REVOLUTIONISED TECHNOLOGIES FOR MARKETING: THEORETICAL REVIEW WITH FOCUS ON ARTIFICIAL INTELLIGENCE

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Abstract. Information technology and its implications have shown significant developments in the last decades. The internet revolution and digital marketing have created a shrinking force on mass media advertising. They have formed the backbone of personalisation, marketing automation, neuromarketing, viral marketing, voice recognition, and conversion optimisation, and thus, Artificial Intelligence (AI) has risen as the phenomenon in marketing activities. Theoretical analysis of relevant researches on AI tools and future trends, presentation of conceptual framework and methodology design, and presentation of the research findings are the objectives of the research. This study has potential limitations such as the data collection process and access to the relevant literature. AI for marketing has already become a significant part of today's competitive world, which utilising the marketing opportunities to obtain business goals and create breakthrough using AI. Hence, this paper aims to illustrate the theoretical review on the nexus between AI and marketing, which would lead to understanding the future scope of AI and its penetration in marketing activities.

Keywords: artificial intelligence, marketing, marketing automation, information technology, big data, multichannel marketing, artificial intelligence tools.

JEL Classification: O32, M31.

Introduction

The mass media advertising has been diminishing by the force of the internet revolution and digital marketing. Technological developments are changing consumer behaviour and shaping business strategies, especially in marketing activities. Hence, AI for marketing has become a pervasive part of the competitive world. Thus, current AI tools and future trends must be studied deeply to present a significant perspective for businesses. Although marketing has a significant role in business activities, and early adaptors of AI in marketing activities are taking advantage in value creation (Bughin et al., 2017), there is a lack of literature on this aspect where both disciplines AI and marketing are combined (Wierenga, 2010). According to Martínez-López and Casillas (2013), there is no sufficient publication for AI in marketing and marketing in AI Literature.

Artificial Intelligence is an increasingly popular term that attracts the attention of many researchers, especially in the field of marketing; however, it lacks a concrete definition. Technically, Artificial intelligence can be defined as an interactive process between robots, computers, cloud computing, network devices, and digital content production in various daily life operations, especially in businesses. According to Harris (2010), AI has 3 forms: 1 – Artificial Narrow Intelligence (ANI), 2 – Artificial General Intelligence (AGI), and 3 – Superintelligent AI (ASI), which, in order, can be defined as weak, strong and super strong Artificial Intelligence. The increasing role and recent development of Artificial Intelligence are crucial to future marketing activities and efforts. Businesses, such as Amazon, Google DeepMind, Google's AlphaGO are using artificial intelligence in weak forms to optimise their processes, decrease turnaround time, and improve output. At the same time, marketing drives through visual recognition, language processing, voice recognition, intelligent computing, and robotics in a Strong form of AI (Harris, 2010). Murgai (2018) defines AI as "Artificial Intelligence leverages self-learning systems using tools like data mining, pattern recognition, and natural language processing. So, in terms of its key business advantages over human intelligence, Artificial Intelligence is highly scalable, resulting in phenomenal cost savings". This definition illustrates

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the significant role of AI in marketing activities today and in the future. This paper aims to illustrate the theoretical review of the nexus between AI and marketing, which would lead to understanding the future scope of AI and its penetration in marketing activities. Theoretical analysis of relevant researches on AI tools and future trends, presentation of conceptual framework and methodology design, and presentation of the research findings are the objectives of the research.

The methodology is based on reviewing various theoretical approaches to the recent marketing trends and its nexus with AI. Therefore, this paper is looking for the answers to current AI tools used in marketing activities and trends that foster research and development on AI. This study has potential limitations, such as the data collection process and access to the relevant literature.

1. Theoretical background, current trends, and AI tools used in marketing

"All human actions are based on anticipated futures. We cannot know the future because it does not exist yet, but we can use our current knowledge to imagine futures and make them happen. The better we understand the present and the history that has created it, the better we can understand the possibilities of the future" (Ikka, 2018).

Historically, AI was termed in 1956 by John Mc Carthy in his work entitled "Dartmouth Summer Research Project". The main approach to the research has been made on "Thinking machines" that could mirror the human way of thinking and behaving (Marr, 2018). The emerging technologies such as mobile applications, data science, block-chain, big data, cloud computing, and artificial intelligence are changing the way we communicate; we behave, we live, we amuse, and work. From the business point of view, technological developments have changed the dynamics of the business world, prompted the globalisation process, and increased global competition. This phenomenon was the departing point of the businesses in involving and penetrating in new markets. The current global and competitive business environment continuously demands innovation; the existing knowledge base is getting invalid, continuously thriving for advancement in process improvement, and thus, looking for new models in marketing activities. AI technologies can assist marketing specialists in various areas such as lead generation, social media control, market research, and customisation of customer experiences (Sterne, 2017); for instance, salesforce (CRM software provider) has begun AI services which executes CRM solutions.

AI for marketing is already a driving force and has become a significant part of today's competitive world. Businesses, no matter small or large, are implementing the marketing strategies to procure business goals and create massive breakthroughs using AI. In marketing, change is the dominant fact today and constantly speeding up (Corea, 2017). The main alteration in the marketing environment is the emergence of electronic data-processing devices as a major tool of scientific marketing. Most businesses are taking benefit of online communication, electronic data-processing analyses, and information-retrieval systems as tools that help marketing to be more efficient and effective. This has led to the emergence of real-time marketing. In recent years, there are many significant types of research on the nexus between AI and marketing such as "Network value creation through marketing, management and business administration" by Mazurek (2014); "The future of artificial intelligence" by Dhar (2016); and "The role of cognitive architectures in general artificial intelligence" by Lieto et al. (2017). They emphasise on the rapid development of AI in recent years, capabilities of machines to learn based on the obtained data, the possibility to create previously non-existing information, processing of various data such as numerical data, artificial intelligence processes texts, images, sounds, and the benefits and advantages of the marketing as the main beneficiary of developments in information technologies.

Artificial Intelligence is a significant tool to obtain a sustainable competitive advantage in which always connected to the global market needs where marketing activities are required to deliver continuous, customised, insight-driven interactions with customers on an individual basis. Chaupham (2018) stated that "Marketers have to creatively involve customer segments in understanding the benefits of AI". At this point, the presentation on 5p's (planning, production, personalisation, promotion, and performance) of marketing AI by Marketing Artificial Intelligence Institute (MAII) must be addressed. This structure was shaped to simplify and visualise the ground on how marketing can benefit from AI (Roetzer, 2017).

As like other business components, marketing has changed a lot over the past few years, and the transformation of the digitalisation process of activities have increased. Digital marketers have a range of tools at their disposal for understanding customers and prospects on social media. The use of AI enables 3 important dimensions, such as marketing tasks automation, accuracy improvement, and human efforts reduction. The digital transformation can be seen in the changing of business processes through the use of technology. Therefore, with the introduction of big data, businesses can transform the management perspectives and adopt digital business models that allow them to evolve the interaction with the microenvironment. Another big sight of digital transformation is the change in consumer behaviour.

Modern dictionaries define online marketing as using all aspects and elements of traditional marketing in a network space. The main objective of online marketing is to get the maximum effect from potential site users and increase their flow. Internet marketing is a set of techniques on the internet aimed at attracting attention to a product or service, popularising this product (site) on the network and its effective promotion for sale (Tong et al., 2020).

Internet marketing basically consists of 6 categories:
– Search engine marketing;
– Promotion in social networks;
– Direct or direct marketing;
– PR (public relations – public relations);
– Video marketing;
– Web analytics.

All types of Internet marketing have their own goals, methods, and principles of work, but still, the ultimate goal is to raise the business to a new level, increase business profits. Currently, more and more often, the main areas of communication with consumers on the internet are such:

– Content marketing. It is based on the quality of which the success of other areas depends: SEO, SMM, newsletters, etc.; the companies themselves decide which content format to prefer. Solid blogs, short posts on social networks, videos, infographics, or a mix of all of the above can be used. This is one of the most inexpensive types of online promotion with a high percentage of attraction.

– Recent trends in content marketing include impressive growth in video content consumption, including live streaming; the popularity of Stories on social networks, on Instagram; an increase in the number of smartphone users.

– SEO (search engine optimisation). Local search is growing in popularity – for example, through Google Maps or other virtual maps.

– SMM (social network management). When quality content is ready, you need to consider its promotion in those social networks where the target audience is located. The number of advertisers is increasing, the cost of ads is increasing, and therefore, the cost of paid advertising is growing, and it is becoming more challenging to attract customers. The main trend is a personalised selection of video content in the feed of each user.

– Analytics. Without tracking key metrics, 'it is impossible to figure out what needs to be fixed and how to do it. The new version of Search Console, created by Google, will help facilitate work.

– Understanding the psychology of clients. Brands every minute try to impose their goods or services – on the street, in transport, on TV or gadgets.

Most of such advertising not only does not help the client satisfy his needs, but is also annoying. Hence banner blindness and blocking of advertising messages – every 5th user does it. The emergence of new communication channels suggests that people need only one social network or messenger to communicate and express themselves. Understanding who the client is and what he expects (and what he does not want to see on his Facebook, Instagram, and so on) is a necessary condition for successful internet marketing. The potential of Internet marketing is huge, and the opportunities that open up for companies when using it are impressive.

According to Barutcu et al. (2017), today, mass mobile marketing and advertising are beginning to lose their positions and personalised (individualised) mobile marketing has started to dominate as a new way of marketing strategy, because expert systems, as a subsection of artificial intelligence, are able to help to send personalised messages to thousands of customers considering their differences in a very short time. Expert systems provide marketers to serve customers efficiently and individually and integrate customer characteristics, locations, data, and rules to send personalised messages like a marketer.

As mentioned before, developed mobile technologies allow businesses for quicker, more personalised, and better services based on marketing activities. Thus, data collection becomes a significant phenomenon for businesses. The data collection, however, shapes the base for other processes such as labelling and deep learning. Labelling means that a human works through data and teaches the machine how to recognise a certain aspect (Chui et al., 2018). AI's deep capacity for learning helps businesses continuously develop aid in the ways they use their data. According to Tractica (2016), the top 5 use cases of AI in 2025 are:

1) Algorithmic trading strategy performance improvement;
2) Static image recognition, classification, and tagging;
3) Efficient, scalable processing of patient data;
4) Predictive maintenance;
5) Content distribution on social media.

The algorithms are programmed to identify trends and patterns in the data. The devices learn and adopt the practices accordingly. These technologies can be applied to automate processes and experiment with solutions, and to make predictions about outcomes that leads the performance improvement (Agrawal et al., 2018). Data Mining, however, refers to the process of working through big data and analysing it for patterns and correlations (Perry, 2017). Another powerful AI technology is deep learning (Machine Learning), which enables us to convert the enormous quantity of data into useful information. It presents a non-linear prediction solution that is not only based on correlation analysis and regression (Lapuschkin et al., 2019).

Artificial Intelligence tools can be used for marketing like profiling, automation, and augmentation of tasks, customisation, and personalisation, multichannel marketing, analytics, and forecasting, as well in the decision-making processes. Artificial Intelligence Marketing institute claims that AI for marketing has become approachable and actionable. According to Hubspot (2019), AI for marketing is widely used nowadays to improve the consumer online experience using digital media channels. AI can be implemented in many marketing strategies (Davenport et al., 2019). Three main directions on how AI can be implemented in marketing are Data-Driven marketing, Personalised, and Multichannel marketing (Davenport et al., 2019).

Data Driven Marketing – related to big data analysis with AI to understand the consumer personality, implement and optimise the ongoing marketing campaigns. This also makes real-time interaction and engagement with customers, receives immediate feedback on ongoing activities, and gives an accurate data-based prediction about future behaviours (Johnson et al., 2019). Competitors' analysis, screening their activities online, and creating the competitive offering are possible with AI intelligence tools; one example is the Cortex platform. Furthermore, investigation on positive or negative brand impact and identifying market trends are possible with Linkfluence Radarly software and Google Thinks AI tools.

Personalised Marketing is associated with content customisation, suggesting an optimal time for interaction and matching the correct customer profile (Kumar et al., 2019). For instance, AI tools like Socialbakers and OneSpot tools for emails and websites content personalisation and individualisation, personal mobile assistants like Siri and Alexa, travel planning with Mezi. Music; Spotify and Pandora, service delivery with Uber and Bolt, face recognition with Haytack, language translation Liv, smart home solutions by Nest, financial planning using Olivia, and much more AI tools have become concurrent part of our lives (Kumar et al., 2019).

Multichannel Marketing is about how to create, optimise, and monitor multichannel marketing campaigns, deliver a single strategy across different channels and platforms, to maximise the ability to reach potential and existing customers. AI supports marketing assets optimisation, such as email, website, social media platforms, mobile applications, chat messaging, and other online channels. AI also can guide on engagement with customers, as well as assist with management tasks, such as budget planning and optimisation, channel recommendations, targeting the right audience segment at the right time. As for today, more than 42% population of the world is on Social Media, and each person spends an average of 2 hours and 22 minutes on social networks and messaging (Emarsys, 2019; Globalwebindex, 2018). AI in social media can create the general content (using a subset of AI called natural language generation (NLG)) or create social posts (applying Hubspot Social Media Software), or have a conversation, generate and execute the content to followers, fans and customers (working with Sprout Social for example) (Emarsys, 2019; Hubspot, 2019).

Some of the related AI tools for a multichannel approach, which can be adopted at organisations are the following: SEO management and content research with MarketMuse, Netbase for social media listening, and brand conversations. Exceed.ai to qualify the leads and improve communication between marketing and sales, Node and Xinoah to recognise potential clients and help to pursue to buy products and services. Curata to promote the content across the online channels, Chorus AI platform for call recording and conversational tracking analysis, Aivo for voice and chat interactions with customers, and many more (Single Grain, 2019; Google Digital Marketing Tool Box, 2019).

AI also is used in sales optimisation. However, it does not mean that it takes the role of salespeople entirely. It makes sales data-driven, effective, and smarter. There are many AI integrated software which makes the sales processes more effective and efficient such as (Abbott, 2019);
– Nudge (high customer engagement);
– Chorus (recording and transcribing on spot conversation);
– Inside Sales (assisting the quota management);
– Cogito (monitor speech patterns);
– Growbots (easing manual consumer search).

The mentioned software aims to ease the sales process for the salespeople in various dimensions:
1) Better performance with less admin management;
2) Maintaining predictive accuracy efficiency;
3) Sales forecasting efficiency and effectiveness;
4) Recommendations engagement;
5) Query solving at scale efficiency;
6) Optimise content contribution efficiency and effectiveness;
7) Dynamic price optimisation management;
8) Churn Prediction management.

Overall, the necessity of AI in sales efficiency and effectiveness and in this context in management cannot be neglected. This would impact positively on the achievement of marketing strategies and goals.

AI implementation in marketing

Early principles and concepts have been formed to examine marketing-related concerns and issues for a long time. However, the main utilisation and implementation in marketing have arisen in the last decade (Wierenga, 2010). Recent researches on the implementation of AI in marketing shows that majority of marketers are interested in AI in their marketing activities, whereas 20% of them were interested in AI solutions in 2017 for business purposes (Bughin et al., 2017). Practically, AI has been used to increase and upgrade the outdated methods of marketing (Hoanca & Forrest, 2015). From the management point of view, the most known software for decision making in marketing is the Marketing Management Support System (MMSS), which allows information and data analysis with the help of AI (Wierenga, 2010). In today's world, AI is an effective tool to support managers in various operations and tasks such as web development, digital marketing, social media monitoring, SEO, and email marketing (Kokina & Davenport, 2017).

AI implementation in marketing uses customer data, machine learning, and other computational concepts to estimate the action of the customers on products. Insufficient time, resources, and budgets, moreover, the expectations on revenue growth, productivity, and efficiency increase, greater return on investment on marketing spending are enormous, and it is a daily routine for marketers. They spend plenty of time planning, preparing, executing,

monitoring, and analysing marketing activities. Artificial Intelligence could improve both sides' productivity and marketing campaign effectiveness (Marketing Artificial Intelligence Institute, 2019). The studies have shown that marketers lack knowledge about AI and how to implement and integrate them into their marketing strategies. It is important to have an overview of AI marketing tools and values they can bring for their daily work routine. Processes automation will put the marketing strategy to the next level, improve planning, execution, forecasting, and improve results. Marketers need to start from understanding AI, implementing AI into marketing strategies, Experience AI, and Improve the AI in the marketing practice. The main areas for AI implementation in marketing are following voice, text, image technologies, analytical decision-making systems, and autonomous robots and vehicles (Jarek & Mazurek, 2019). AI helps organisations to reduce the costs and grow revenues, it helps to develop products and services, and AI helps marketing managers to focus on creative tasks and strategy development, taking care of daily routine tasks (Kumar and et al., 2019).

Before implementing AI in the organizations, it is important to evaluate if the company is ready to benefit from AI. Does the company have enough data to analyse and manage how this data is collected and organised (Kumar and et al., 2019)? Set the clear goals and expectations for AI, how to adopt and implement AI tools for daily operations, how to adapt the company structure and responsibilities while adopting AI to the company ecosystem. Take into account the data privacy sensibility and possible biases using it for company purposes (Kumar et al., 2019).

AI impact on marketing

Jarek and Mazurek (2019), in research entitled "Marketing and Artificial Intelligence," distinguish the impact of AI on marketing activities in 3 perspectives. 1) AI implications in marketing, 2) The impact of AI on Consumer, and 3) The impact of AI on marketing management. First, research findings point to the impact of AI on the marketing mix (see Table 1). They emphasised on the two-way impact on marketing as "beneficiary of changes in the consumer" and "new solutions affect the entirety of the pursued marketing activities."

Secondly, the research indicates the advantages of AI for consumers as more convenient and quicker shopping, new consumer experience via mass-scale hyper-personalisation, and a new dimension of the consumer-brand relationship. Thirdly and finally, the research builds a bridge between AI and marketing managements by emphasizing its impact on eliminating laborious and time-consuming activities, creative and strategic activities, design innovations, developing competencies of employees, and new ecosystem (Jarek & Mazurek, 2019).

Customer Relationship Management (CRM) is a significant aspect of marketing, and AI can optimise it. According to Daugherty and Wilson (2018), deep learning tools can optimise the task assignment and schedule of the service providers for better service based on the outcomes of the data mining and profiling. Furthermore, businesses can automate the more repetitive and framed tasks to reduce time and increase productivity by applying enterprise cognitive computing into their services (Tarafdar et al., 2019). In advertisement and promotion, AI is commonly used to learn more about the customers and target them more precisely and personalise the messages towards them (Daugherty & Wilson, 2018).

2. Conceptual framework and methodology

The existing literature review was giving an opportunity to summarize and present AI impact on marketing. However, most studies focus specifically on AI technology, Big Data, Marketing, AI impact on Social Media, AI and Marketing, Personalisation, some predictions for the future. There is no general overview of AI tools and trends for marketing, which would focus on its strategic usage, as well as its contribution to solutions of issues in marketing activities. Marketers need a better understanding of AI and how to adapt it to their strategies, as well as daily business routines. Current research aim contributes and answers to:

1) What are the current AI tools used in marketing activities?
2) What trends are fostering research and development on AI?

Analysis of academic literature, articles, publications, case studies, relevant web sources accomplished.

Table 1. Areas of the impact of AI on marketing mix (source: Jarek & Mazurek, 2019)

Product	Price	Promotion (Brand)	Place (Sales and distribution)
– New product development – Hyper-personalisation – Automatic recommendations – Creating additional value – Additional solutions beyond product category	– Price management and dynamic price matching to customer profile	– Creating a unique experience – Personalised communication – Creating the wow factor and offering benefit – Elimination of the process of learning product categories – Positive impact on the customer – Minimised disappointment	– Convenient shopping – The faster and simpler sales process – 24/7 customer service (chatbot) – Purchase automation – Service-free shops – Consultant-less customer support – New distribution channels – Merchandising automation

Assessment of various scientific sources and reviewed studies on AI and AI marketing helped answer the research questions and formulate conclusions. The exploratory research on AI's impact on marketing was conducted. The qualitative analysis of AI tools for marketing is completed. The secondary data analysis contributes to the literature and brings the following insights:
– Overview of AI;
– Overview of AI Tools for Data-Driven Marketing;
– Personalised Marketing and Multichannel Marketing;
– Current trends;
– Impact on Marketing;
– Future effects of AI in Marketing.

The present systematic literature review is based on SALSA method, which departs from scoping search to appraisal and finishing with synthesis and analysis. It aimed to illustrate the determining of current AI tools and trends. The purpose of the scoping research is delivered in Figure 1.

Based on the scope of the research, the searched terms are divided into 3 categories related to AI. The first term refers to Tools (Automation, Customisation, and Augmentation). The second covers the trends (Personalisation, interaction, and networking). The third group is directed to the market and marketing.

The search process is limited to the papers published between 2010 and 2020. It takes into scope scientific publications, official reports, and sites. The search process (The existing literature review was giving an opportunity to present AI impact on marketing. However, most studies focus specifically on AI technology, Big Data, Marketing, AI impact on Social Media, AI and Marketing, Personalisation, some predictions for future implementations of the intelligence systems. Analysis of academic literature, articles, publications, case studies, relevant web sources accomplished. Assessment of various scientific sources and reviewed studies on AI and AI marketing helped to answer the research questions, formulate conclusions) delivered in Figure 2.
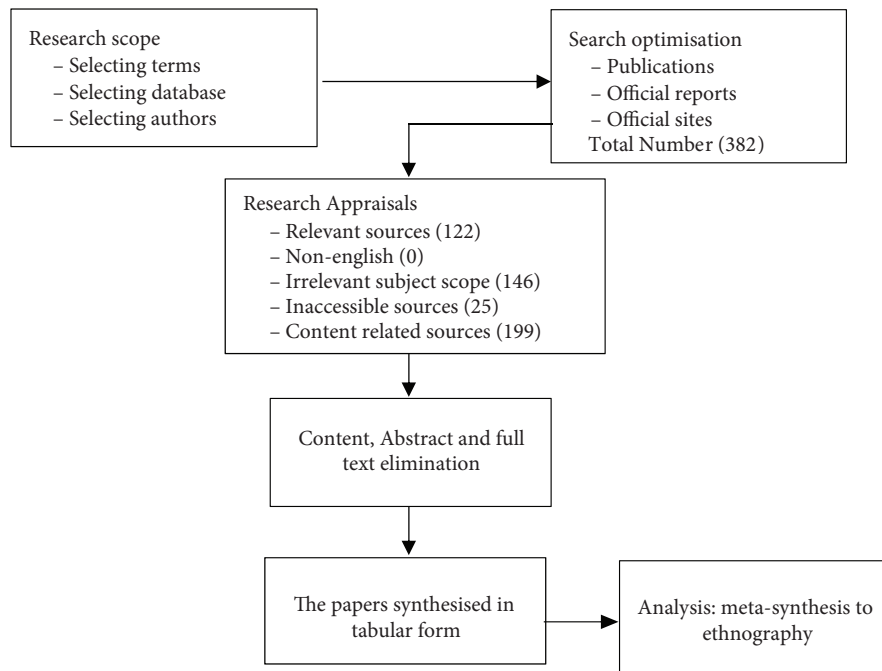

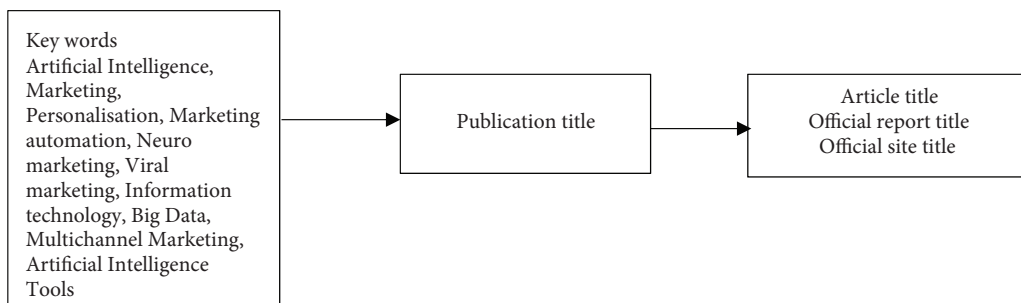Figure 1. The process of the systematic literature review (developed by authors)

Figure 2. The process of search optimisation (prepared by authors)

Table 2. Synthesis of the studied publications
(developed by authors)

No.	Author(s)	Year	Focus	Paper type
1	Agrawal et al.	2018	Strategic level	conceptual
2	Barutcu et al.	2017	Strategic level	empirical
3	Chui et al.	2018	Operational	empirical
4	Daugherty and Wilson	2018	Strategic	conceptual
5	Harris	2010	strategic	conceptual
6	Ikka	2018	Operational	empirical
7	Jablonska and Polkowski	2019	Operational	empirical
8	Kumar et al.	2019	Operational and strategic	conceptual
9	Tarafdar et al.	2019	Operational	empirical
10	Tong et al.	2020	strategic	conceptual

The appraisal process begins first with the selection of relevant sources, elimination of publication upon language barriers, scope, and content appraisal. The selected publications represented such areas as Marketing, information technology, AI, and related fields. In the abstract, content, and text shifting all were analysed to indicate the publication importance for the present research. The full-text elimination assured rigorous selection for synthesis and analysis.

After a detailed examination of the publications, the investigation was synthesised in the tabular form Table 2.

The analysis covered the main determinants of AI tools and trends in marketing. It relied on the meta-synthesis following the steps of ethnography. All the studies were compared and analysed accordingly.

Research findings and conclusions

The research confirmed that AI is applied in various fields of marketing. While image/text recognition is applied extensively in commercial solutions, voice recognition is used poorly. The current AI tools in marketing are all about supporting the shift towards the more digital environment such as CRM, connecting multiple layers, customising, automation, and augmentation of marketing activities and profiling. The tools are merged with the existing marketing activities to augment capabilities and automate tasks and goals. Due to enormous data availability, new dimensions of analysis are available. Deep learning and labelling tools enable detailed and optimised profiling of customers and the environment. Since the technologies are still very new and still developing, independent machines and robots can be seen as future trends in developing AI, especially in marketing activities such as intense customer interaction, networking different actors, customisations, and personalisation.

Consequently, it can be concluded that in the last decades, AI was used to obtain information about customers and t to interact with them on a personalised level. AI in marketing tends to be used at the operational level, usually as one-off initiatives or activities. The research proved that AI applications are incorporated in all areas of marketing (marketing mix and marketing communication). The technologies are developing towards more independent machines. That means that there will be more information available and more ways to interact with the customers, faster and more effective. AI adoption improves marketing managers' performance, increases their productivity, and lift the overall marketing strategy. It is recommended to the businesses to follow the developments in AI while integrating it in marketing. Organisations need to prepare their infrastructures for the future emergence of innovations in AI. Further research might develop methodological works on the impact of AI in firms marketing activities. It would also be helpful to capture the experiences and perspective of the marketing managers in the context of AI usage in marketing and its role in business goal achievements qualitatively.

Author contributions

All authors contributed to the article, developing the theoretical data collection and analysis, data interpretation.

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