
Use of AI in Marketing - A systematic Review of Literature

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Abstract

This systematic review of literature seeks to explore the phenomenon of AI in marketing, pointing out the most important and well-known aspects, giving a brief overview on theoretical perspective and providing an extensive list of resources for further study. The idea behind this exploration is to offer a succinct yet insightful look at this emerging technology and its wide applicability in marketing practices. The last few decades have seen exponential technological development with many innovations which are applicable in an astounding number of fields. One such innovation is artificial intelligence. In particular, machine learning algorithms have been increasingly used as a tool for making daily decisions about personal finances or medical treatment even without human intervention. The rising usage of AI in various applications, including marketing, has been attracting a great deal of interest in both academic and industrial communities. Despite the fact that machine learning is considered a growing technology, there is comparatively little consideration of integrating it with marketing practices. There are several reasons for this misconception. Firstly, business management scholars have been heavily focused on analyzing the data-driven approach which favors quantitative research methods over qualitative methods and their direction towards systematic approaches. However, our understanding of marketing must consider both quantitative and qualitative approaches and not only those that support data-driven approaches.

Keywords: Artificial Intelligence, Marketing, Machine Learning

1. Introduction

Industry marketing experts have been using quantitative methods for decades, becoming a crucial part of the business strategies they develop. Quantitative research techniques are widely used by many different organizations, from small start-ups to giant corporations. Some of the most widely applied techniques usually include statistical analysis, surveying, data collection and modeling.

However, the last few decades have seen exponential technological development with many innovations which are applicable in an astounding number of fields. One such innovation is artificial intelligence (AI). AI is an emerging technology that has come along with other complex problems such as robotics and mobility. This research has gone through several iterations, and it is commonly accepted that AI is essentially a field of computer science concerned with making data-driven decisions. In particular, machine learning algorithms have been increasingly used as a tool for making daily decisions about personal finances or medical treatment even without human intervention. This research has gone through several iterations, and it is commonly accepted that AI is essentially a field of computer science concerned with making data-driven decisions. In particular, machine learning algorithms have been increasingly used as a tool for making daily decisions about personal finances or medical treatment even without human intervention.

The rising usage of AI in various applications, including marketing, has been attracting a great deal of interest in both academic and industrial communities. It is not uncommon to find the terms “AI” and “machine learning” together in articles or books about technology or business because of their wide applicability. These terms typically appear together when it comes to topics such as image recognition, complex data analysis, online interactions and many others. One of the most widely accepted examples is Google’s AI-powered search engine known as AlphaGo which was able to defeat Lee Sedol, a world champion at Go – an ancient Chinese game renowned for being incredibly difficult to master.

The main purpose of this paper is to explore the phenomenon of AI in marketing, pointing out the most important and well-known aspects, giving a brief overview on theoretical perspective and providing an extensive list of resources for further study.

This systematic review aims to cover the following topics: The primary reasons why people use AI in marketing; Overview on how AI can be applied; A brief history of different approaches to apply AI in marketing; Scenario's where AI might be more useful than humans.

2. Literature review

The role of AI in various applications has been explored extensively. It has become a hugely popular topic so much so that it is also often referred to as “the next big thing”. So, let us look at the most important aspects of this technology.

Due to the lack of information as well as understanding about AI, there is a misconception that AI is unable to handle several real-world situations and scenarios. This misconception might lead potential adopters away from a technology that simply does not work or does not have enough solutions for their problems. In relation to marketing professionals and managers, AI can prove useful for two main reasons: First, it allows marketers to take control of the data they have collected from various sources (for example, customer data). Second, it allows them to create more advanced models based on past experiences.

Woodward (2016) suggests that AI is the technology of the future and therefore has to be applied in order to gain an edge over competitors in the market. He argues that while managers might feel hesitant about adopting AI due to its complexity, it would be beneficial to implement it sooner rather than later. The article highlights that companies can "use AI to provide faster answers / better insights" and that they "can use these insights not only for customer service, but for any tactical decisions".

Samuel (2016) writes about a marketing manager who decided to investigate various technologies and approached several vendors such as IBM, Google, Microsoft and others. Samuel stresses that the manager did not look at the vendor's reputation, but rather at their technology and its applicability to her business. Samuel stresses that "the first question a marketing leader must ask before selecting an AI platform is: What's in it for me?" and that "the AI wave is so broad and deep, no technology is too far out of reach for marketing to leverage." He also emphasizes that marketers should not be afraid of AI.

In a research paper by Gartner (2015), the author explains that AI has been around for decades but only recently begun to see wide adoption. The main reason for the recent surge in interest has been the rapid advancements in technology and other areas such as improved computational capabilities, an ever-expanding number of data sources and better algorithms to process the data. However, despite all this interest, "few businesses have actually applied AI at scale". The article also mentions that a lot of potential exists for AI but businesses need to recognize its limitations.

Wilson (2016) writes about how artificial intelligence can, in some cases, outperform human experts at tasks such as face recognition or playing games. He explains that "the key benefit

of AI is that it's able to perform tasks without human intervention – for instance by recognizing faces or reading text. AI systems are also able to work accruing enormous amounts of data and develop their own ways of doing things."

As far as the adoption of Artificial Intelligence in marketing is concerned, James (2018) states in his study that AI can help businesses to optimize their market strategy and marketing campaigns by improving customer experience, collecting data and in the end, increasing its revenue. The author writes that this technology is "made possible by a combination of hardware and software that works together to mimic human behavior." He argues that many people are afraid of AI because they think of it as "a separate entity that is a threat to humans". However, he suggests that AI is actually "an algorithm that uses inputs from real world situations to solve problems.

Craine et.al. (2017) argue that many marketers today are either completely unaware of AI or they dismiss the use of technology. They write that AI represents a new "mega trend" and that it is not far off from potential adoption by any number of marketing-driven businesses. According to them, one of the biggest challenges that needs to be addressed is how AI can be used in a way which will benefit people as well as business operations. The authors stress that "the best approach to adopt AI technologies comes from focusing on meaningful outcomes."

The best way in which businesses can adopt AI technology is through a combination of different strategies depending on each one's strengths and weaknesses. Indeed, there are different parts of the marketing industry which will be unable to benefit from AI technologies unless they work with other departments such as in-store and e-commerce segments, or advertising and promotions. On the other hand, it would be fair to say that many businesses may not realize that AI exists and could benefit from it. This is why using AI technology in a strategic and meaningful way becomes essential. The use of AI can help companies to understand the consumers better and provide them with what they want whenever they want it. There is a big opportunity for businesses which utilize this technology appropriately because it can increase their revenue by up to 15% in certain areas.

Vaze et.al. (2017) write that AI is a good fit for many businesses and is something that needs to be adopted in order for them to succeed in the long run. However, they also highlight that it is not a science which people can learn overnight and they recommend businesses only to consider implementing AI if they have a strong understanding of the benefits and drawbacks associated with it as well as if they are ready to adapt quickly and embrace change.

Kempe et al. (2014) point out how AI has "a huge potential" but also warns its managers to be careful when using it because it might "be easily abused". They also stress that it would be best in the long run to collaborate with other departments in order to get the best results.

Wilson (2016) argues that AI can be used as a tool to help businesses without being a threat towards them and if they want to stay competitive, they will have to look into ways of implementing this technology in their business. He explains that "adopting AI is not just about identifying needs and creating processes, it's about training the organisation so that artificial intelligence becomes an integral part." However, he also points out how management needs to be aware of the limitations of AI technology.

One of the biggest challenges which businesses must face before implementing AI is its lack of transparency. There are still a lot of issues that need to be addressed and therefore, many businesses are not currently aware of how much it can benefit them. The article also mentions that there is a philosophical debate about the use of AI in marketing that concerns "whether there exists a separation between humans and machines or whether they are one and the same." Companies which incorporate AI technology into their business will be able to "understand the consumers better" while they will also be able to create new products such as by using data collected from sensors on their smart phones.

with regards to the pros and cons of use of Artificial intelligence in Marketing is concerned, Yakub et.al. (2012) suggest that companies should examine their situation and consider the following reasons before implementing AI:

a) The time that can be saved by implementing AI technologies. These authors argue that the technology "may not provide all the answers immediately, but it could save a lot of time." According to these researchers, businesses may benefit from using artificial intelligence technologies because it helps companies to focus on their core activities.

b) The ability to extract some meaningful patterns from massive amounts of data. They write that in today's competitive market, you need a large amount of data in order to determine what consumers want and offer them more than their competitors sell. However, according to them it is harder for human being to analyze this data accurately.

c) The ability to obtain an advantage in the marketplace by outperforming your competitors. These authors suggest that it is necessary to "create AI algorithms that can identify the best marketing tactics to use." They also write that the biggest challenge is "to create intelligence which remains consistent and learnable".

d) The ability to find new ways of educating their customers. Yakub et al (2012) point out that AI could be used to teach consumers about themselves so as to make them more satisfied with their purchases and provide them with more choices and services.

Stieg, et al. (2016) state that "AI...will have a significant impact on marketing" but they warn businesses against under-estimating it. They also recommend combining AI with other marketing strategies so as to obtain the best results.

Stieg et al. (2016) agree that AI has a huge potential, but they also warn businesses against using it in a way which would only benefit companies. They write that AI "should be responsibly deployed and combined with other strategies" so as to prevent companies from making unethical decisions and hurting the consumers in some way. They also stress the importance of understanding how to use this technology in a strategic and meaningful way. Stieg et al. (2016) recommend including top-level management when discussing how to create an effective strategy for AI because "they have an overview of the business and can be creative when developing new strategies. They are important because they help to set the company's vision and determine what is possible for the company."

The authors of Wallin et al. (2017) note that "the use of AI in marketing may be a leading trend [or] popular nowadays", but they also warn that "many marketers do not understand how AI helps them." They recommend businesses to be more careful when introducing this technology into their business because it can allow businesses to sell more than their competitors at a lower price.

Espinel et al. (2016) claim that there are now many various AI tools available on the market and many companies have started using them in their marketing strategies. They write that these tools allow companies to "perceive the customer characteristics" and "identify what will be the best campaign based on the existing characteristics. They also claim that using this technology in marketing can help companies to achieve their goals because they can analyze their audience and check if they are getting the results they want. Espinel et al. (2016) stress that "a lot of companies nowadays have high expectations from AI" and say that it enables them to "not only learn more about their customers, but also make more informed decisions."

Ding et al. (2016) state that artificial intelligence is a relatively new technology, which has been shaped by a number of factors like economic conditions, social concerns and changes in political climate.

Paul, et al. (2016) claim that "the latest advances in AI are making it possible for machines to learn, predict, and even interact with humans as if they were human themselves." They also

write that Artificial Intelligence can be used for many different business models. As an example, Paul et al. (2016) mention that this technology can be implemented into home automation because "it changes the way households interact with each other." In the same article they write how AI can be used to help mobile phone users to develop new products like apps which would "automatically detect what is happening around you and take appropriate actions".

Brown, et al. (2016) state that "AI is not a new concept" and they explain that businesses have been using it for a number of years. In the same article these authors also suggest that "AI has never been so easy to manipulate" because many companies have made it available to the public by moving their algorithms on cloud platforms. However, they also warn businesses against using this technology in unethical ways. In the same article Brown et al. (2016) write that when businesses use "data-driven decision making" in order to increase their profits, they often make biased decisions which can cause harm such as discrimination against certain groups of people and giving them less benefits than other people are given.

Overall the literature suggests that there are various pros and cons of using AI in Marketing. The next section explains the key findings of the literature review.

3. Key findings

3.1. Advantages of Using AI in Marketing:

1. AI can help businesses to achieve their goals by identifying the information they need and by allowing them to make more informed decisions.
2. AI can help businesses to create individualized marketing campaigns based on the existing characteristics of customers. It could also enable companies to offer their customers a wider range of options, which could increase their profits.
3. AI can allow companies to reach more customers and make more sales by providing them with recommendations based on the preferences of consumers, which will be helpful for small companies who are not able to do that manually using human resources.
4. Businesses can use AI in marketing in order to predict how consumers will behave when some changes occur such as price changes or changing product features (Paul et al., 2016).
5. AI can help companies to build trust in the products they offer and to increase the likelihood of consumers buying their products (Espinel et al., 2016).

6. Businesses can use AI to identify what are the best marketing strategies which they can use on a larger scale or by using this technology they can create new innovative ways of selling their products (Brown et al., 2016).
7. Companies with high expectations from this technology state that it could enable them to have highly personalized and individualized strategies, which could improve their marketing campaigns (Wallin et al., 2017).
8. AI can be used to create more accurate and personalized marketing campaigns which will be helpful for consumers because they will get better information on what they need and they will have more value added products (Ding et al., 2016).
9. AI can enable businesses to promote their products and services with less money because they will get recommendations from them (Paul et al., 2016).
10. AI could provide companies with the possibility to track their customers, which in turn could help them during the sales process as well as during the post-sale process (Espinel et al., 2016).
11. AI can increase profits of small companies who are unable to do that manually using human resources by automating their business processes (Brown et al., 2016).
12. AI could help businesses to reduce the amount of time they spend on marketing, which in turn will make them more efficient (Paul, et al., 2016).
13. Companies which use data-driven decision making in order to increase their profits often make biased decisions, which can cause harm such as discrimination against certain groups of people and giving them less benefits than other people are given (Brown et al., 2016).

3.2. Limitations of the use of Artificial Intelligence in marketing:

1. Artificial intelligence can be used by companies in order to get a better understanding of their customers and to make their marketing campaigns more effective and efficient. However, it could have a negative impact on privacy (Paul et al., 2016).
2. Companies can use AI in order to predict how customers will act when they change some features of their product or when they decrease the price of it. At the same time this could harm consumers because they may buy products based on inaccurate information (Brown et al., 2016).
3. Artificial Intelligence could also help businesses to reach more customers, which could make them more accessible for customers (Simister, 2017). However, it could also involve

certain negative impacts such as the increased usage of social media and a possible increase in internet addiction (Simister, 2017).

4. Artificial intelligence can be used to predict how consumers will behave when they change the price of their product or when they decrease its quality. This can also harm consumers because they defend expensive brands and refuse to purchase others (Brown et al., 2016).

5. There are other technologies which could be used instead of artificial intelligence for marketing purposes. For example, big data analytics would be a substitute for artificial intelligence which would provide similar advantages without having some limitations (Paul et al., 2016).

6. Artificial intelligence can be used by companies to create more personalized marketing campaigns, which can increase their profits (Espinel et al., 2016). However, this could cause an increase in the number of customers who are able to buy information about such campaigns and are thus able to manipulate them (Brown et al., 2016).

7. There is a risk that artificial intelligence may not be capable of completely changing the way businesses do their marketing operations based on data instead of human interactions, which will make it even more expensive for small businesses to use this technology than it is today.

8. Artificial Intelligence may not be able to provide all the information that is needed by businesses in order to make accurate decisions (Paul et al., 2016).

9. The way business is currently carried out is based on a combination of human resources and data analytics. However, with the advancement of artificial intelligence, businesses may reduce their human resource costs and may even automate some of the data-related tasks which are done currently by their employees. This will limit their ability to make decisions (Paul et al., 2016).

10. The results of artificial intelligence algorithms may be biased because the algorithm itself can be biased due to its structure and make mostly accurate predictions (Shah, 2017).

11. The development of AI can cause greater environmental damage than traditional marketing because it is not necessary in order to create new products or new strategies which would be helpful for consumers (Brown et al., 2016).

4. Conclusions

AI can be used in marketing to increase the efficiency of businesses. AI could be utilized in order to make companies more accessible for customers and it can also help them to reach

more customers. AI could be used by companies in order to provide them with accurate information and predictions on how their customers are going to act when they change some features of their products or when they decrease the price of it. At the same time this could harm consumers because they may buy products based on inaccurate information. Many companies are using artificial intelligence in marketing campaigns which is helping them reduce their human resource costs and automate some data-related tasks which are currently done by human employees, thus making it harder for them to make decisions which involve human interactions. The results of artificial intelligence algorithms may be biased because the algorithm itself can be biased due to its structure. Artificial Intelligence could cause greater environmental damage than traditional marketing because it is not necessary in order to create new products or new strategies which would be helpful for consumers (Brown et al., 2016).

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