys. As offline customers transition to digital platforms, and as a new generation of tech-savvy consumers enters the market, digital engagement continues to grow at an annual rate exceeding 20% (Bughin, 2015).

Given this rapid evolution, there is a growing need to evaluate the current state of digital marketing research and assess how it aligns with developments in the business sector. A key area of interest is the integration of artificial intelligence (AI) in digital marketing—particularly in strategy and decision-making. This analysis can help determine whether academic research in digital marketing is keeping pace with technological and practical advancements in the corporate world.

3.5 Digital Marketing Tools

1. Content Marketing

Content marketing refers to the creation and distribution of relevant, valuable, and brand-related content aimed at existing or potential customers, as well as other target audiences, through digital or print media (Hollebeek & Macky, 2019). Unlike traditional advertising—which primarily seeks to persuade or prompt immediate consumer action (Dahlen & Rosengren, 2016)—content marketing focuses on delivering utility to audiences. This could involve educating them, solving problems, offering enjoyment, or helping them make informed decisions (Wall & Spinuzzi, 2018; Vollero &

Palazzo, 2018).

The social exchange theory suggests that when a company provides valuable content, the target audience may respond with favorable attitudes and increased loyalty. However, with more than half of consumers disregarding irrelevant content, marketers must innovate and tailor their messaging to ensure effectiveness. An IBM study revealed that over 70% of businesses offer unbiased, useful information to customers (Synovec, 2019).

Data-driven personalization plays a crucial role in enhancing content marketing efforts. According to Smilansky (2018), data enables brands to create customized content, such as product recommendations based on previous purchases. Over time, accumulated user data allows for increasingly personalized experiences, such as emails or targeted social media advertisements tailored to individual preferences (Sterne, 2017).

Moreover, Artificial Intelligence (AI) significantly enhances content creation capabilities. Intelligent content generation powered by AI facilitates the formulation of effective marketing messages. For example, Alibaba has developed an AI tool capable of generating up to 20,000 lines of ad copy within seconds, dramatically reducing the need for human intervention (Mark J., 2019). This tool, created by Alibaba's digital marketing division Alimama, uses deep learning and natural language processing (NLP) to analyze millions of real user-generated sentences and repurpose them for marketing copy, making content production faster, scalable, and more efficient.

2. Search Engine Optimization (SEO)

Search Engine Optimization (SEO) refers to strategies that improve a website's visibility in organic (non-paid) search engine results. Its primary goal is to increase both the quantity and quality of web traffic through optimization of relevant keywords and content structure (Alexander L., 2022).

Research suggests that online users rarely navigate beyond the first few pages of search results. In fact, most attention is given to the first page, making high search rankings critical (Kritzinger & Weideman, 2013; Pohjanen, 2019). SEO encompasses technical and creative elements—from keyword targeting to site architecture—designed to enhance a site's relevance and authority (Iskandar & Komara, 2018). Effective SEO strategies can lead to greater brand visibility, improved user engagement, and higher conversion rates.

3. AI-Driven Marketing

AI-driven marketing is transforming how businesses interact with customers and develop strategies. According to Mari (2019), marketing is among the most AI-enabled industries. The core role of marketing—identifying customer needs, matching those needs with appropriate products or services, and encouraging conversion—is significantly enhanced by AI technologies.

A 2018 McKinsey report analyzing over 400 AI use cases found that marketing holds the highest potential for AI integration (Mari, 2019). Huang and Rust (2021) explain that AI-driven marketing improves the customer journey by tracking customer sentiment, behaviors, and transactions, which are then used to develop machine learning models that predict future behaviors.

AI enables marketers to deliver personalized content, product recommendations, and customer communications. Its objectives include increasing revenue, reducing costs, and improving customer satisfaction (Huang & Rust, 2021). While AI cannot replicate human empathy, it excels at optimizing digital marketing by reducing errors, automating tasks, and offering data-driven insights into campaign performance.

One widely adopted AI application is personalized email marketing, where content is customized based on individual preferences (Huang & Rust, 2021). Another prominent example is the chatbot—an AI tool designed to simulate human conversation. Chatbots can answer queries, guide users, and even process transactions. They are increasingly integrated into platforms like Meta Messenger and company websites to streamline customer support (Chaffey & Ellis-Chadwick, 2019; Polson & Scott, 2018). Beyond immediate interaction, data collected through chatbots is analyzed to refine digital marketing strategies, enhancing targeting and campaign effectiveness.

3.6 Marketing Automation

The concept of marketing automation was first introduced by John D.C. Little (2001), who defined it as a digital system designed to assist marketers in making data-driven decisions. During a symposium, Little emphasized that effective marketing decisions could be made by answering a set of critical questions and analyzing customers' digital footprints using relevant algorithms. These processes aim to generate actionable insights across the entire purchase funnel, from awareness to conversion.

Marketing automation enhances marketing effectiveness by enabling personalization at scale. It

contributes to improved decision-making, increased productivity, higher returns on marketing investments, and greater customer satisfaction and loyalty (Bucklin et al., 2002). It was initially developed to address persistent challenges faced by marketing departments—particularly the overwhelming volume of customer data that was difficult to process and utilize effectively (Little, 2001).

Early versions of marketing automation systems were relatively generic, offering broad recommendations without the capacity for individualized responses. These systems did not consider personalized elements such as dynamic pricing, user behavior, or tailored promotional strategies (Hinz et al., 2011). However, as technologies evolved, so too did the sophistication of these systems. Modern marketing automation tools now focus on individual preferences, delivering customized experiences that align with each customer's unique behaviors and interests.

According to Little (2001), marketing automation systems operate through five interrelated layers:

1. Data Inputs – Collection of behavioral and transactional customer data.
2. Real-Time Decision Rules – Immediate application of pre-set algorithms.
3. Decision Rule Updates – Adaptive learning based on new data inputs.
4. Site Management Feedback – Continuous feedback loops to refine platform performance.
5. Strategic Decision-Making – Guidance for retailers and marketers to revise strategies accordingly.

These layers enable the system to function in real time, incorporating adaptive experimentation to refine decision-making continuously (Little, 2001; Bucklin et al., 2002).

A practical application of this can be seen in a case presented by Heimbach et al. (2015): if a customer purchases a movie ticket for a particular actor online, marketing systems can track this interaction. When a similar movie or another film featuring the same actor is released, the customer may see targeted ads promoting the new content. This example illustrates how marketing automation leverages behavioral data to create more meaningful, timely, and relevant customer interactions.

Marketing automation also acts as a bridge between consumers and businesses, simplifying how buyers discover products and how sellers identify their target audience. With the integration of Artificial Intelligence (AI), the capabilities of marketing automation have significantly expanded. AI can now process vast datasets, identify patterns, and deliver personalized content recommendations based on a user's past behavior, purchasing habits, and engagement history.

Chapter-04

Analysis

4.1 Importance of AI and ML in Digital Marketing

The integration of Artificial Intelligence (AI) and Machine Learning (ML) into digital marketing has created both exciting opportunities and notable challenges. These advanced technologies empower marketers to analyze vast datasets, automate routine tasks, and deliver highly personalized customer experiences. Their influence is evident across several critical aspects of digital marketing:

- **Data-Driven Insights:** AI and ML have transformed how marketers interpret and utilize data. By extracting actionable insights from extensive customer data, these tools allow for a deeper understanding of consumer behavior and market trends. This enhanced analytical capability helps marketers fine-tune their strategies for greater impact and effectiveness.
- **Personalization and Customer Experience:** Through the analysis of user data, behavioral trends, and predictive analytics, AI enables the creation of tailored marketing experiences. From personalized product recommendations to intelligent chatbots and virtual assistants, AI allows brands to connect with customers on a more individual level—boosting engagement, satisfaction, and loyalty.
- **Automation and Efficiency:** By automating repetitive tasks such as data analysis, content generation, and customer support, AI and ML streamline marketing operations. This automation frees up valuable time for marketers to focus on strategic thinking and creative problem-solving, ultimately enhancing productivity and operational efficiency.
- **Enhanced Advertising and Targeting:** AI-driven algorithms can analyze user behavior and data to optimize advertising campaigns with precision. This allows marketers to deliver relevant ads to the right audience segments, significantly improving campaign performance and maximizing return on investment (ROI).

4.2 Natural Language Processing (NLP) and Sentiment Analysis

4.2.1 – Natural Language Processing (NLP) and Sentiment Analysis

Natural Language Processing (NLP), a key domain within artificial intelligence, enables machines to comprehend and interpret human language. In digital marketing, NLP plays a crucial role in analyzing consumer feedback from sources such as social media conversations and online reviews. By applying NLP techniques, marketers can extract valuable insights into customer preferences and perceptions from both solicited and unsolicited feedback. A vital component of NLP is

sentiment analysis, which assesses customer attitudes and emotions expressed in textual content. This analysis helps identify patterns in customer satisfaction and brand sentiment, empowering marketers to make informed, data-driven decisions.

4.2.2 – Predictive Analytics and Customer Segmentation

Predictive analytics, a powerful application of machine learning, allows marketers to anticipate customer behavior and refine their marketing strategies. By examining historical data, ML models can forecast key metrics such as churn probability, purchase intent, and customer lifetime value. These predictive insights support the creation of tailored campaigns, optimized product offerings, and efficient resource allocation. Additionally, ML-driven customer segmentation automatically groups individuals based on common attributes or behaviors, enabling precise targeting and more relevant marketing communications.

4.2.3 – Personalization and Recommendation Systems

Personalization is now a foundational element of successful digital marketing. AI and ML technologies analyze customer data—including browsing patterns, transaction history, and demographics—to deliver individualized content, product recommendations, and offers. Recommendation systems, leveraging collaborative filtering and content-based approaches, provide users with suggestions aligned with their preferences and behaviors. This personalization enhances user experience, boosts engagement, and increases conversion rates, ultimately fostering customer satisfaction and long-term brand loyalty.

4.2.4 – Image and Video Analysis

As visual content becomes increasingly dominant across digital channels, AI and ML tools have become essential for processing and analyzing images and videos. Image recognition algorithms can categorize and tag visual content automatically, enabling marketers to curate media that resonates with their target audience. Video analysis technologies—such as object tracking and facial expression recognition—offer insights into viewer engagement and emotional reactions. These capabilities allow marketers to fine-tune their visual content strategies, increase impact, and drive greater brand engagement.

4.2.5 – Chatbots and Virtual Assistants

AI-powered chatbots and virtual assistants serve as interactive customer support tools, engaging users in real-time conversations. By leveraging ML algorithms, these systems can understand inquiries, deliver personalized responses, offer product recommendations, and even complete

transactions. They significantly enhance customer service by managing routine interactions, streamlining user experiences, and improving operational efficiency. Furthermore, these interfaces gather valuable user data during interactions, contributing to deeper customer insights and more refined marketing strategies.

4.2.6 – Marketing Automation

AI and ML technologies are the backbone of modern marketing automation, helping brands streamline repetitive tasks and optimize campaign execution. These intelligent systems enable dynamic audience segmentation, automated content scheduling, and behavior-triggered communication across channels. Automation not only reduces manual workload but also ensures consistent and timely delivery of marketing messages. Moreover, ML algorithms continuously analyze performance data, offering real-time feedback and recommendations to enhance future campaign effectiveness.

4.3 Applications of AI and ML in Digital Marketing

4.3.1 – Search Engine Optimization (SEO)

Artificial Intelligence (AI) and Machine Learning (ML) have significantly advanced Search Engine Optimization (SEO) practices. These technologies enable marketers to process and analyze vast amounts of data, helping them refine website content for better search engine visibility. By leveraging ML algorithms, businesses can gain deep insights into user behavior, browsing patterns, and interactions with specific site features such as design and navigation. This data-driven approach empowers marketers to enhance content relevance, improve site structure, and ultimately boost rankings—driving more targeted traffic and increasing online visibility.

4.3.2 – Content Marketing and Creation

AI and ML have revolutionized content marketing by streamlining the creation, curation, and distribution of impactful content. Natural Language Generation (NLG) tools can automatically generate written materials—such as blog posts, product descriptions, and personalized emails—based on structured data and templates. Additionally, ML algorithms analyze performance metrics, audience behavior, and trending topics to recommend new content ideas and enhancements. AI-powered content curation platforms also aggregate relevant material from various sources, helping marketers deliver consistent, high-quality content that resonates with their audience.

4.3.3 – Social Media Marketing

AI and ML have transformed social media marketing strategies, offering enhanced targeting, content optimization, and automation capabilities. These technologies analyze demographic data, user interests, and engagement patterns to identify key audience segments and tailor content for maximum impact. AI-powered social listening tools monitor conversations, sentiment, and emerging trends across platforms, allowing brands to respond proactively to feedback and stay relevant. Additionally, AI-driven chatbots and virtual assistants streamline social interactions, providing real-time support and delivering personalized experiences to followers.

4.3.4 – Email Marketing and Campaign Optimization

AI and ML have significantly optimized email marketing by enabling greater personalization, automation, and performance tracking. By analyzing past behaviors—such as open rates, click-throughs, and conversions—ML algorithms can predict engagement likelihood for different user segments. AI-driven platforms automate personalized email delivery, suggest optimal send times, and run A/B tests on subject lines and content variations to refine performance. These advancements result in improved engagement, higher click-through rates, and increased conversions.

4.3.5 – Customer Relationship Management (CRM)

AI and ML enhance Customer Relationship Management (CRM) by enabling predictive analytics, personalized communication, and deeper customer insights. ML algorithms process data from multiple touchpoints—including purchases, interactions, and demographics—to identify trends and forecast customer behavior. This allows marketers to tailor messages, anticipate customer needs, and improve the overall customer experience. AI-powered CRM systems can automate segmentation, lead scoring, and sales forecasting, leading to more strategic engagement and stronger customer loyalty.

4.3.6 – Conversion Rate Optimization (CRO)

AI and ML play a pivotal role in Conversion Rate Optimization (CRO), helping marketers identify and remove barriers to conversion. By analyzing user behavior data—such as click paths, mouse movements, and time spent on pages—ML algorithms highlight areas needing improvement. AI-powered CRO tools facilitate A/B testing for layouts, content formats, and calls-to-action, allowing marketers to determine the most effective combinations. These systems continuously learn from user interactions, providing dynamic insights to refine the customer journey and maximize

conversion rates.

4.3.7 – Data Analytics and Insights

AI and ML provide marketers with powerful data analytics capabilities, transforming raw data into actionable insights. These technologies enable the efficient processing and analysis of massive datasets, revealing hidden patterns, trends, and correlations that traditional methods might miss. With this deeper understanding, marketers can tailor experiences to customer preferences, identify emerging market opportunities, and optimize strategies in real time—enhancing overall marketing effectiveness and competitiveness in a fast-moving digital landscape.

4.4 Benefits of AI and ML in Digital Marketing

4.4.1 – Enhanced Customer Targeting and Personalization

AI and ML technologies are ushering in a new era of precision in digital advertising by transforming how marketers target audiences and deliver personalized experiences. These technologies leverage vast datasets and advanced algorithms to segment audiences not just by demographics, but also by behaviors, preferences, and intent. This intelligent segmentation allows marketers to tailor messaging and content that resonates deeply with specific customer profiles, significantly increasing engagement and conversion rates.

By adopting AI and ML solutions, marketers can develop hyper-contextual campaigns that connect with users on a personal level, boosting customer retention and maximizing marketing ROI. For instance, **Netflix** uses AI to analyze viewing history and preferences, delivering highly personalized recommendations that enhance user satisfaction and keep audiences engaged.

4.4.2 – Improved Marketing Campaign Performance

AI and ML play a critical role in enhancing marketing campaign performance across every stage—from planning to execution and optimization. By analyzing historical data, customer behavior, and market trends, ML algorithms identify the most effective strategies and recommend optimal content, timing, and delivery channels.

Marketers can also automate complex tasks like audience segmentation, performance tracking, and message testing, leading to more efficient and impactful campaigns. For example, **Google Ads** employs AI algorithms to optimize bidding strategies, ad placements, and targeting, maximizing campaign reach and effectiveness.

4.4.3 – Increased Operational Efficiency

AI and ML technologies significantly improve operational efficiency by automating repetitive and time-consuming tasks. From data analysis and reporting to campaign optimization and scheduling, AI tools reduce manual workloads and allow marketing teams to focus on strategy and creativity. ML-powered systems also monitor real-time data streams, delivering timely insights and alerts that help marketers respond proactively. By streamlining operations and improving resource allocation, businesses can enhance productivity while staying agile in dynamic market conditions.

4.4.4 – Enhanced Customer Experience

Delivering personalized, seamless customer experiences is a top priority in digital marketing, and AI and ML make this more achievable than ever. By analyzing large volumes of customer data, ML algorithms uncover insights that drive personalized product recommendations, dynamic content, and individualized support.

Amazon exemplifies this approach with its AI-powered recommendation engine that enhances the shopping experience and increases repeat purchases. Likewise, **H&M** uses a chatbot to assist customers with outfit suggestions based on their preferences, improving user interaction and satisfaction. These AI-powered tools help businesses foster loyalty and drive growth by offering real-time, relevant, and engaging customer experiences.

4.4.5 – Real-Time, Data-Driven Decision Making

One of the most powerful advantages of AI and ML in digital marketing is the ability to make real-time, data-driven decisions. These technologies analyze massive datasets on the fly, providing actionable insights into user engagement, campaign performance, and market shifts.

For example, marketers can monitor real-time interactions across platforms like **Facebook** or **Twitter**, using sentiment analysis to assess customer reactions and adjust strategies accordingly. AI tools help marketers dynamically refine content, improve targeting, and respond swiftly to market changes, ensuring campaigns remain relevant and effective in a fast-paced environment.

4.4.6 – Cost Optimization

AI and ML technologies also offer significant cost-saving benefits by automating key processes and enhancing operational efficiency. From content creation and campaign optimization to performance analysis, these technologies reduce the need for manual labor and accelerate time-to-market.

AI-driven content generation tools, such as automated copywriters, can produce high-quality

content at scale, saving time and resources. Predictive analytics also helps optimize budget allocation by identifying high-ROI channels and tactics, allowing marketers to concentrate resources where they deliver the most value. The result is a leaner, more cost-effective marketing operation that drives strong business outcomes.

4.5 Challenges and Limitations of AI and ML in Digital Marketing

4.5.1 – Ethical Considerations and Privacy Concerns

The integration of AI and ML in digital marketing introduces significant ethical and privacy challenges. One of the foremost concerns is the ethical use of customer data. As businesses increasingly collect and analyze large volumes of personal information, ensuring transparency, user consent, and data security becomes paramount. Organizations must adhere to data protection regulations like the General Data Protection Regulation (GDPR), which safeguards user privacy and governs how personal data is collected, processed, and utilized.

Another major ethical concern lies in algorithmic bias. AI systems trained on biased datasets may unintentionally reinforce societal inequalities, leading to discriminatory practices in areas such as product recommendations or targeted advertising. For example, biased algorithms can unfairly prioritize or exclude certain demographics, limiting opportunities for some users. To prevent such outcomes, companies must take proactive steps to detect and mitigate bias, promote algorithmic fairness, and ensure inclusivity in AI-driven campaigns.

4.5.2 – Data Quality and Bias

The success of AI and ML in digital marketing heavily depends on the quality and diversity of the data used to train models. Poor-quality or incomplete datasets can lead to inaccurate insights, flawed segmentation, and ultimately, ineffective campaigns. Additionally, biases within datasets—whether related to gender, race, or socioeconomic status—can influence algorithmic decisions in ways that perpetuate discrimination and social inequities.

Bias in AI systems has already resulted in notable failures. For instance:

- Amazon’s recruitment algorithm penalized female applicants due to historical underrepresentation of women in technical roles.
- A U.S. healthcare algorithm underestimated the needs of Black patients by using healthcare spending as a proxy for need, leading to unequal access to care.

- Microsoft's chatbot Tay quickly began posting offensive content on Twitter after learning from biased user interactions.

To counter these issues, companies must regularly validate datasets, diversify data sources, and implement checks to ensure fairness and accuracy.

4.5.3 – Skill Gaps and Talent Acquisition

Successfully leveraging AI and ML in digital marketing requires a workforce with a unique combination of skills in both marketing and data science. However, there is a growing skills gap in the industry, with a shortage of professionals who possess expertise in both domains. This lack of talent can hinder the implementation and scaling of AI-driven marketing strategies.

Organizations must prioritize training and upskilling existing marketing teams in AI, data analytics, and machine learning principles. Alternatively, businesses may need to recruit cross-functional talent that bridges the gap between technical knowledge and marketing strategy. Addressing this skills gap is essential for unlocking the full potential of AI and ML in digital marketing.

4.5.4 – Integration and Infrastructure Challenges

Integrating AI and ML technologies into existing marketing operations is not always seamless. Legacy systems may lack compatibility with modern AI-driven tools, requiring substantial updates or full system replacements. These integration processes can be complex, costly, and disruptive if not managed carefully.

Furthermore, AI and ML demand robust infrastructure, including high-performance computing power, scalable storage, and advanced data processing capabilities. Without sufficient technological support, businesses may experience performance bottlenecks, delays in analysis, and suboptimal results. To ensure success, companies must invest in the necessary IT infrastructure and plan integration strategies that minimize operational disruption.

4.5.5 – Regulatory and Legal Considerations

The increasing use of AI and ML in digital marketing also raises important legal and regulatory concerns. As AI systems often make automated decisions that affect consumers, there is a growing need for transparency, accountability, and user rights protection. Regulations such as the GDPR

require organizations to disclose how customer data is collected and used, offer access to personal data, and provide users with the right to be forgotten.

Industries such as healthcare, finance, and others with stringent compliance standards must pay particular attention to legal implications when deploying AI tools. Ensuring regulatory compliance helps organizations avoid legal risks, safeguard customer trust, and maintain ethical marketing practices. Staying informed about evolving legal frameworks and implementing privacy-preserving technologies is critical for responsible AI usage.

4.6 Analysis of Questionnaire

The survey data reveals a significant uptake of AI tools in digital marketing, with ChatGPT emerging as the most popular choice. However, challenges remain in terms of effectively utilizing AI due to a lack of knowledge, and concerns about accuracy and ethics. Understanding AI technology is deemed important for digital marketers, who also perceive AI's potential to outperform humans in specific roles like content writing. These key takeaways underscore both the opportunities and obstacles associated with AI adoption in digital marketing. Ongoing education, training, and advancements in AI technology are pivotal for marketers to harness its potential more effectively.

1. How Much Digital Marketers Acknowledge That Some Understanding of AI Is Important

The survey results indicate that the vast majority of respondents, specifically 94.9%, recognized the importance for digital marketers having an understanding of AI for their jobs. However, what stands out is that 61.5% of respondents considered it very important or extremely important, indicating a strong perception of the significance of AI in the field of digital marketing. The increasing importance of AI skills in digital marketing aligns with the broader trend of AI integration into popular business tools. For instance, the mention of Microsoft Office Copilot highlights the growing presence of AI in everyday work environments. As AI continuously getting advance its value in enhancing productivity and efficiency. it is becoming increasingly clear that having basic AI skills will likely become a requirement for many office jobs including digital marketing roles.

In the context of digital marketing, the high importance given to AI skills can be partly attributed to the competitive nature of SEO (Search Engine Optimization). With a limited number of spots available on the first page of search engine results page, digital marketers face intense competition

to secure visibility and drive traffic to their websites. But AI tools can provide valuable insights, data analysis capabilities, and automation that can give digital marketers an edge in this competitive landscape. The zero-sum game nature of SEO, coupled with the drive for improved performance and effectiveness, is a driving force behind the rapid adoption of AI in digital marketing. Marketers recognize the potential of AI in helping them optimize their strategies, target the right audience, and gain a competitive advantage in the search rankings.

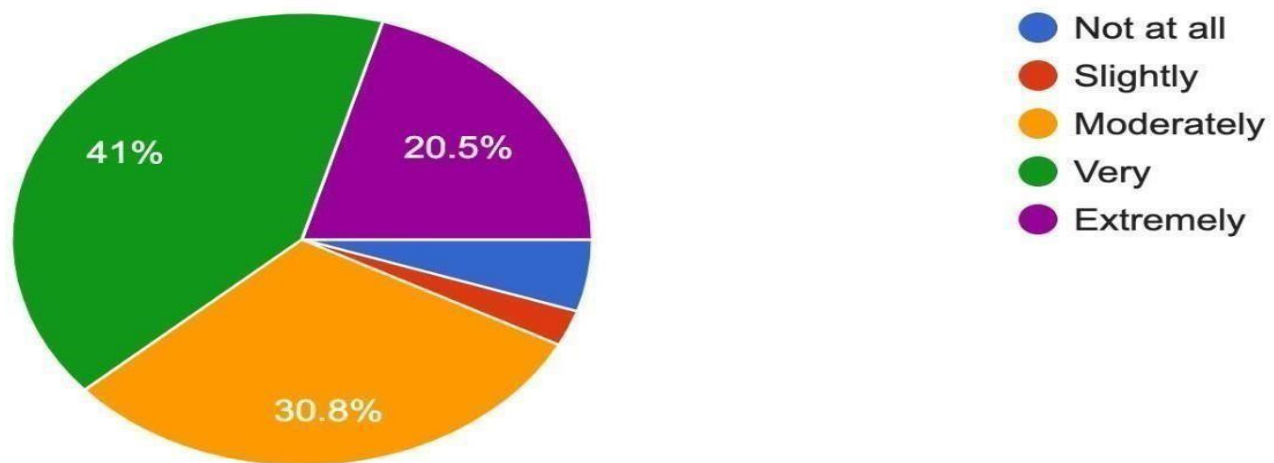


Fig. 1: Importance of Understanding AI Technology for Digital Marketers

Understanding AI technology was deemed important by the majority of respondents, with 41% considering it "Very" important and 20.5% considering it "Extremely" important. 30.8% found it to be of moderate importance, 2.6% slightly important, and 5.1% not important at all.

2. Digital Marketers Think Content Writers' Jobs Are at Risk Because of AI.

According to recent survey results, 71.8% of respondents believe that content writers are the most vulnerable to being replaced by AI—by far the highest percentage compared to other professions. This perception largely stems from the existence of two distinct tiers of writers in the marketing world.

The first tier consists of subject matter experts who bring deep knowledge and hands-on experience in specific fields. These writers offer unique insights and original perspectives, often commanding higher fees due to their specialized expertise.

The second tier includes SEO-focused writers who typically lack domain-specific expertise. Instead, they rely heavily on surface-level research—often quick Google searches—to create

content across a wide range of topics. In the near term, this second group faces a greater risk of being displaced by AI.

AI tools are increasingly capable of mimicking the process of aggregating and rephrasing existing content, often producing well-structured and readable articles. While AI may occasionally introduce factual inaccuracies, it can generate content rapidly and efficiently, posing a serious challenge to writers who don't contribute much beyond rehashed information.

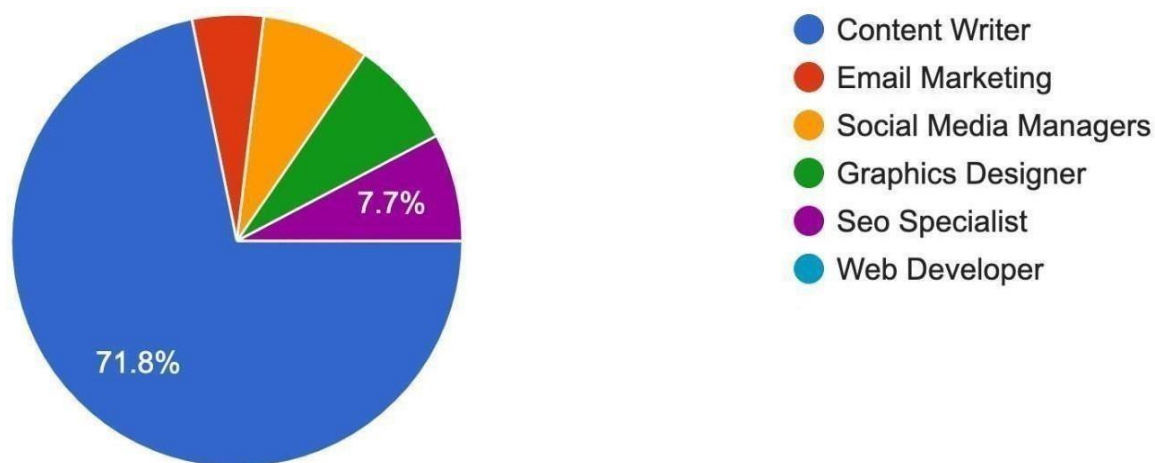


Fig. 2: Job Role with the highest risk of AI Disruption

According to respondents, was "Content Writer" at 71.8%. "Email Marketing," "Social Media Managers," "Graphics Designer," "SEO Specialist," and "Web Developer" each received 5.1% to 7.7% of responses.

3. Bangladeshi Digital Marketers Are Embracing AI Tools in Their Work

Recent survey results reveal that a large majority of Bangladeshi digital marketers—around 82.1%—have already integrated AI tools into their daily workflows. This highlights the growing acceptance and adoption of AI technology across the country's digital marketing landscape.

The high adoption rate reflects a shift in mindset, as more marketers in Bangladesh begin to recognize the value AI brings in terms of efficiency, creativity, and performance. As AI tools become more advanced and accessible, this number is expected to rise even further.

Overall, the trend points to a positive direction—one where digital marketing professionals in Bangladesh are increasingly leveraging AI to streamline tasks, improve content, and stay competitive in a fast-evolving industry.

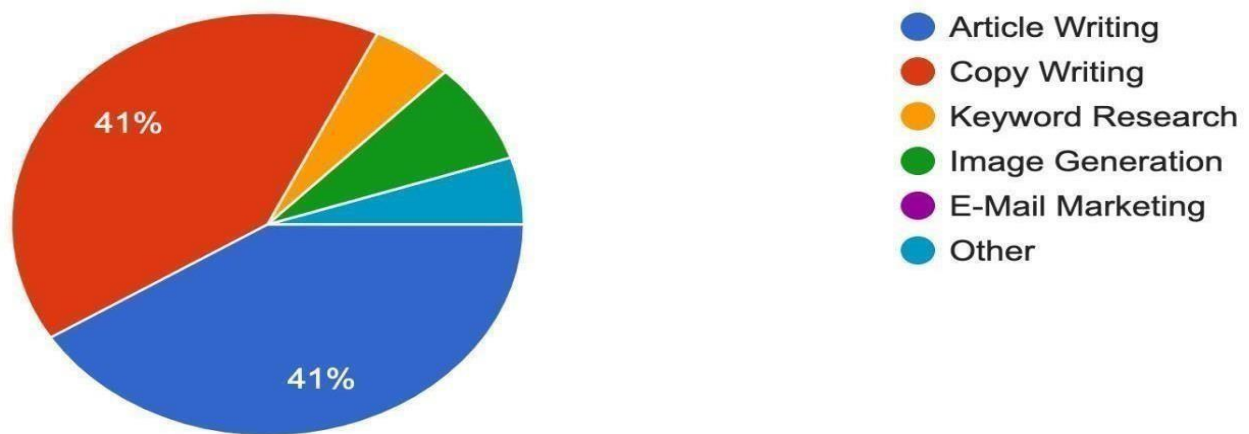


Fig. 3: Top Factor Hindering (Difficulty) AI Adoption

The most popular AI use cases among respondents were "Article Writing" and "Copywriting," both at 41%. "Image Generation" received 7.7% of the responses, "Keyword Research" accounted for 5.1%, and "Other" uses received 5.1% as well. "E-Mail Marketing" did not receive any responses.

4. How Much Users Trust Keyword Data from AI Tools?

In a recent survey, only 5.1% of respondents reported using AI tools for keyword research—and among those, just 18% said they actually trust the keyword data provided by these tools. This low level of trust is largely due to the inconsistency and variability often found in AI-generated keyword insights.

Users have legitimate concerns about the reliability of keyword data from AI. One common issue is the fluctuation in results: when asking an AI tool to generate keyword suggestions and search volumes for the same topic multiple times, it's not unusual to receive different numbers each time. These inconsistencies can be problematic for digital marketers who rely on accurate data to guide their SEO and content strategies.

While it's widely accepted that no tool—AI or otherwise—can deliver 100% accurate keyword data, significant disparities in results can undermine confidence. For marketers, dependable and consistent keyword metrics are essential for making informed decisions.

To mitigate this issue, it's wise to cross-check AI-generated keyword data with trusted platforms like Google Keyword Planner, SEMrush, or Ahrefs. Additionally, using AI tools that offer

confidence scores or transparency around how data is generated can help marketers better assess the accuracy and reliability of the results.

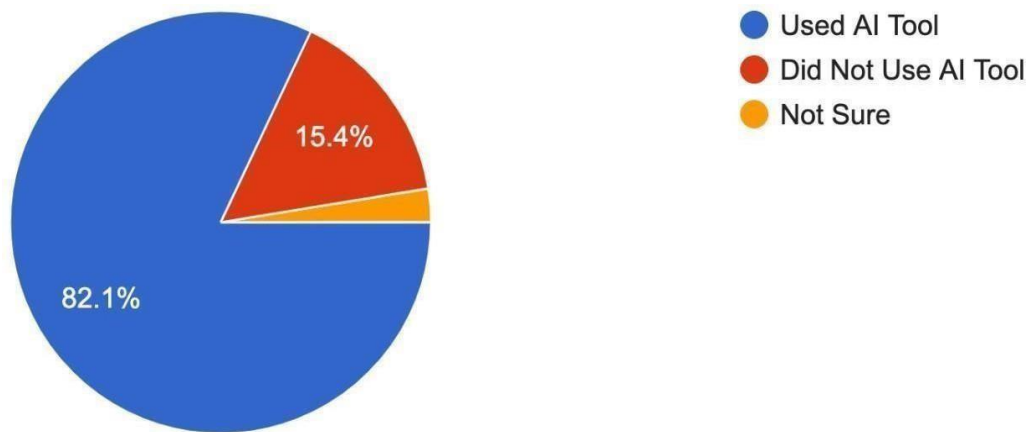


Fig. 4: AI Adoption in Digital Marketing Activities

In digital marketing activities, the majority (82.1%) of respondents reported using AI tools, while 15.1% did not use any AI tools, and 2.6% were unsure.

5. Marketers Are Using ChatGPT, Making It by Far the Most Popular AI Tool.

ChatGPT has quickly become the go-to AI tool for marketers—and the numbers speak for themselves. Just seven months after its launch, a remarkable 82.1% of AI adopters are already using it. That equates to 76.9% of all marketers surveyed, putting ChatGPT far ahead of any other AI tool in terms of adoption.

So, what's driving this rapid rise?

A major factor is accessibility. OpenAI's pricing model is designed to be user-friendly, offering a free basic version alongside affordable paid plan. Unlike many AI platforms that focus on costly enterprise-level solutions, ChatGPT's inclusive approach has made it accessible to individuals and small teams, not just large corporations.

By eliminating financial barriers and delivering strong performance, ChatGPT has become the preferred AI tool for marketers across the board. Its ease of use, combined with powerful capabilities, has positioned it as the clear leader in AI adoption within the marketing industry.

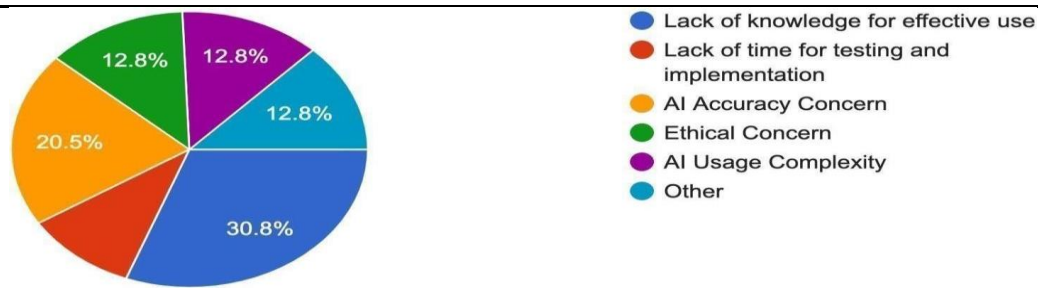


Fig. 5: Top Factor Hindering (Difficulty) AI Adoption

According to survey results, the biggest hurdle to AI adoption in digital marketing is a "Lack of knowledge for effective use," cited by 30.8% of respondents. Other notable concerns include "AI accuracy" and "Ethical concerns" (both at 20.5%), followed by "AI usage complexity" (12.8%) and "Lack of time for testing and implementation" (10.3%). An additional 12.8% pointed to other miscellaneous factors.

These findings show that while concerns around understanding, accuracy, and complexity remain, they aren't insurmountable. With user-friendly tools like ChatGPT and features such as confidence scoring, marketers can overcome these challenges and adopt AI more confidently and effectively.

6. Most of the AI Users Are Using It for Article Writing and Copy Writing.

Survey results reveal that the top two uses of AI among digital marketers are article or blog writing (41%) and copywriting (41%). While these are distinct tasks, the data clearly shows that content creation is the primary focus for most AI users in the field.

This trend highlights how marketers are turning to AI to boost efficiency and improve the quality of their content output. Whether it's drafting long-form articles or crafting compelling ad copy, AI is becoming a key tool in streamlining content production workflows.

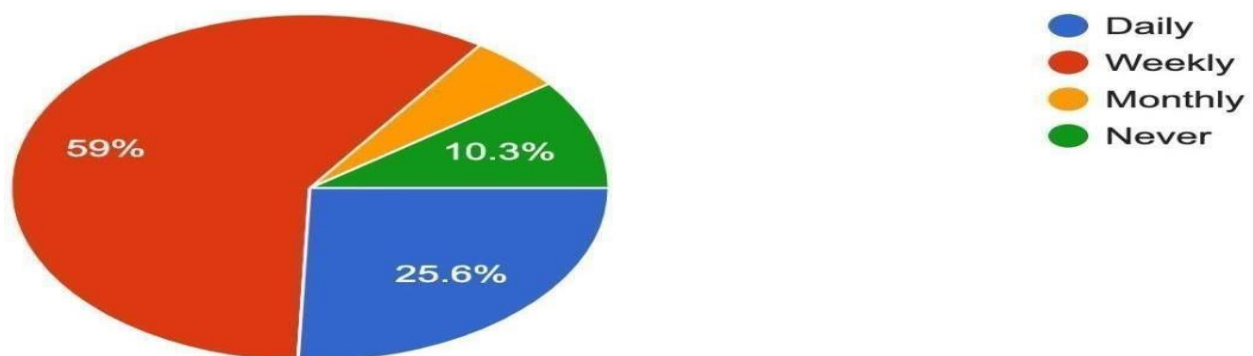


Fig. 6: AI Tool Usage Frequency

The frequency of AI tool usage among digital marketers varies significantly. About 25.6% reported using AI tools daily, while the majority—59%—use them on a weekly basis. A smaller group, 5.1%, use them monthly, and 10.3% said they have never used AI tools at all.

Lack of Knowledge and Accuracy Concern Are the Two Biggest Reasons Against Using AI Tools: When it comes to reasons for not using AI, the most commonly cited barrier was a lack of knowledge, mentioned by 30.8% of respondents. Interestingly, this may stem more from perception than reality. Tools like ChatGPT are designed with user-friendliness in mind, and many users find the learning curve to be minimal. After just a few prompt attempts, even those with little technical background often feel comfortable navigating the tool.

The second most common concern—reported by 20.5% of respondents is around the accuracy of AI-generated content. This is a valid point, as AI models like ChatGPT can sometimes produce information that is either partially incorrect or entirely fabricated, despite sounding confident. These "hallucinations" highlight the need for users to cross-check outputs, especially when accuracy is critical.

7. Are Digital Marketers Are Using AI Detection Tools?

Survey results show that 33.3% of marketers use AI detection tools to determine whether content has been generated by AI. Popular tools like Content at Scale and Zero GPT claim to differentiate between human-written and AI-produced text. However, the accuracy of these tools remains questionable.

Notably, Open AI's own AI classifier correctly identified only 26% of AI-written content, highlighting the unreliability of current detection methods. Supporting this concern, a recent article in New Scientist argues that detecting AI-generated text with complete accuracy may be mathematically impossible.

The use of such inaccurate tools has already led to problematic situations—some agencies and clients have wrongly accused writers of using AI based solely on flawed detection results. These false positives can damage trust and create unnecessary friction between content creators and stakeholders.

Given these limitations, managers and business owners should be cautious when relying on AI detection tools to evaluate the authenticity of content. It's essential to pair such tools with human judgment and a broader understanding of how content is produced.

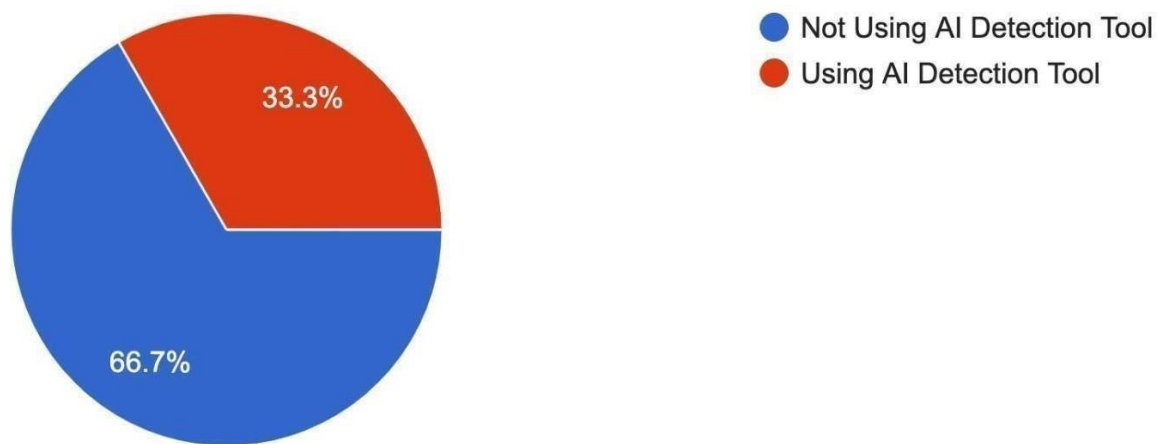


Fig. 7: AI Detection Tool Usage

The majority of respondents (66.7%) reported not using AI detection tools, while 33.3% reported using them.

8. Lack of Knowledge and Accuracy Concern Are the Two Biggest Reasons Against Using AI Tools.

According to the data, 30.8% of respondents cited a lack of knowledge as a barrier to adopting AI. However, tools like ChatGPT tend to have a relatively low learning curve. Most users can understand how to use ChatGPT effectively after just a few tries, thanks to its natural language interface and intuitive design. This ease of use makes it accessible even to those without a technical background. It's possible that some individuals overestimate the difficulty of learning to use AI tools, which could contribute to the perception of a knowledge barrier.

Meanwhile, 20.5% of respondents expressed concerns about the accuracy of AI-generated content. This is a valid concern, as AI models like ChatGPT can occasionally produce incorrect or even fabricated information with confidence. One way to address this issue is by incorporating confidence scores into AI responses. These scores give users a clearer sense of how certain the AI is about its answers, allowing for more informed decisions when evaluating the reliability of the content. Confidence scoring can help bridge the trust gap and support more responsible use of AI-generated information.

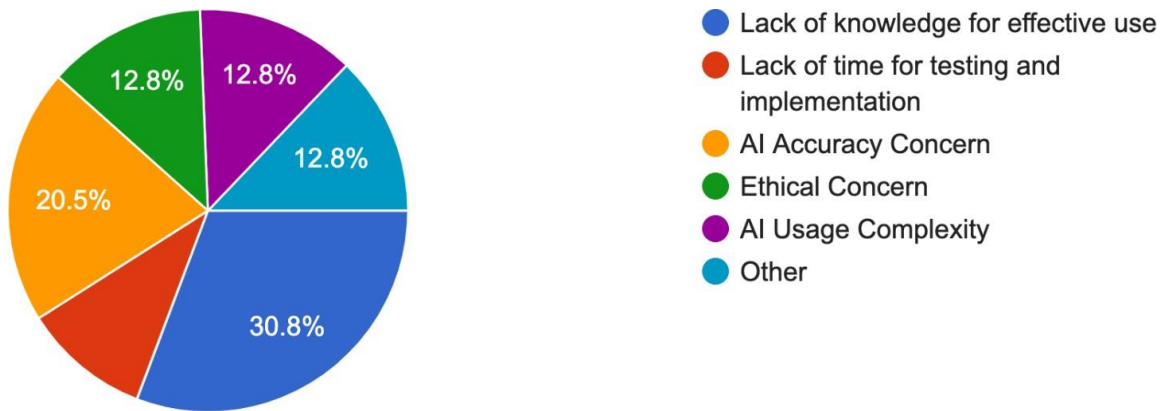


Fig. 8: Top Factor Hindering (Difficulty) AI Adoption

The leading barrier to AI adoption in digital marketing was identified as a "Lack of knowledge for effective use," cited by 30.8% of respondents. This was followed by concerns about "AI accuracy" and "Ethical considerations," both at 20.5%. Additionally, 12.8% pointed to "AI usage complexity," 10.3% cited "Lack of time for testing and implementation," and another 12.8% mentioned various other factors.

These findings suggest that while challenges around knowledge and accuracy persist, they are not insurmountable. Tools like ChatGPT demonstrate that AI can be accessible and easy to learn, even for non-experts. Moreover, strategies such as incorporating confidence scores can help users better evaluate the reliability of AI-generated content, addressing concerns around accuracy and supporting more confident adoption.

9. Are Digital Marketers Are Using AI Detection Tools?

The survey results indicate that 33.3% of marketers utilize AI detection tools to identify whether content is written by AI or not. These tools, such as Content at Scale [18] and Zero gpt [17], claim to have the ability to distinguish between human-written and AI-generated text. However, it is important to note that the effectiveness of AI detection tools, including OpenAI's own AI classification tool, may vary.

The survey findings highlight a concerning aspect: OpenAI's AI classification tool correctly identifies only 26% of AI-written text. This suggests that the accuracy of these detection tools in correctly identifying AI-generated content is relatively low. Moreover, a recent article in New Scientist takes a more skeptical stance, stating that reliably detecting AI-generated text is mathematically impossible.

The usage of AI detection tools that are known to be wildly inaccurate raises concerns. There have

been instances where agencies and clients have relied on these tools and made incorrect claims about the origin of the content, falsely attributing it to AI when it was, in fact, created by humans. This discrepancy in accuracy and the limitations of AI detection tools pose challenges for managers and business owners who seek to ascertain whether AI is being used by their employees or service providers. It emphasizes the need for caution and careful consideration when relying on such tools for making determinations about the source of content.

As the field of AI continues to upgrade, it is crucial to improve the accuracy and reliability of AI detection tools. Until more reliable and robust methods are developed, it is suggested to approach AI detection with skepticism and consider additional means of verifying the authenticity of content creation.

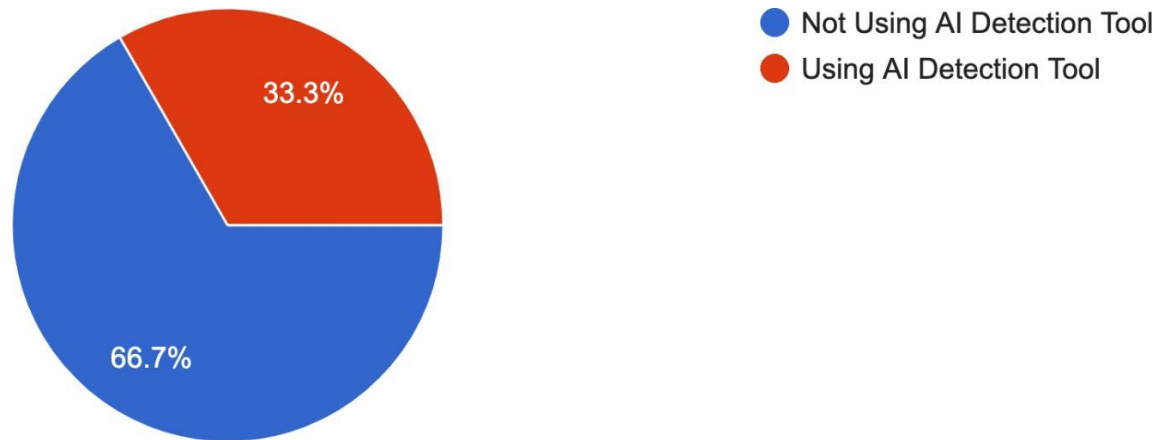


Fig. 9: AI Detection Tool Usage

The majority of respondents (66.7%) reported not using AI detection tools, while 33.3% reported using them.

Overall, the use of AI detection tools may be a natural response to the growing adoption of AI in content creation. It is important to recognize the limitations and potential inaccuracies associated with such tools. Trusting blindly in AI detection tools can lead to incorrect attribution and misunderstandings. Highlighting the need for a comprehensive and discerning approach to determining the origin of content.

10. Most of the Digital Marketers Believe That AI Can Outperform Humans at Their Jobs.

The survey results reveal that most respondents, specifically 64.1%, believed that AI can outperform humans at their jobs, while 35.9% rejected this notion. This indicates a generally positive sentiment and the respondents' recognition of artificial intelligence capabilities.

The positive perception of AI potential to outperform humans at their jobs can be attributed to several factors. First, Artificial intelligence (AI) has made significant progress in recent years showing remarkable progress in several domains. A notable feature when it comes to this technology is its ability to handle vast amounts of data accurately identifying patterns- leading towards enhanced efficiency productivity within various industries inclusive but not limited to digital marketing.

The continued research into developing improvements on current algorithms pushes beyond perceived human limitations surpassing all previous expectations for higher levels of unprecedented performance! With more advanced algorithms coupled with wider availability of training data comes enhanced possibilities for exceeding humanity capabilities using AI technologies.

AI fostered broadly positive sentiments may stem from recognizing that it surpasses human limitations resulting in an endless capacity for working tirelessly without fatigue completing complex calculations at high speeds simultaneously processing vast amounts of information more rapidly and accurately than humans.

Therefore, while many respondents endorse constant advancement favoring AI's ability to outperform humans eventually, there still is acknowledgment that technology offers opportunities when coupled with augmenting job performances- automating repetitive tasks, providing insights, and assisting in decision- making. This would ultimately aid in overall job performance productivity.

However, there is skepticism about the ability of AI to completely outperform human capabilities by 35.9%. This skepticism may come from concerns about biases or limitations affecting the attainable applications of AI technologies; The importance of human creativity, intuition or emotional intelligence is particularly important for work; Or the belief that collaborative efforts to leverage human capabilities alongside AI lead to better results.

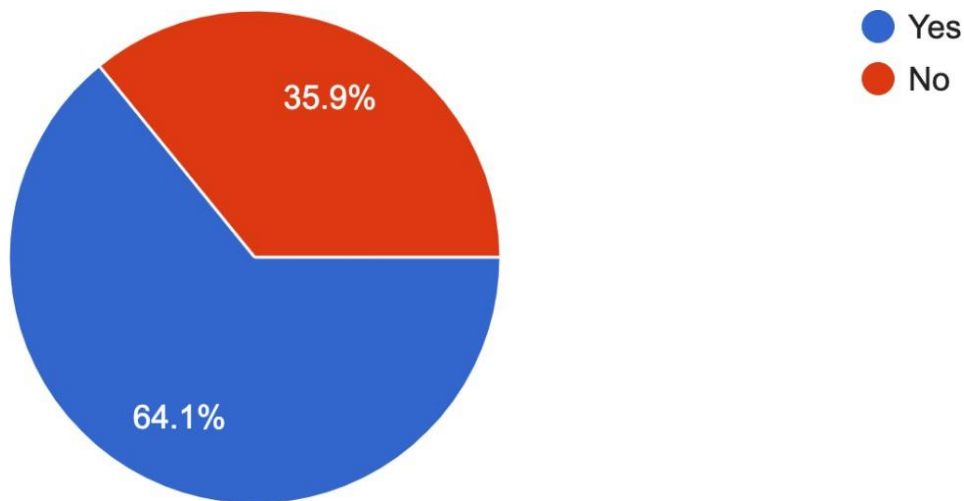


Fig. 10: AI can outperform humans at their Jobs

A majority of respondents (64.1%) believed that AI can outperform humans at their jobs, while 35.9% disagreed with this statement.

Overall, the research results uncover an encouraging perception toward AI's abilities among those surveyed. It's noteworthy that many individuals are persuaded by its potential to exceed human performance in various vocations. Such results reflect a growing appreciation and commendation for the disruptive potency of AI across numerous fields, including digital marketing.

Chapter-05

Problems, Recommendations and Conclusion

5.1 Problems Identified

1. Enhanced Personalization

AI allows marketers to create highly personalized content and customer experiences by analyzing user data such as preferences, behaviors, and demographics. This level of personalization boosts customer engagement, improves satisfaction, and leads to higher conversion rates.

2. Improved Targeting and Segmentation

AI algorithms process large volumes of data to identify specific audience segments, enabling marketers to deliver targeted messages that resonate with each group. This precision targeting helps maximize campaign performance while reducing unnecessary ad spend. As a result, businesses can allocate their resources more efficiently and achieve better ROI.

3. Barriers to AI Adoption

Despite the clear advantages, 30.8% of respondents identified a lack of knowledge as a major barrier to adopting AI tools. However, platforms like ChatGPT demonstrate that AI can be user-friendly, with many users quickly learning how to write effective prompts. The natural language interface of such tools makes them accessible even to those without a technical background, lowering the entry barrier for AI adoption.

4. AI in Keyword Research

Currently, only 5.1% of respondent's report using AI for keyword research, and among them, just 18% trust the results. This lack of trust may stem from inconsistencies and variability in the data provided by AI tools. Marketers may hesitate to rely on AI-generated keyword suggestions due to concerns about accuracy and dependability.

5. Real-Time Optimization and Predictive Analytics

AI-driven analytics empower marketers to monitor campaign performance in real time, enabling them to make immediate, data-backed adjustments. This flexibility ensures ongoing optimization for better outcomes. Additionally, predictive analytics uses historical data and machine learning to forecast trends and customer behavior, allowing marketers to plan proactively and stay ahead in a dynamic market.

5.2 Recommendations

1. Enhancing Personalized Marketing Through AI

Future research should explore how AI can further enhance personalized marketing by studying the effectiveness of AI algorithms in analyzing customer data, predicting behaviors, and delivering customized messages. By evaluating the performance of these algorithms across various demographics and industries.

2. Exploring NLP in Content Creation

As AI continues to revolutionize content creation, especially through advancements in Natural Language Processing (NLP), further investigation is needed to assess how these technologies contribute to the generation of high-quality, engaging content. Research should focus on how AI-generated content impacts customer attention, brand perception, and interaction.

3. AI Integration with Chatbots for Customer Service

Given the rising use of chatbots in customer service, future studies should examine how AI integration can improve chatbot performance in handling customer inquiries, personalizing responses, and enhancing overall user satisfaction.

4. AI in Social Media Marketing

AI's role in social media marketing warrants deeper exploration, particularly in areas such as trend identification, sentiment analysis, influence tracking, and ad targeting optimization. Future research should analyze how AI can interpret vast amounts of social data to help marketers stay ahead of trends, understand audience sentiment, and target ads more precisely across platforms.

5. Broadening Research Scope and Customer Perspective

This study has laid the groundwork for understanding AI in digital marketing, but future research should expand the scope by using more diverse data sets across different regions, business sizes, and sectors. Additionally, gathering insights from a broader range of respondents and incorporating customer perspectives through surveys can offer a deeper understanding of how end-users perceive and experience AI-driven marketing, thus enriching the current findings.

5.3 Conclusion

The integration of Artificial Intelligence (AI) in digital marketing has brought about a profound transformation in how businesses connect with consumers, analyze data, and execute strategic campaigns. AI has emerged as a cornerstone of modern marketing by enabling hyper-personalized customer experiences, real-time data analysis, and predictive analytics. These capabilities have allowed marketers to deliver more relevant content, make faster and more informed decisions, and maximize return on investment. By processing massive volumes of consumer data—such as browsing behavior, purchasing patterns, and demographics AI tailors marketing efforts to individual preferences, significantly improving engagement, conversion rates, and customer loyalty.

AI-powered tools like chatbots have also revolutionized customer service, offering 24/7 support, handling queries efficiently, and even recommending products. These intelligent systems improve user satisfaction while reducing the burden on human agents. In addition, machine learning algorithms uncover deep insights from complex datasets at speeds unattainable by humans, enabling marketers to identify trends, optimize campaigns on the fly, and allocate resources more effectively.

Looking ahead, the future of digital marketing will continue to benefit from advances in AI and machine learning. These technologies will simplify complex marketing challenges, automate repetitive tasks, and support the evolution of new digital strategies. AI will enable digital assistants to further personalize consumer interactions and assist marketers in selecting the most effective techniques, all while reducing human error. Despite these advancements, human creativity and oversight will remain essential especially in content creation and strategic decision-making ensuring that the human touch continues to drive authentic brand experiences.

However, the growing use of AI also demands thoughtful consideration of ethical issues, data privacy, regulatory compliance, and the development of new skills within marketing teams. Transparency, accountability, and responsible data usage must be prioritized to ensure sustainable and ethical AI adoption in marketing. While the benefits of AI are substantial such as enhanced targeting, improved campaign performance, and increased operational efficiency its implementation must be balanced with a commitment to ethical standards and consumer trust.

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