The Role of Artificial Intelligence in Modern Marketing: A Review of Current Technologies, Applications, and Challenges

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Abstract

This research paper examines the transformative role of artificial intelligence (AI) in marketing, emphasizing its capabilities in prediction, analysis, and generative AI. It reviews current AI technologies and their marketing applications through a comprehensive literature review and case studies from various industries. Research papers from Google Scholar were analyzed to illustrate AI's effectiveness in marketing. AI enhances SEO by identifying optimal keywords, evaluating competitor strategies, and dynamically adjusting prices based on consumer behavior and market trends. Active targeting uses AI to predict consumer interests and personalize marketing efforts, as demonstrated by Kellogg's and ASOS, leading to increased sales and customer engagement. Generative AI is revolutionizing marketing by creating engaging content, from slogans to videos. AI-generated advertisements are as effective or more creative than human-made ones. Companies like Heinz and Coca-Cola have successfully utilized AI for branding, while MTV's use of AI-powered video content has enhanced viewer engagement. AI-generated emails and chatbots also significantly improve customer interaction and retention. In the broader context, the research highlights challenges such as biases in AI systems, data privacy concerns, and integration issues. It also addresses the need for a shift in workforce skills towards AI management. The findings underscore AI's potential to revolutionize marketing strategies, making them more efficient and effective while emphasizing the necessity for transparency and ethical considerations to ensure sustainable growth.

Introduction

It is incredible to see how far artificial intelligence (AI) has come. According to Maad Mijwel (2015), AI started as a concept of humanoid robots and how they benefit society through their automation. Eventually, in 1951, the first AI programs were written for the Mark 1, a military vehicle (Mijwel, 2015). Developments in robotics and computer programming led to the first AI chatbot, ELIZA, in 1965 (Mijwel, 2015). Over the next 50 years, different AI software was created to simulate human endeavors; some of these software include Deep Blue, an AI chess bot, Kismet, a human movement mimicry robot, and Asimo, a robot with human capabilities (Mijwel, 2015). With its progression and growth in the 21st century, AI is now everywhere and everyone is talking about it (Menon, 2023). The current definition of artificial intelligence is a branch of computer science that uses algorithms, data, and computational powers to perform tasks that mimic human intelligence (Menon, 2023). AI can do many tasks: summarize and write documents using natural language processing and machine learning, enable self-driving cars and facial recognition through computer and machine vision, and even create creative processes (Marr, 2019).

AI is now used in multiple industries like healthcare, finance, agriculture, machinery, and travel. However, one of the biggest uses of this software is in marketing. The world of marketing is going through a major shift as AI takes a bigger role in marketing tools. Lis Harkness (2023) illustrates how AI can suggest customer products through machine learning, deliver personalized ads on upcoming products, decide a business's marketing plan depending on the current trends, and much more. With 61.4% of marketers using AI in their marketing activities (Hoffman, 2023), it's clear that AI is going to be embedded in advertising.

This research paper delves into the intersection of digital marketing and AI, highlighting the evolution of AI and its integration with various marketing strategies. The paper begins with exploring traditional digital marketing techniques such as social media marketing, email marketing, search engine marketing (SEM), content marketing, and digital advertising. Then, the paper transitions to the role of AI in enhancing these marketing strategies. AI applications such as search engine optimization (SEO), predictive lead scoring, dynamic pricing, and generative AI tools are examined for their ability to personalize and optimize marketing efforts. The study showcases how AI-driven technologies like machine learning, natural language processing, and generative adversarial networks are transforming content creation, customer targeting, and pricing strategies.

The paper addresses the current challenges and implications of AI integration in marketing. It discusses issues such as data inaccuracies, high implementation costs, integration difficulties, limited creativity, artificial biases, copyright concerns, the black-box problem, employment reduction, and data privacy concerns. The paper underscores the importance of overcoming these challenges to fully leverage AI's potential in revolutionizing marketing practices.

Methodology

Data Sources

Using the electronic database Google Scholar, we examined articles from 2013 up to 2024. Keywords used in these searches include AI, generative AI, marketing, advertising, analysis, price, text-to-image generation, slogans, AI-powered videos, customer satisfaction, AI-generated text, inaccurate data, biases, economic cost, integration, creativity, transparency, copyright, and income inequality.

Resources Selection

After seeing the initial articles, only full-length articles and journals were retrieved. The information extracted for this paper was determined in 2 stages. The first stage involved articles based purely on titles and abstracts relating to the paper's research question. Afterwards, we moved on to the second stage where the following criterion was applied.

Criteria for considering papers for this review

Inclusion Criteria:

1. The article must be focused on AI and Marketing
2. There must be some predictive or measurable outcomes that can be quantified to support their claims
3. The quantity and quality of citations within the article must be significant

Exclusion Criteria:

1. The articles that were unrelated to AI and Marketing
2. Articles that consisted of only abstracts without full paper
3. Articles that were not written in English

Background

Marketing Strategies

The domains of marketing and advertising strategies that are used for innovation are: social media marketing, e-mail marketing, search engine marketing, online advertising, content

marketing, affiliate marketing, and display marketing (Gibson 2018) (Table 1). Below, we briefly discuss significant marketing areas.

Table 1. Marketing Strategy Definitions

Marketing strategy	Definition
Search Engine Marketing (SEM)	A method that promotes a business's content to rank higher within the search engine (Terrance, 2017)
Email Marketing	"The promotion of a product by sending emails and newsletters" (Samantaray, 2020)
Content Marketing	"A strategic marketing approach focused on creating and distributing valuable, relevant, consistent content to attract and retain a clearly-defined audience – and, ultimately, drive profitable customer action" (Vinerean, 2017)
Digital Advertising	Any brand-related communication to encourage new customers through online methods (Hudders, 2019)

Additionally, we provided the components behind each important marketing technique, its use cases, and its current effects on business prosperity.

Search Engine Marketing (SEM)

Within this marketing sector, there are three distinct methods to publicize one's product: search optimization, paid inclusion, and keyword sponsorship (Green, 2003). Business websites must receive traction on their website URLs through clicks and interactions for growth. A business can optimize this search process by including keywords important to users, using relevant titles for their content, having referrals through third-party sites, and more (Green, 2003). Then, there is paid inclusion where businesses can pay a search engine to submit its site to its database. With this system, businesses can display a wide range of content which users then search. Some search engines like Google do not discriminate between paid inclusions and free inclusions, which causes them to favor sites that are paid, which results in a higher ranking (Green, 2003). Finally, there is keyword sponsorship where businesses can bid for specific keywords; if they win that bid, those particular terms searched will cause the business's website to be ranked higher on paid listings. All three of these methods work to promote business websites on the search engine and only pay advertisement costs if their website is clicked. This marketing sector allows businesses to generate traffic easily, allowing more revenue to be generated. An example of this is Ge'Lena Vavra. "Ge'Lena Vavra, an entrepreneur specializing in Italian suits in Las Vegas, spent $60,000 on Google ads and claimed 'Our business exploded from Google and Google alone'" (Boughton, 2005). The effectiveness of these strategies highlights the critical role of search engine marketing in driving business growth and maximizing online visibility.

Email Marketing

Using a database of emails, companies can either send personalized or generalized emails to promote their products (Samantaray, 2020). Since it can reach many people with little cost, it proves to be an effective marketing strategy. In addition to the efficiency and cost, it has a high return on investment with $43.92 of product sold for every 1$ invested in email marketing (Samantaray, 2020).

Content Marketing

Content marketing is mainly focused on telling a story about a product or brand; it is heavily focused on persuading an audience with information to increase awareness of a certain brand or idea. Within content marketing, marketers often have to personalize each advertisement based on a user's region and ethnicity. These advertisements can also be effective by evoking an emotion within the target audience, creating an attachment to the product (Kee, 2015). With this marketing method, businesses can create and build upon their corporate identity which leads to a better reputation and eventually a competitive advantage in that industry (Puro, 2013). An example of content marketing is customer magazines, publications that combine editorial and advertising content. "Schijns (2008) found in his research on customer magazines that they are very effective in improving brand image and increasing brand loyalty. In addition, the readers of the magazines have a more positive view of the company" (Puro, 2013).

Digital Advertising

Digital Marketing can be split up into 4 separate categories: business-to-consumer (B2C), business-to-business (B2B), consumer-to-consumer (C2C), and consumer-to-business (C2B) (Shankar, 2022). For this paper, B2C and B2B will only be covered. For the first category, advertising is used to enhance awareness and engagement regarding a certain product through multiple communication platforms like social media (Shankar, 2022). Businesses directly target consumers with their products. For B2B marketing, businesses often use more emotional digital content and focus more on other businesses to sell to. The main benefit of this system is the optimization of resource allocation and maintaining long-term relationships with other organizations (Shankar, 2022). With both of these methods, businesses can prosper as more consumers can view and purchase their products. A qualitative and quantitative research study was conducted on 30 cut flower exporting firms in Kenya; "83.3% of firms using 45 conventional marketing methods increased sales revenue by 1-10% annually whereas 70% of digital marketing strategies increased sales growth significantly by more than 10%" (Onyango, 2016).

How Does AI Work

Since this journal mainly focuses on the unification of AI and marketing, readers should have a general understanding of this software and how it works. AI uses a combination of both science and engineering principles and uses that to create human-like machines to solve problems (González, 2019). The intelligence from AI stems from the system's learning through its training data and the artificial stems from its ability to make predictions outside of its training data (González, 2019). Within the marketing environment, there are mainly 3 stages for this framework which follow a circular pattern: marketing research, marketing strategy, and marketing action (Huang, 2021). Different AIs can be used for each stage which include mechanical, thinking, and feeling respectively (Huang, 2021). Mechanical AI is used to complete

repetitive and routine tasks. In business, payments and delivery are repetitive functions that can be aided by mechanical AI. Next, there is thinking AI which processes data to arrive and different conclusions or decisions. This AI is mainly beneficial in pattern recognition which can be applicable in identifying competitors in a market space or determining key characteristics in a product's competitive advantage. Finally, there is feeling AI which is designed "for two-way interactions involving humans, and/or for analyzing human feelings and emotions" (Huang, 2021). Technologies that utilize natural language processing, such as chatbots, are an example of feeling AI. Since this technique can analyze people's emotions, it can help address customer needs and understand the benefits and drawbacks of the business's product concerning a singular user (Huang, 2021).

AI in Marketing

Prediction and Analysis

Search Engine Optimization (SEO)

As online customers search for products or requests, there are often advertisements placed within the suggested searches based on keywords marketers feel resonate with their product. AI optimizes this process from a business's themes to its advertisement (Dumitriu, 2020). By analyzing a business's website, an advertiser may determine keywords or phrases that resonate with that business. They can also utilize machine learning to comb through the website and pinpoint important themes. AI can then analyze all instances in which this word was searched, all its synonyms, and the Cost per Click (Dumitriu, 2020). This technology can also determine how these keywords translate to the business's competitors and whether the words are used by their competition. With this in mind, companies can re-evaluate their keywords and determine the best possible words to bid on for search engine marketing.

Active Targeting

Once consumers express an interest in a product, businesses can target their products to them using predictive lead scoring and machine learning analysis (Kietzmann, 2018). Predictive lead scoring is when markets utilize an AI algorithm to comb through existing customer data, recognize trends and patterns, and add that external data to a consumer's profile in the background (Kietzmann, 2018). With this process, advertisers can understand customer values and show content that appeals to their vision. Whether it is catering to the practicality of the product or a consumer's emotional state, this information is incredibly useful to advertisers. For example, Kellogg's, the breakfast food company, used Affectiva's emotion AI to determine an advertising campaign for its cereal. With this method, this organization was able to exceed market expectations and effectively deter other organizations, allowing them to make a greater profit. This system can offer a competitive advantage to businesses who use it. Moreover, machine learning also allows businesses to learn about consumer behavior in real time (Kietzmann, 2018). These adjustments often involve changing the description to products or advertising similar interests of the user. By offering products that the consumer may be interested in, an organization can increase its revenue. This system is currently seen in fashion retailer ASOS; they use Microsoft's Azure to recommend specific products based on the user's previous interests (Kietzmann, 2018).

Price Adjustment Analysis

When consumers decide on their preferred brand and their product, dynamic pricing occurs through AI (Kietzmann, 2018). To further themselves from their competition and make them stand out to users, businesses will often use AI systems to continue highlighting the benefits of their products. Furthermore, these systems can analyze user data and provide different pricing to different individuals, similar to how airplanes' prices discriminate based on recency. Rather than manual computation, machine learning algorithms can take into account consumer behavior, supply/demand, competitor aspects, and more to create price adjustments (Kietzmann, 2018). While this system does not necessarily contribute to marketing, AI processes involved in dynamic prices allow businesses to gain a competitive advantage, improving their brand and increasing their profits. A representative of this system is Best Buy; by analyzing market trends and customer expectations, Best Buy recorded an increase in sales by 25% through AI-backed dynamic pricing (ENACHE, 2021).

Generative AI in Marketing

Current State of Generative AI in Marketing

With the global adoption of generative AI, businesses have utilized this technology primarily for marketing due to its content-generation capabilities (Kshetri, 2023). Currently, ChatGPT is considered to be the most popular tool for the general public and marketing professionals (Quarles, 2023). 73% of US organizations have used Generative AI tools for marketing activities and the market for this technology is estimated to reach $107.5 billion by 2028 (Dencheva, 2023b). The popularity of AI stems from its ability to deliver personalized, timely, and relevant content, contributing to better customer experience. Moreover, any form of advertisement is considered to be inauthentic (Kumar, 2016); Praveen Kumar (2016), an assistant professor at Kamaraj University, illustrates how advertisements are perceived as fake by users as these ads show false demands and unrealistic promises. Bahman Zohuri (2020), an adjunct professor at Golden Gate University, argues that AI can facilitate innovative and authentic thinking through quantum computers over the next several years. AI can reduce the inauthenticity within the advertising industry. These combined findings suggest that advertisements created with AI may outperform traditional advertisement methods. The potential efficiency, extensive applications, and human-like abilities make it well-suited for identifying customer needs and providing a deeper analysis of a business’s demographic.

Generated Advertisements

Writing slogans has become more efficient with the advent of generative AI. By utilizing natural language processing and deep learning, an AI tool can generate a slogan that meets an organization’s needs. Popular AI software ChatGPT uses a 6-step process to create its content. Step 1 involves user input as a prompt or question. Steps 2-5 use deep learning to analyze the prompt, access ChatGPT’s database for relevant data, and utilize NLP to generate a response. Step 6 results in the user receiving the content required (Pankka, 2023). To see the effectiveness of AI-generated and human-made slogans, Pannka (2023) led an experiment with two Finnish companies: Kemppi and Social Burgerjoint. Each company provided an automated slogan and an authentic slogan to its long-standing customers. The results revealed that there was no statistically significant difference between each slogan’s efficacy. Moreover, the AI

slogans were considered to be more creative and unique compared to their counterparts (Pankka, 2023).

Text-to-image generation involves creating images from text descriptions using deep learning models. As Yildrim (2022) describes it, the image creation process starts with collecting a large dataset of paired images and text, which are then preprocessed. Generative Adversarial Networks (GANs) are commonly used, where a generator creates images based on text, and a discriminator evaluates their realism. Advanced models use attention mechanisms and transformers to enhance accuracy. The result is an image that visually represents the input text, capturing detailed and contextually accurate features (Yildirim, 2022). Image generation can be beneficial for branding and content marketing. By creating realistic images of products, this software can create visually appealing visuals. With Heinz, the condiment company, using AI generation for their advertisements (Davenport, 2023), and Coca-Cola inviting artists to create the company's next billboard (Cui, 2024), AI image generation permeates the modern world.

With video production being a vital resource in digital advertising, AI-powered videos can streamline this process. Generative Adversarial networks (GANs) understand and replicate complex patterns. These networks create lifelike video samples, based on the user's input. Variational Autoencoders generate cohesive videos by blending the frames that narratively make sense. Finally, LLMs enhance the video's viewability by contextualizing how the video flows through insightful descriptions (Zhou, 2024). Anuj Kapoor (2024) conducted a case study, comparing AI-generated personalized advertisements versus generic video ads. Working with an Indian online retail brand as a subject, she found that the personalized video received 6-9% higher ad clicks compared to the human-created ads. Furthermore, the GenAi-based ads are cheaper and more sizable compared to others (Kapoor, 2024). A successful implementation of AI-generated advertisements is seen in the Valossa AI. MTV, a Finnish commercial television content company, implemented Valossa's AI video. As a result, "users [got] the right feeling about [MTV's] content at first sight" (Suvanto, 2023). These findings illustrate the significant potential of AI-based advertisements in revolutionizing marketing by enhancing engagement, reducing costs, and creating more impactful content.

For customer retention and customer satisfaction, AI-generated text can improve the customer experience. Similar to how AI slogans are generated, a chatbot bot will analyze a user's natural language through textual methods, understand their intent, and send a response based on their data set (Kaczorowska-Spychalska, 2019). For example, if a customer texted a chatbot of a popular online retailer about a product, a chatbot could send a thorough description of the product that caters to the user's needs. Unlike slogan-generation tools, chatbots are trained to mimic human conversations; thus, they may engage users through text discussions. Chatbots may also reduce customer care costs by up to 30% and can even display what users are looking for through transaction data (Khoa, 2021). Their usefulness is illustrated in numerous Fortune 500 organizations as they have adopted chatbots as 24/7 customer service support to keep customers happy (Reis, 2022).

AI-generated text can be used in the email marketing sector. Since email marketing is one of the easiest and most effective forms of advertising (Bawm, 2014), AI can streamline this process by generating emails for organizations. It can craft individualized communications, offer tailored product recommendations, and deliver timely advertisements based on each customer's previous experiences (Bhattarai, 2023). Vaibhav Patil (2021) found that users often open their mail for marketing and engage with the advertisements 26% more through AI personalization.

To see AI's potential within email marketing, consider FARFETCH, a luxury fashion retailer. According to Falak Kaur (2023), they partnered with Phrasee, an AI optimization and content tool, to create new fresh styles and tones to resonate with their audience. FARFETCH saw an increase of 38% in their average click rate and a 31% increase in their open rate for their campaigns (Kaur, 2024). EBay also partnered with Phrasee and found a 700,000 increase in incremental clicks on their campaigns along with a 31% average click uplift (Norris, 2024). These examples highlight the transformative impact of AI on email marketing, demonstrating significant improvements in engagement and effectiveness across various industries.

Current Challenges of AI Implementation for Marketers

Data Inaccuracies

AI Systems are trained on existing datasets and are used to make predictions or generate information. However, if the dataset does not contain recent information, an AI system cannot make timely or relevant contributions to a user (Soni, 2023). Since marketing is a field where timeliness and relevance are crucial, a business must ensure its dataset is up-to-date. In addition to recent datasets, companies have to worry about factual inaccuracies within their AI systems. AI systems are advanced but can make mistakes when producing content (Soni, 2023). In a realm where credibility and reputation are key, a brand may be protected if accurate information were to be spread. A prime example of an AI system based on inaccurate information is Microsoft's chatbot, Tay. With the original purpose of responding to tweets on X.com to keep consumers engaged with the product, Tay was trained on tweets to mimic a human-like tone (Schwartz, 2019). However, the chatbot was trained on controversial and racist tweets, leading to its misuse (Schwartz, 2019). Another example of an AI failure is Air Canada's virtual assistant. After a passenger received crucial information from the chatbot about receiving a bereavement discount on his flights, he purchased 2 one-way tickets only to discover he couldn't receive his reimbursement as the chatbot gave unreliable information (Olavasrud, 2022). These findings and analysis highlight the major challenge for business AI training datasets as it could result in reputational harm and user dissatisfaction.

Upfront Costs

While AI in marketing results in better revenue in the long term, the initial cost to implement AI can be severe. Implementing an AI infrastructure is costly as the price of the software is high-end (Anica-Popa, 2021). This software includes necessary hardware like GPUS, data collection costs, skilled AI engineers, cybersecurity measures, and more, resulting in anywhere from $5,000 up to $500,000 in upfront costs (*AI prices*, 2024). Since the cost is extreme, businesses need to be wary about their AI implementation. Moreover, there is a major shift in financial resources as companies have to retrain employees from typical marketing to AI management which could cost a lot of time. Tim Fountaine (2019) from the Harvard Business Review illustrates how it takes from 12 months up to possibly 60 months in time for full AI implementation. With this extreme timeline, businesses may lose motivation on this project, thus bringing down the overall business output in marketing. Therefore, while AI offers significant long-term benefits for email marketing, businesses must carefully weigh the high implementation costs.

Integration Challenges

While AI poses many benefits, its system implementation is a major challenge. AI integration in business marketing requires a deep understanding of both the technical aspects of AI as well as marketing expertise (Bhima, 2023). Organizations also have to consider data privacy and security concerns to ensure progress (Bhima, 2023). Data governance is a major obstacle in AI integration as organizations need to establish data quality metrics, targets, and performance and invest in data governance technologies (Aldoseri, 2023). These systems need to be in place for AI to be established; afterward, companies utilize data architecture and see how the AI functions with their software (Aldoseri, 2023). This trail-error process along with the AI's complexities make integration difficult. Amazon, the major e-commerce website, performed an example of a major integration error. After implementing AI software OpenAI into their product listings, Amazon realized that AI couldn't properly disseminate the information, resulting in error messages (Orland, 2024). This Amazon case study demonstrates the challenges of AI integration. Despite the potential advantages, the integration of AI into business systems remains a complex and challenging endeavor, requiring careful planning and continuous time-consuming adaptation.

Limited Creativity

AI might not have the creative capabilities that others may speculate (Esling, 2020). Creativity revolves around the idea of convergent and divergent thinking. Since AI systems often use large datasets and mathematical computations to create their predictions, they can think convergently and lead to one answer (Esling, 2020). However, when it comes to divergent thinking, AI tends to value quantity over quality of ideas (Esling, 2020). Since datasets for training data cannot be labeled straightforwardly for creativity, AI cannot combine ideas easily and end up being inconsistent (Anantrasirichai, 2021). When asking an AI system to create a cat image, the user will see results that differ in color, shape, size, context, and pose (Anantrasirichai, 2021). These results are unstructured and hence not usable for those interested. Eric Su (2023) depicts how AI cannot produce meaningful and specific content for businesses as they primarily rely on patterns and existing data. Therefore, while AI demonstrates proficiency in convergent thinking, its limitations in divergent thinking prevent it from consistently generating truly creative and contextually meaningful content.

Concerns & Implications of AI's Integration

Artificial Biases

AI relies heavily on datasets generated by humans to create their predictions. However, if certain biases protrude into these systems, they would amplify systemic problems within our society. Certain demographics may be disadvantaged due to this inherent discrimination (Ntoutsi, 2020). An example of a biased AI system is COMPAS, a software that estimates the risk of crime relapse based on an offender's criminal history and a crime database (De Bruyn, 2020). De Bruyn's research (2020) concluded that black defendants were incorrectly predicted to recommit crimes twice as much as their white counterparts. This bias exists in the marketing field as well: Facebook uses AI to target their ads based on stereotypical information about certain groups, creating a race and gender bias (Varsha, 2023). A more common example of artificial bias comes in job selection. When businesses place advertisements using AI, these ads are more likely to target men over women. Bryon Spice (2015) describes a study where

AdFisher, an automated browser-based tool, is used to create 500 male and 500 simulated female users to see how often high-paying jobs were shown to them. After this study, male users were shown high-paying job ads about 1800 times compared to female users only 300 times (Spice, 2023). This discrepancy comes from AI bias as the datasets AI is trained on usually contain more male candidates than females. These findings illustrate that AI may exacerbate existing societal inequities unless careful measures are taken to mitigate biases in the datasets used for training these systems.

Copyright Issues

As AI becomes a key technology in marketing and advertising, issues surrounding ownership and copyright laws arise. Copyright law serves as an intellectual property protection and balances the creativity of authors while safeguarding their creations (Abdikhakimov, 2023). However, AI-generated content does not have a clear owner; these pieces are created through a combination of human input, pre-existing training data, and algorithms like deep learning and NLP. Moreover, AI-generated content can be produced in quick sessions, thus reducing its originality and less subject to copyright (Abdikhakimov, 2023). Many lawmakers have proposed methods to deal with this pervasive challenge. First, granting legal status to autonomous systems like AI (Ahuja, 2020), allows AI to own their creations. However, this solution has its problems as AI cannot be sued nor cannot enter legal contracts with other people (Ahuja, 2020). Another option is to conclude that AI-generated works are public works and thus, not subject to copyright. However, this method poses its own set of problems. Companies have worked hard to develop AI systems that produce viable content; others can use these AI systems without enduring any upfront costs which is unfair (Abdikhakimov, 2023). The third choice involves humans claiming ownership over AI generations. While it addresses the human works and originality aspect of copyright law, it wasn't created by humans, making it unable to claim ownership (Abbot, 2023). This solution was tainted during the Thaler versus Perlmutter case. The Copyright Office refused to register Stephen Thaler's AI creation that creates 2D artwork simply because it was not a human creation (Abbot, 2023). In conclusion, navigating the complexities of copyright law in the context of AI-generated content poses many difficulties.

Transparency in Black-Box Model

For a full transition from typical software to AI marketing technology, customers and businesses must trust the decisions AI makes. However, for many AI software, people do not know how AI creates their decisions. This is known as a Black-Box problem, where users can input commands and receive the expected output; however, they do not trace the system's thought process and cannot see how or why it created this output (Blouin, 2023). This is an important problem for 2 reasons. First, if advertisers do not understand the decision-making process, they cannot necessarily change the AI software if it is needed (Blouin, 2023). Second, the AI software may not come to its conclusion ethically and safely; thus, there are major trust and privacy concerns (Eschenbach, 2021). Currently, businesses are still hesitant to fully commit to AI due to this black-box problem (McCoy, 2023). In the future, marketers and customers can trust AI systems if the black box becomes transparent. By developing models that can explain the non-linear and complex decision process that is understood by regular human observers, people will start to trust AI more (Eschenbach, 2021). However, this technical solution may result in a loss of trade secrets and the company's unique value proposition

(Tschider, 2020). Overall, the black-box problem by enhancing transparency is crucial in the permeation of AI in business processes.

Labor Displacement

As AI evolves to create marketing decisions and advertisements for businesses, employees will have to develop the skills needed to manage this technology (Rust, 2020). These workers need to be able to manufacture, service, and maintain these technologies while being able to provide proper inputs to create the best content (Maynard, 2023). These jobs will involve working hand-in-hand with AI. If workers cannot adjust their skills, they will be removed from the company. This reduction has already begun: A report by Goldman Sachs predicts that around 300 million full-time jobs could be lost or diminished by Generative AI (Cooban, 2024). Moreover, 37% of business leaders believe that AI will replace workers in 2023, and 44% report that there will be layoffs in 2024 due to AI efficiency (Curry, 2023). The integration of AI in marketing signifies a transformative shift in the industry, necessitating a workforce adept at leveraging and managing advanced technologies to stay relevant and effective.

Data Privacy Concern

For AI to effectively target a customer, the system must have stored the personal information of said customer. However, users may not want their private information made accessible to or owned by corporations. Companies are now challenged to balance two values: privacy and personalization. Since customers are key for any business operation, the balance will be made through many iterations over time. In addition, lawmakers need to acknowledge how to best address privacy concerns for data collection and security (Davenport, 2020). Since AI could result in threatening constitutional freedoms and human rights, legal disputes do not seem far into the future (Almeida, 2021). The conflict of AI regulation stems from its ever-growing benefits while possibly displaying unpredictable behavior to consumers (Smuha, 2021). Another issue with AI is its versatility; with various systems performing different tasks, it is difficult to propose a policy to protect consumers and businesses for each AI product (Smuha, 2021).

Limitations & Future Work

Since this paper provides an overview of the breadth, it is not comprehensive regarding all possible AI and marketing connections. There may be some gaps within this paper, and this paper does not include the following subjects: cold-calling, influencer marketing, business exploitation, and areas related to technical aspects of AI. In addition, there was limited access to data as all the evidence was found within Google Scholar and not other research publications. Thus, the references may be biased and not fully comprehensive. Moreover, this paper was conducted from February 14, 2024, to July 31st, 2024. The time available to study this research area may have negatively impacted my ability to answer the question.

Future work should focus on addressing how the shift from traditional marketing to AI-based marketing will occur. This question should be answered from an economic, societal, and political viewpoint. A possible study that can be conducted is analyzing fully AI-based companies versus traditional companies and seeing every metric from click rates to customer retention. Moreover, later studies can address how internal biases can be dealt with in AI and what policies manifest in response to copyright and ethical concerns.

Conclusion

This research paper extensively investigates the confluence of digital marketing and artificial intelligence (AI), offering a comprehensive understanding of how AI is reshaping modern marketing strategies. Initially, the paper delineates the foundational aspects of digital marketing, emphasizing various strategies. The integration of AI into these marketing strategies marks a significant evolution, offering advanced tools for optimization and personalization. The paper illustrates how AI-driven technologies are revolutionizing content creation, customer targeting, and pricing strategies. The paper also addresses the inherent challenges and implications of AI integration in marketing. These challenges underscore the need for businesses to approach AI adoption with caution, ensuring ethical practices and robust data management. While AI holds immense potential to revolutionize digital marketing by enhancing efficiency, personalization, and customer engagement, it also poses significant challenges that require careful navigation. Businesses must balance the innovative capabilities of AI with ethical considerations and practical implementation strategies to fully leverage its benefits.

References

[1] Abbott, R., & Rothman, E. (2023). Disrupting creativity: Copyright law in the age of generative artificial intelligence. Fla. L. Rev., 75, 1141.

[2] Abdikhakimov, I. (2023, June). Unraveling the Copyright Conundrum: Exploring AI-Generated Content and its Implications for Intellectual Property Rights. In International Conference on Legal Sciences (Vol. 1, No. 5, pp. 18-32).

[3] *AI pricing: how much does AI cost in 2024? | Future Processing*. (2024, March 27). Www.future-Processing.com. https://www.future-processing.com/blog/ai-pricing-is-ai-expensive/#:~:text=AI%20project%20costs%20are%20influenced

[4] Ahuja, V. K. (2020). Artificial Intelligence and Copyright: Issues and Challenges. ILI Law Review Winter, (2020).

[5] Aldoseri, A., Al-Khalifa, K. N., & Hamouda, A. M. (2023). Re-thinking data strategy and integration for artificial intelligence: concepts, opportunities, and challenges. Applied Sciences, 13(12), 7082.

[6] Almeida, P. G. R., dos Santos, C. D., & Farias, J. S. (2021). Artificial intelligence regulation: a framework for governance. Ethics and Information Technology, 23(3), 505-525.

[7] Anica-Popa, I., Anica-Popa, L., Rădulescu, C., & Vrîncianu, M. (2021). The integration of artificial intelligence in retail: benefits, challenges and a dedicated conceptual framework. Amfiteatru Economic, 23(56), 120-136.

[8] Bawm, Z. L., & Nath, R. P. D. (2014, December). A Conceptual Model for effective email marketing. In 2014 17th International Conference on Computer and Information Technology (ICCIT) (pp. 250-256). IEEE.

[9] Bhattarai, A. (2023). Exploring Customer Engagement through Generative AI Innovative Strategies in Digital Marketing Campaigns. Quarterly Journal of Emerging Technologies and Innovations, 8(12), 1-9.

[10] Bhima, B., Zahra, A. R. A., Nurtino, T., & Firli, M. Z. (2023). Enhancing organizational efficiency through the integration of artificial intelligence in management information systems. APTISI Transactions on Management, 7(3), 282-289.
[11] Blouin, L. (2023, March 6). *AI's mysterious "black box" problem, explained | University of Michigan-Dearborn*. Umdearborn.edu; The Regents of the University of Michigan. https://umdearborn.edu/news/ais-mysterious-black-box-problem-explained
[12] Boughton, S. B. (2005). Search engine marketing. Perspectives in business, 2(1), 29-33.

[13] Charles Gibson (2018); The Most Effective Digital Marketing Strategies & Approaches: A Review of Literature; Int J Sci Res Publ 8(2) (ISSN: 2250-3153). http://www.ijsrp.org/research-paper-0218.php?rp=P747171
[14] Cooban, A. (2024, April 5). AI will shrink workforces within five years, say company execs | CNN Business. CNN. https://www.cnn.com/2024/04/05/business/ai-job-losses/index.html
[15] Cui, Y. G., van Esch, P., & Phelan, S. (2024). How to build a competitive advantage for your brand using generative AI. Business Horizons.
[16] Curry, R. (2023, December 16). Recent data shows AI job losses are rising, but the numbers don't tell the full story. CNBC. https://www.cnbc.com/2023/12/16/ai-job-losses-are-rising-but-the-numbers-dont-tell-the-full-story.html
[17] Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. Journal of the Academy of Marketing Science, 48, 24-42.
[18] Davenport, T. H., & Mittal, N. (2022, November 14). *How Generative AI Is Changing Creative Work*. Harvard Business Review; Harvard Business review. https://hbr.org/2022/11/how-generative-ai-is-changing-creative-work
[19] De Bruyn, A., Viswanathan, V., Beh, Y. S., Brock, J. K. U., & Von Wangenheim, F. (2020). Artificial intelligence and marketing: Pitfalls and opportunities. Journal of Interactive Marketing, 51(1), 91-105.
[20] Dencheva, V. (2023, January 6). *Global AI in marketing revenue 2028*. Statista; Statista. https://www.statista.com/statistics/1293758/ai-marketing-revenue-worldwide/#:~:text=In%202021%2C%20the%20market%20for
[21] Dumitriu, D., & Popescu, M. A. M. (2020). Artificial intelligence solutions for digital marketing. Procedia Manufacturing, 46, 630-636.
[22] ENACHE, M. C. (2021). Machine Learning for Dynamic Pricing in e-Commerce. Economics and Applied Informatics, (3), 114-119.
[23] Fountaine, T., McCarthy, B., & Saleh, T. (2019, June 18). *Building the AI-Powered Organization*. Harvard Business Review. https://hbr.org/2019/07/building-the-ai-powered-organization
[24] González García, C., Núñez-Valdez, E., García-Díaz, V., Pelayo G-Bustelo, C., & Cueva-Lovelle, J. M. (2019). A Review of Artificial Intelligence in the Internet of Things. *International Journal of Interactive Multimedia and Artificial Intelligence*, *5*(4), 9. https://doi.org/10.9781/ijimai.2018.03.004
[25] Green, D. C. (2003). Search Engine Marketing: Why it Benefits Us all. *Business Information Review*, *20*(4), 195–202. https://doi.org/10.1177/0266382103204005
[26] Harkness, L., Robinson, K., Stein, E., & Wu, W. (2023, December 5). *How generative AI can boost consumer marketing | McKinsey*. McKinsey & Company; McKinsey & Company.

https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/how-generative-ai-can-boost-consumer-marketing
[27] Hoffman, C. von. (2023, June 14). *AI and marketing: What the stats show*. MarTech; Third Door Media. https://martech.org/ai-and-marketing-what-the-stats-show/
[28] Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. Journal of the Academy of Marketing Science, 49, 30-50.
[29] Hudders, L., Van Reijmersdal, E. A., & Poels, K. (2019). Editorial: Digital advertising and consumer empowerment. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *13*(2). https://doi.org/10.5817/cp2019-2-xx
[30] Kaczorowska-Spychalska, D. (2019). How chatbots influence marketing. Management, 23(1), 251-270. https://doi.org/10.2478/manment-2019-0015
[31] Kee, A. W. A., & Yazdanifard, R. (2015). The Review of Content Marketing as a New Trend in Marketing Practices. International Journal of Management, Accounting & Economics, 2(9).
[32] Khoa, B. T. (2021). The impact of chatbots on the relationship between integrated marketing communication and online purchasing behavior in the frontier market. Jurnal The Messenger, 13(1), 19-32.
[33] Kietzmann, J., Paschen, J., & Treen, E. (2018). Artificial intelligence in advertising: How marketers can leverage artificial intelligence along the consumer journey. Journal of Advertising Research, 58(3), 263-267.
[34] Kshetri, N., Dwivedi, Y. K., Davenport, T. H., & Panteli, N. (2023). Generative artificial intelligence in marketing: Applications, opportunities, challenges, and research agenda. International Journal of Information Management, 102716
[35] Kumar, M., & Kapoor, A. (2023). Generative AI and Personalized Video Advertisements. Available at SSRN 4614118.
[36] Marr, B. (2019, November 11). *13 Mind-Blowing Things Artificial Intelligence Can Already Do Today*. Forbes; Forbes. https://www.forbes.com/sites/bernardmarr/2019/11/11/13-mind-blowing-things-artificial-intelligence-can-already-do-today/
[37] Maynard, M. (2023, June 23). Council Post: Will AI Lead To The End Of Marketing Jobs? Forbes. https://www.forbes.com/sites/forbesagencycouncil/2023/06/23/will-ai-lead-to-the-end-of-marketing-jobs/
[38] McCoy, K. (2023, August 7). *AI's black box problem has clients cautious but curious, agency execs say*. Digiday. https://digiday.com/marketing/ais-black-box-problem-has-clients-cautious-but-curious-agency-execs-say/
[39] Menon, S. (2023, December 1). *Council Post: Why AI Is Popular Now—And Two Ways To Use It Better*. Forbes; Forbes. https://www.forbes.com/sites/forbestechcouncil/2023/12/01/why-ai-is-popular-now-and-two-ways-to-use-it-better/
[40] Mijwel, M. M. (2015). History of Artificial Intelligence Yapay Zekânın T arihi. Computer Science,(April 2015), 3-4.
[41] Norris, P. (2024, April 13). 10 Impressive Examples of AI in Marketing - Social Media Strategies Summit Blog. Blog Social Media. https://blog.socialmediastrategiessummit.com/10-examples-of-ai-in-marketing/

[42] Ntoutsi, E., Fafalios, P., Gadiraju, U., Iosifidis, V., Nejdl, W., Vidal, M. E., ... & Staab, S. (2020). Bias in data-driven artificial intelligence systems—An introductory survey. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 10(3), e1356.
[43] Olavsrud, T. (2022, April 15). *9 famous analytics and AI disasters*. CIO. https://www.cio.com/article/190888/5-famous-analytics-and-ai-disasters.html
[44] Onyango, K. E. N. N. E. D. Y. (2016). Influence of digital marketing strategies on performance of cutflowers exporting firms in Kenya.
[45] Orland, K. (2024, January 12). *Lazy use of AI leads to Amazon products called "I cannot fulfill that request."* Ars Technica. https://arstechnica.com/ai/2024/01/lazy-use-of-ai-leads-to-amazon-products-called-i-cannot-fulfill-that-request/
[46] Page, M.J., McKenzie, J.E., Bossuyt, P.M. et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Syst Rev 10, 89 (2021). https://doi.org/10.1186/s13643-021-01626-4
[47] Pankka, C. (2023). The Extinction of Marketers? The Effectiveness of ChatGPT Slogans in Comparison to Human Equivalents (Doctoral dissertation, Master's Thesis at Hanken School of Economics, Helsinki, Finland).
[48] PraveenKumar, S., & Gunaseelan, D. (2016). Misleading advertisements and issues. Journal Impact Factor, 7(2), 475-483.
[49] Preet Kaur, F. (2024, April 28). AI in Marketing: 10 Creative Examples and Use Cases. Mailmodo. https://www.mailmodo.com/guides/ai-in-marketing-examples/
[50] Puro, P. (2013). Content marketing and the significance of corporate branding.
[51] Quarles, S. (2023, June 26). *BofA Survey Shows 59% Of US Internet Users Are Already On ChatGPT - Business News*. Business News; Business News. https://biz.crast.net/bofa-survey-shows-59-of-us-internet-users-are-already-on-chatgpt/
[52] Reis, L., Maier, C., & Weitzel, T. (2022, June). Chatbots in Marketing: An In-Deep Case Study Capturing Future Perspectives of AI in Advertising. In Proceedings of the 2022 Computers and People Research Conference (pp. 1-8)
[53] Rust, R. T. (2020). The future of marketing. International Journal of Research in Marketing, 37(1), 15-26.
[54] Samantaray, A., & Pradhan, B. B. (2020). Importance of e-mail marketing. PalArch's Journal of Archaeology of Egypt/Egyptology, 17(6), 5219-5227.
[55] Schijns, Jos M. C. (2008). Customer Magazines: An Effective Weapon in the Direct Marketing Armory, Journal of International Business and Economics, 8, 3, 70-78
[56] Schwartz, O. (2019, November 25). In 2016, Microsoft's Racist Chatbot Revealed the Dangers of Online Conversation. IEEE Spectrum. https://spectrum.ieee.org/in-2016-microsofts-racist-chatbot-revealed-the-dangers-of-online-conversation
[57] Shankar, V., Grewal, D., Sunder, S., Fossen, B., Peters, K., & Agarwal, A. (2022). Digital marketing communication in global marketplaces: A review of extant research, future directions, and potential approaches. International Journal of research in Marketing, 39(2), 541-565.
[58] Smuha, N. A. (2021). From a 'race to AI'to a 'race to AI regulation': regulatory competition for artificial intelligence. Law, Innovation and Technology, 13(1), 57-84.
[59] Soni, V. (2023). Adopting generative ai in digital marketing campaigns: An empirical study of drivers and barriers. Sage Science Review of Applied Machine Learning, 6(8), 1-15.

[60] Spice, B. (2015, July 6). *Fewer Women Than Men Are Shown Online Ads Related to High-Paying Jobs | Carnegie Mellon University Computer Science Department*. Csd.cmu.edu. https://csd.cmu.edu/news/fewer-women-than-men-are-shown-online-ads-related-to-highpaying-jobs

[61] Su, E. (2023, July 7). The Biggest Issues with Artificial Intelligence in Marketing Content. Single Grain. https://www.singlegrain.com/blog/ms/issues-with-artificial-intelligence/
[62] Suvanto, E. (2023). Applications of Generative AI in Business.
[63] Terrance, A. R., Shrivastava, S., & Kumari, A. (2017). Importance of Search Engine Marketing in the Digital World. ICITKM, 14, 155-158.
[64] Tschider, C. A. (2020). Beyond the" Black Box". Denv. L. Rev., 98, 683.
[65] Varsha, P. S. (2023). How can we manage biases in artificial intelligence systems–A systematic literature review. International Journal of Information Management Data Insights, 3(1), 100165.
[66] Vinerean, Simona (2017). Content marketing strategy : definition, objectives and tactics. In: Expert journal of marketing 5 (2), S. 92 - 98.
[67] Von Eschenbach, W. J. (2021). Transparency and the black box problem: Why we do not trust AI. Philosophy & Technology, 34(4), 1607-1622.
[68] Yildirim, E. (2022). Text-to-image generation AI in architecture. Art and architecture: theory, practice and experience, 97.
[69] Zhou, P., Wang, L., Liu, Z., Hao, Y., Hui, P., Tarkoma, S., & Kangasharju, J. (2024). A survey on generative ai and llm for video generation, understanding, and streaming. arXiv preprint arXiv:2404.16038.
[70] Zohuri, B., & Rahmani, F. M. (2020). Artificial intelligence versus human intelligence: A new technological race. Acta Scientific Pharmaceutical Sciences (ISSN: 2581-5423), 4(5).