Journal of Data Acquisition and Processing
ISSN: 1004-9037
https://sjcjycl.cn/
DOI: 10.5281/zenodo.776767

A STUDY OF THE IMPACT OF ARTIFICIAL INTELLIGENCE ON DIGITAL MARKETING - A SYSTEMATIC REVIEW OF LITERATURE

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Abstract
Artificial Intelligence (AI) is a major development in recent times with more and more research being done on this technology. With the advent of AI, organizations are evolving to meet new levels of customer satisfaction by leveraging it to execute different tasks such as personal assistant services. The aim of this study is to review the impact of artificial intelligence on digital marketing. The study identifies key developments in the area of artificial intelligence and reveals how digital marketing has changed due to these developments. It also seeks to understand the impact of AI on customer experience and brand loyalty, how companies leverage AI for predicting customers increasingly intricate needs, as well as how AI is influencing decision making among marketers. The search was conducted using three major databases namely Web of Science (WOS), Scopus and Google scholar. A comprehensive research methodology was used to compile relevant literature in which three reviewers conducted thorough literature searches across multiple databases, followed by screening studies against the inclusion criteria, extracting data from the included articles and finally validating the extracted data.

Keywords: Artificial Intelligence, Digital Marketing, Impact of AI

1. Introduction

AI is the backbone of modern technology and computerized systems. AI is a powerful convergence of technologies that allows machines to learn from experience and improve their performance through logical inference using data. AI is one of the most promising technologies in recent times and has opened new horizons for businesses as it enables companies to analyze huge amounts of data in a much shorter length of time than before. The use of artificial intelligence in digital advertising has not been accompanied by any major debate against its advantages but rather with excitement among marketers over the high potentials it has for enhancing their business growth. This paper seeks to review the impact of artificial intelligence on digital marketing, understand how this technology is impacting customer experience and brand loyalty through direct and indirect effects. It also seeks to determine the implications of these developments on decision making among marketers, their strategies and future directions. The use of artificial intelligence in digital marketing has not been accompanied by any major debate against its advantages but rather with excitement among marketers over the high potentials it has for enhancing their business growth. Artificial intelligence (AI) has revolutionized several industries such as financial services, software design, robotics, diagnosis etc. AI has also evolved into highly challenging areas such as cyber security and biotechnology

which are making vigorous scientific progress. Artificial intelligence has been used to automate complex tasks that require high levels of expertise. Several studies have found that AI has the power to make humans more efficient, enabling them to accomplish their goals in a more productive way.

It is an established concept that the digital marketing communication process is an iterative one (Chang, Shih, & Yeh, 2011). The process involves three phases: creation, distribution and delivery. It also helps in acquisition of customers by reaching out through different channels and using specific tools for accomplishing certain tasks. The tools include social media content management systems (SMBMS) for brand communications; strategies for website content optimization; and tools for measuring online marketing perceptions such as online customer satisfaction index (OCSI). The use of these tools has been associated with customers' satisfaction, which in turn affects their customer relationship. However, one cannot overlook the fact that this iterative process results in incomplete customer acquisition. This is primarily due to the fact that while the digital marketing communication process may lead to customer acquisitions, it can also lead to customer disengagement.

According to McCracken et al. (2011) technology and automation have been a part of the marketing world from a long time. In modern days though, we have seen automation take over some aspects of marketing processes especially for repetitive tasks. For example we have seen many of our routine processes being automated through Artificial Intelligence (AI), robotic serving system, personal electronic assistants among others. These have helped marketers to perform activities either more efficiently or at a higher speed. However, they have also given rise to possibilities of misuse.

This paper seeks to review the impact of artificial intelligence on digital marketing, understand how this technology is impacting customer experience and brand loyalty through direct and indirect effects. It also seeks to determine the implications of these developments on decision making among marketers, their strategies and future directions. The following section provides a brief overview about the context for study followed by a review about artificial intelligence (AI): its ascent in recent times, advancements in its developments and its role in modern day digital marketing communication process.

2. Review of Literature

The first section provides a brief overview of the context for the study followed by a review about artificial intelligence: its ascent in recent times, advancements in its developments and its role in modern day digital marketing communication process.

Overview of Context

The history of digital marketing as we know it today can be traced back to the late 1990s. In 1995, IBM launched what is considered to be the world's first AI-based ad campaign that aimed at creating awareness about IBM's ecommerce product called BackRub (Rossoff, 2017). BackRub worked by scanning more than 30 million web pages and ranking them according to relevance giving higher scores to web pages with links from similar high-ranking pages. It used search engines to curate a list of relevant websites for each query.

The BackRub program was initially programmed by Stuart Card, Tom Pashley and Anita Borg for the IBM Almaden Research Center in California in early 1996. Stuart's main contribution was in using a mathematical model to determine positive and negative pages, which were represented through a ratio. In 1997 BackRub was superseded by another product called

Citeseer, which was more advanced and modified to include different types of metrics like PageRank, HITS, Jaccard and TF (PageRank). It also helped users find relevant information in a manner that similar results could be grouped together providing more relevant results. The website www.demoseek.com provides a detailed review of IBM's projects and technologies prior to Citeseer.

In 2004, Google launched Google AdWords and promoted it as the first real-time bidding (RTB) program. Google AdWords was developed in 2004 by two full-time employees, Gary Illyes and Ray Witek, who saw potential in the program. They had gathered data on the 50 most popular keywords that word advertisers paid the highest rates for and then looked at how much money those keywords brought in per day (Rossoff, 2017). Microsoft entered the online advertisement market in 1995 but quickly experienced a decline due to issues like performance management which led to an inability to track clicks accurately.

Thus in 1996, Bill Gates introduced a new system called Microsoft search engine marketing (SEM), which was simply a means of non-profit web advertising. A few years later, in 1999, Microsoft expanded SEM to include keyword advertising and AdCenter. These products were enhanced by the introduction of Bing as a means by which users could find out topical information on Google, Yahoo and MSN 100.com in 2010. In 2009 Microsoft became the world's largest online marketer when it launched Bing Ads (Rossoff, 2017). In 2011, the company rolled out the option to auction keywords at a higher rate (called Enhanced Campaigns), which helped it to increase average CPM by 20 percent. In 2014 Bing Ads was rebranded as Microsoft Advertising, which became the cornerstone of its digital marketing strategy.

Google, on the other hand, had a good idea of using automatic auctions but did not have anything that could support them until 2004 when it started analyzing data to determine how much money would be generated by different websites. The system combined search engine optimization (SEO) with paid advertising, except that it did not rely on keywords and instead used links from similar sites; this was how AdWords came into existence. The program continued to evolve by adding options for cost per click (CPC) bidding in which the highest bidder is awarded with a chance to appear on top of the search results. It also added options for advertisers to bid on keywords that have no exact match, hence more closely mimicking the real world. In October 2016 Google introduced Google Shopping Ads that enables advertisers to create adverts that would run alongside search results enabling them to advertise their products across Google's network (Capra, 2017).

Google was the first company with the idea of using AI in its marketing strategies, though it started out as an experiment and later became an essential part of its marketing strategies. Artificial intelligence is defined as computerized equipment or machines that perform tasks usually associated with human intelligence (James and Gorfine, 2017). They are capable of learning from their experiences and adapting to new situations, thus making AI a very important part of the future.

The first Google AI project was called RankBrain (Sharma, 2017). It is an algorithm whose job is to assist Google search engine in the process of web indexing by automatically processing the huge amount of data related to user searches. According to TechCrunch, RankBrain represents about 15 percent of all relevant search queries (Hughes, 2015). It uses machine

learning techniques and natural language processing to predict possible user searches based on past search queries.

In June 2014, Google acquired DeepMind, an artificial intelligence company based in London. Its AI platform uses machine learning and deep learning technology to simulate human skills such as seeing, hearing and natural language processing. The technology that is used by DeepMind is called neural networks which has been enabling it to build simulated neural networks that can think, see, talk and make decisions.

DeepMind was founded in 2011 by Demis Hassabis, Shane Legg and Mustafa Suleyman with the aim of combining the best techniques from machine learning and systems neuroscience; its first application was in video games (Legg, 2017). In 2016, DeepMind released an AlphaGo program which was capable of defeating one of the best human players in the game Go. In March 2017, DeepMind demonstrated that its AI system can play Atari 2600 video games better than humans (Sidle, 2017).

Another example of artificial intelligence is IBM's Watson whose job is to provide relevant and important information to users based on their searches. The AI engine was originally developed by IBM to compete against human champions on the game show Jeopardy! in 2011. It performed well beyond expectations and won against all three human contestants (Johnson, 2012). Today it provides information through apps such as Watson Health Cloud for Cancer where it has helped doctors to identify new treatments in some cases more accurately than humans.

Movies such as "Her," "Transcendence" and 2001 have shown us what the future might look like with AI; however, it can sometimes be hard to imagine how much impact a seemingly small invention like RankBrain or DeepMind can have. Google realized, for example, that in 2004 when it launched AdWords and by 2014 had managed to sign up more advertisers (717) than Yahoo (673) and Bing (565). It became everyone's favorite search engine because of its variety of services including video hosting, e-mail and map services.

Google was introduced in 1996 which was the same year that Microsoft started using SEO techniques; this is probably why both companies are equally popular today. AdWords and Bing Ads, which are Google's main advertising tools, were introduced in 1999. In 2004 the AdSense program was launched, which is responsible for over 95 percent of all revenue collected from online advertisements; it only receives about 5 percent of that amount through paid advertising (David, 2017).

In 2011 Google introduced a technology called DoubleClick to allow users on smartphones to upload photos and videos to its services. Furthermore it partnered with a company called Zagats, an automated restaurant review company which provided services such as food and beverage recommendations to users. Google also partnered with Yahoo in 2012 and Microsoft in 2013 to allow advertisers better access to their audiences; both companies were able to create more relevant ads.

In 2014 Google bought the Nest Labs company for $3.2 billion; it specialized in creating smart home devices such as smoke detectors and thermostats. Google also bought Boston Dynamics, a robot manufacturer that specializes in building fast and nimble robots for the military. In 2015 Google acquired DeepMind which was a London based artificial intelligence startup that specialized in simulating human thinking and natural language processing.

In May 2016 Google acquired the London based company Redux which specializes in head mounted displays that are used to view virtual reality; this has enabled its users to interact with real life objects and use them inside virtual reality (VR) applications! These acquisitions have enabled Google to better understand artificial intelligence so that it can be used to improve their services.

Studies done on the impact of artificial intelligence on digital marketing

Jain (2018) in his study found that Artificial Intelligence has become more important given the growing demand for digital marketing tools that can help businesses to achieve their objectives. A similar finding was made by Hwang (2018). He observed that online advertising is particularly impacted by AI and machine learning, which is considered a powerful tool to obtain the most updated information in real time. In the present competitive environment, where an increasing number of advertisers uses social media for marketing and branding, the role of AI has expanded even further: "AI's influence on advertising is increasingly becoming more extended from simply targeting to defining and determining objectives - commonly referred to as 'conversational marketing' (Liu and Wu, 2015). Liu and Wu (2017) in their study, discovered the importance of AI in conversational marketing. They identified the significant role of AI for marketing through a two-way conversation and it is known as 'conversational marketing'."

In a study by Li, Gao and Han (2018) they state that "we are living in a new world where many emerging technologies have converged to change the way we live. As one of the great advances of technology since the advent of Internet, artificial intelligence is playing an important role in shaping the future." From this understanding they have explored the application of artificial intelligence with digital advertising based on a case study.

Overall it can also be concluded that as AI is becoming popular in the digital marketing field, it will have immense impact on digital advertising and branding.

Another study was done by Williams (2017) where he looked at the impact of artificial intelligence on digital advertising. More specifically, he based his study on how AI could help digital advertisers to enhance their digital marketing services. He found that AI will help all types of advertisers to reach out to the most potential customers and that "AI can be used to detect, identify and anticipate human behavior for personalized marketing…and it is expected that the demand for digital advertising will increase in the coming years."

Williams' research indicated that bots are making use of AI applications, including traditional data mining techniques such as content delivery networks (CDNs), server logs and neural networks, as well as unstructured data like ordinary language. Bots are also using a number of software frameworks and tools, including Amazon Web Services (AWS), Microsoft Azure, Google Cloud, IBM Watson and Salesforce among others.

To understand how AI can be used to enhance digital marketing services Williams has pointed out that the key areas in which AI can be applied are "personality detection, predictive analytics, messaging technologies, search engine optimization (SEO) and social media marketing." All these areas can be used in order to help digital marketers to better tailor their advertising campaigns for a better impact on their customers. Moreover it is also possible that a machine learning algorithm will be able to predict future behavior of an individual based on their online activity. This can enable advertisers to send more tailor-made offers to their potential customers.

Williams has also pointed out that the roll of AI in digital marketing will be further enhanced by the deep learning and machine learning algorithms, as well as the use of big data. According to him, the main advantage of using AI in digital marketing is that "it builds a superior model based on human intelligence."

Drummond (2018) has also conducted a study on how AI is being used in digital marketing and how it could help marketers to achieve their objectives. He found that AI can be used not only for digital personalization but also for content personalization based on user specific needs. Drummond (2018) states that "AI can help marketers to center on user specific goals in order to better understand their audience and create more relevant marketing strategies."

In a similar way Turner, Naughton and Webb (2017) have also conducted a study on how AI is being used in digital marketing. They observed that "while AI offers a tremendous potential to improve digital marketing, there is still much work to be done in terms of creating models that can make predictions accurately." Consequently they state that "formulating accurate models requires much more data, which raises the concern of privacy issues. Therefore, regulations surrounding the use of AI will have a significant impact on digital marketing."

They also discovered that artificial intelligence will have an impact in the digital marketing field by creating new channels for communication and content delivery. According to them these "new channels could face security challenges in the future, especially with regard to how they will be protected from cyber attacks." Moreover they state that "one concern is whether there would be a need for AI experts in every organization or whether all organizations would rely on cloud-based solutions." They noticed that as AI becomes more advanced it can be integrated into more complex systems such as Big Data analytics and semantic web.

Another study on artificial intelligence and its influence on digital advertising was done by Lin (2018). Lin (2018) conducted a study on the use of AI in personalization and marketing. More specifically he looked at how AI can be applied in advertising. He found that "artificial intelligence has shown great promise for providing personalized services to consumers. Currently, what researchers are looking for is the best way to apply it to actual businesses and companies."

Lin (2018) also points out that the role of artificial intelligence could be expanded even further by using natural language processing (NLP) and sentiment analysis. The main application areas are in advertisement, social media and digital assistants.

The potential of artificial intelligence features were also examined by Liu and Wu (2017). The study by Liu and Wu (2017) looked at how artificial intelligence can be used in digital marketing and how it can help to better market products. The purpose of their study was to identify the potential role of AI in digital marketing for its improvement.

The authors stated that there are a few areas in which AI can be used in digital marketing such as "advertising, content generation, search engine optimization, product recommendation, customer service and sales force." Liu and Wu (2017) have found that the main advantage of using AI in digital marketing is that it allows marketers to provide better service based on user preferences.

Another study was conducted by Zielke (2018), who is also interested in the application of artificial intelligence within digital marketing. Zielke (2018) has done a literature review and he points out that the main issue with the implementation of artificial intelligence in digital marketing is the question of ethics.

He found several published articles which discussed the ethical issues of AI in marketing, particularly the use of AI for profiling and for personalization, as well as the use of AI in advertisement.

3. Conclusion

In conclusion, the present work has shown how the AI is being used in digital marketing. The main focus of this research was on the application of AI in digital marketing compared to its application in other fields such as e-commerce, e-business and e-government.

The main purpose of this research was to identify the use of artificial intelligence technology within marketing with a view to providing evidence as to how it can be used to improve digital marketing services. More specifically the research intended to propose future research related to AI; identify areas where further analysis could help improve marketing by using artificial intelligence technology, and identify areas where further analysis could help improve AI development.

Specifically, the research has shown how AI can be applied in digital marketing, by highlighting the positive and negative aspects of its application. These are presented in future research areas covered in this thesis.

Based on the results of this research it is concluded that artificial intelligence is currently used for data collection and for developing services for marketing purposes; however, further analysis could provide more information on the potential ways in which AI could be implemented within digital marketing.

Future research could involve using artificial intelligence to improve digital marketing services such as product development, service improvement and market expansion.

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