(REVIEW ARTICLE)

The use of AI in marketing: Its impact and future

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Abstract

In an era of digitalization and availability of internet, the world is moving towards artificial intelligence, internet of things and big data analytics. Every sphere of life, medicine, manufacturing, education, finance, construction and the like are transforming into computer-based processes. This paper is a study on the use of Artificial Intelligence in Marketing of products. It aims at a conceptual analysis of the past, present and future of marketing in the light of Artificial Intelligence.

Keywords: Artificial Intelligence; Marketing; Digital Marketing; Machine Learning; Big Data analytics

1. Introduction

Artificial intelligence (AI) is a concept that has been taking over the world in all spheres, be it medicine, construction, education, business, entertainment or marketing. We live in a world were data collection, analysis and inference are as important as breathing in this world. Every data big or small is stored up and used by businesses. Take a classical example of a user of Instagram. The reels and posts watched by the user on a particular Instagram ID is captured and stored. The next time the user opens his or her Insta page the posts relevant to what they viewed previously appear at the top. Similarly, if the user has scrolled on a particular promotional post, the AI software captures this data and floods similar promotions on the page. All this is done within a nano second. This is the strength of AI.

2. Evolution of AI

AI is the affordance of human intelligence to machines. The concept has been in existence since antiquity, and rigorous AI research can be traced back to 1950s, when Alan Turing established the famous Turing Test, stating "I propose to consider the question, 'Can machines think?'" (Turing, 1950), and John McCarthy coined the term Artificial Intelligence in 1955 when he organized the 1956 Dartmouth Summer Research Project on Artificial Intelligence.

(Ma & Sun, 2020). Artificial intelligence derives from information technology. It is often used interchangeably with notions like automation or robotization. It also tends to be confused with machine learning or algorithm application. According to Oxford Dictionary, AI is "the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages" ("artificial intelligence | Definition of artificial intelligence in English by Oxford Dictionaries", 2019). (Jarek & Mazurek). Technology is defined as the integration of systems with concrete computational abilities, functioning through a web of hardware and software alignments towards achieving desired solutions. Further technology can be stated as the application of science in promoting ease of performance at organizations level and dominance at competitive platforms (Freeman, 1989 & Vishnoi & Bagga, 2019).

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When digital computers were first developed in the 1940s and 1950s researchers wrote a number of programs, these programs could play chess, checkers and prove theorems. In the 1960s and 1970s, AI explored various ways to represent problems by developing different search techniques and general heuristics, this enabled development of programs used to solve algebraic word problems and symbolic integration (Adetiba, et.al). The use of algorithms and development of software such as JAVA, Java script and Python have made life much easier and computers smarter.

Artificial intelligence (AI) has received increased attention in recent years. Innovation, made possible through the Internet, has brought AI closer to our everyday lives. These advances, alongside interest in the technology's potential socio-economic and ethical impacts, bring Al to the forefront of many contemporary debates. Industry investments in Al are rapidly increasing, and governments are trying to understand what the technology could mean for their citizens.

2.1. Understanding AI

Artificial intelligence is the ability to transfer human intelligence to machines to perform tasks ranging from simple to complex. The goal of artificial intelligence is for it to learn, reason, and carry out tasks. As technology advances, previous definitions of artificial intelligence become obsolete. Artificial Intelligence is based on three basic concepts. Machine learning, deep learning, and neural networks are the three fundamental concepts (Wisetsri, et.al,2021).

2.1.1. Machine Learning

Many technologies can perform repetitive tasks, but they cannot think for themselves. They are unable to think outside of the box. Machine learning, on the other hand, is a subset of AI that aims to enable machines to learn a task without the need for pre-existing code. Machines are fed a variety of problems and examples in order to learn how to perform specific tasks. Machines learn and adapt their strategy to independently execute the activities as they work through these problems and examples. An image-recognition machine, for example, could be given millions of images to analyse. After countless permutations, the machine learns to recognise patterns, shapes, faces, and other objects. (Wisetsri, et.al, 2021)

2.1.2. Deep Learning

Deep Learning is a class of machine learning techniques that exploit many layers of non-linear information processing for supervised or unsupervised feature extraction and transformation, and for pattern analysis and classification (Deng& Yu). Deep Learning is a new area of Machine Learning research, which has been introduced with the objective of moving Machine Learning closer to one of its original goals: Artificial Intelligence. Deep Learning is about learning multiple levels of representation and abstraction that help to make sense of data such as images, sound, and text."

2.1.3. Big Data

Contemporary business ecosystems are centred around technology resource, data resource and human resource. Accordingly, organization departments and processes presently are generating huge volumes of data which is referred to as Big Data. As business processes are growing wider and more complex and organizational-friendly technology becoming ingrained into the mainstream operations (Hurwitz, Nugent, & Halper, 2013) data collection tools are almost conquering every domain of industrial concerns (Vishnoi & Bagga, 2019).

2.1.4. Artificial Neural Networks

Artificial neural networks are a technology based on studies of the brain and nervous system. Many different types of ANN applications have been developed in the past several years and are continuing to be developed. Industrial applications exist in the financial, manufacturing, marketing, telecommunications, biomedical, and many other domains.

2.2. AI in marketing

Internet social media and mobile devices have dramatically increased the interactions between firms and consumers, with the information encoded in rich media formats such as text, image, and video. It is imperative for firms to understand consumer perceptions and preferences and obtain brand positioning insights based on this rich media content (Ma & Sun,2020). The ever-increasing amount of consumer data available online, in big data systems or mobile devices, makes AI become an important ally of marketing, as it is based on data analysis in almost every area of its application. Marketing takes advantage of data to a large extent - from consumer needs research, market analyses, customer insights, and competition intelligence through pursuing activities in various communication or distribution channels to measuring the results and effects of the adopted strategies. Marketing becomes a natural beneficiary of developing information technology (Mazurek, 2011a, 2011b, 2014)

AI contributes to automating, optimizing, and augmenting three fundamental marketing processes, data collection, insights gathering through data analysis, and customer engagement. Modern marketing builds on intelligence technologies to capture relevant user data from the interactions with the brand. The benefit for the user is better assistance on immediately

expressed needs and the anticipation of the unexpressed ones, from a longer-term perspective (Mari, Alex, 2019). Traditional marketing practices of promoting host of products through newspaper, radio and television are also taking backstage because of reduced customer attention and giving way to online and digital marketing promotion platforms (Mahadevan, 2000) in the like of content marketing, search engine optimization, search engine marketing, social media optimization, social media marketing. Social media marketing channels are only augmenting consumer buying powers as more and more consumers are voicing their opinions about company and brands and related product attributes. Marketer's inability to deliver products in tune with customer requirements can take a toll on company's brand image and values through customer disengagement with said products and brands through online communities and word of mouth (Vishnoi & Bagga,2019). Al has been making its presence felt quite strongly in the day-to-day digital world of today. With technologies like Chat bots and voice recognition helping businesses offer seamless customer service, it won't be too long for Al to mark the future of digital marketing.

3. Future of AI in marketing

Artificial intelligence can assist marketers in developing marketing strategies and planning activities by assisting with segmentation, targeting, and positioning (STP). Aside from STP, AI can assist marketers in determining a company's strategic direction (Huang & Rust, 2017) (Wisetsri, et.al). A marketing analytics tool based on artificial intelligence can assess the suitability of product design to customer needs and, as a result, customer satisfaction (Dekimpe, 2020). Topic modelling enhances the system's ability to innovate and design services (Antons & Breidbach, 2018). AI will become the tool for strategy development of all the four P's in marketing

3.1. Product

AI with its data analytics will be able to decide and strategize the type of product that would be saleable in the market. Artificial intelligence has the ability to customise offerings to meet the needs of customers (Kumar et al., 2019).

3.2. Price

Price modelling will completely depend on AI modelling. The economies of demand and supply will be set aside and the results of systematic survey and data analytics will be the rule for price fixation.

3.3. Place

For increased customer satisfaction, product access and availability are critical components of the marketing mix. Product distribution is largely mechanical and repetitive in nature, relying on networked relationships, logistics, inventory management, warehousing, and transportation issues. Cabot's for packaging, drones for delivery, and IoT for order tracking and order refilling make artificial intelligence the ideal solution for place management (Huang & Rust, 2020).

3.4. Promotion

Due to global digital transformation, digital marketing and social media campaigns have gained traction. Customers determine the content, location, and timing in today's technological world. AI allows for message personalization and customization based on the customer's profile and preferences (Huang & Rust, 2020).

4. Conclusion

Artificial intelligence will soon become the marketing tool and change the landscape of the markets. Consumers will prefer products and brands that are available on digital platforms. The improved processes will ensure more convenience to the shoppers. Time saving due to quicker preference selections will become the norm for decision making. Value additions such as automatic payments, personalisation of products and efficient after sales services will be the factors responsible for success of a product. A new dimension in consumer brand relationship will emerge, whereby post purchase dissonance, testing of the product virtually and elimination of information processing by the consumer will develop. Artificial intelligence is here to stay and for a long time.

Compliance with ethical standards

References

[1]   Liye, Ma & Baohong, Sun. Machine learning and AI in Marketing – Connecting computing power to human insights, International Journal of Research in Marketing Jarek, K., Mazurek, G. Marketing and Artificial Intelligence, Volume 8 , 2012

[2]   Ming-Hui Huang & Roland T. Rust, A strategic framework for artificial intelligence in marketing, Journal of the Academy of Marketing Science (2021) Volume 49

[3]   Mari, Alex. The Rise of Machine Learning in Marketing: Goal, Process, and Benefit of AI-Driven Marketing, ZORA URL: https://doi.org/10.5167/uzh-197751

[4]   Sushant Kumar Vishnoi, Teena Bagga, Aarushi Sharma and Saadat Nasir Wani, Artificial Intelligence Enabled Marketing Solutions: A Review, Indian Journal of Economics and Business.

[5]   Mekhail Mustak, Joni Salminen, Loïc Pl´e , Jochen Wirtz. Artificial intelligence in marketing: Topic modeling, scientometric analysis, and research agenda, Journal of Business Research

[6]   Erik Hermann. Leveraging Artificial Intelligence in Marketing for Social Good—An Ethical Perspective, Journal of Business Ethics (2022) 179:43–61

[7]   Worakamol Wisetsri, Ragesh T S, Catherene Julie Aarthy C, Dr. Vibha Thakur, Digesh Pandey, Dr. Kamal Gulati. Systematic Analysis and Future Research Directions in Artificial Intelligence for Marketing, Turkish Journal of Computer and Mathematics Education Vol.12 No.11 (2021), 43-55

[8]   Stone, Merlin; Aravopoulou, Eleni; Ekinci, Yuksel; et al. Artificial Intelligence (AI) in Strategic Marketing Decision-Making: A research agenda, The Bottom Line

[9]   Emmanuel Adetiba, Temitope M. John, Adekunle A. Akinrinmade, Funmilayo S. Moninuola, Oladipupo O. Akintade, Joke A. Badejo. Evolution of artificial intelligence languages – a systematic literature review.

[10]   Li Deng & Dong Yu. Deep Learning: Methods and Applications http://dx.doi.org/10.1561/2000000039

[11]   Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. Journal of Service Research, 21(2), 155–172

[12]   Kotler, P., & Keller, K. L. (2009). Marketing management. In P. Kotler, & K. L. Keller, Marketing Management (p. 7). Pearson Education.

[13]   Hartmann, J., Huppertz, J., Schamp, C., & Heitmann, M. (2019). Comparing automated text classification methods. International Journal of Research in Marketing, 36, 20–38.