

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON CONSUMER BEHAVIOR MANAGEMENT

NATALIIA PARKHOMENKO

Comenius University in Bratislava, Bratislava, Slovakia
nataliia.parkhomenko@fm.uniba.sk

The trends in the digitalization of marketing require the expansion of marketing management tools, which is primarily associated with the capabilities of artificial intelligence. The purpose of the paper is to study the modern capabilities of artificial intelligence tools for managing consumer behaviour. The methodological basis of the research is general (such as generalization, analysis and synthesis) and special (system and structural analysis) methods. System analysis identifies the features of artificial intelligence tools for consumer behaviour management, and structural analysis summarizes the functions of artificial intelligence tools for consumer behaviour management. In the paper, the artificial intelligence tools are structured according to the possibilities of their use in the process of consumer analysis, promotion, development and implementation of consumer behaviour management strategies. The result of the study is a grouping of artificial intelligence tools for managing consumer behaviour and the formation of models of interaction between objects and subjects of consumer behaviour management. The originality and value of the study lies in providing recommendations for the use of artificial intelligence tools to manage consumer behaviour, which will allow businesses to increase profits.

DOI
[https://doi.org/
10.18690/um.epf.5.2024.16](https://doi.org/10.18690/um.epf.5.2024.16)

ISBN
978-961-286-867-3

Keywords:
artificial intelligence,
artificial intelligence tools,
marketing,
digitalization of marketing,
management marketing

JEL:
M31



University of Maribor Press

1 Introduction

Today, marketing tools for processing information about consumer behaviour are dynamically developing. According to surveys by McKinsey Global Institute (McKinsey Report, 2023), the use of AI in management of customer behaviour will lead to an increase in productivity by 38%, in promotion by 10%, in sales by 4%, in product development of trade mark by 12%, in trade by 2%. According to The AI Marketing Benchmark Report (2023), 61.4% of marketers used AI in their marketing activities, 44.4% used it for content creation, and 19.2% spent more than 40% of their budget on AI research of market.

Considering the artificial intelligence as a marketing tool, it should be emphasized the positive sense of using this technology to make management decisions that are based on the collected data, which are analysed and interpreted together with market trends and the opportunity to develop a marketing strategy that predicts the next step of the consumer. There are a lot of AI tools, so there is a need to structure and systematize them, which will help practicing marketers choose the most effective one for a particular marketing function. The choice of an artificial intelligence tool depends on the goals and objectives set by the company to manage consumer behavior, namely the influence of pricing policy, promotion strategy, content quality, etc. and increasing sales volumes.

The artificial intelligence technologies allow automatically respond to changes in consumer behaviour and adapt to it in real-time. With the help of artificial intelligence algorithms, it becomes possible to improve the analysis and evaluation of large databases of unstructured data to divide consumers by groups or psychotypes, which will allow the application of individualized marketing. The relevance of the research is confirmed by the fact that the tools of artificial intelligence in the management of consumer behaviour are useful technologies, as they allow the analysis of large volumes of customer data, provide insights to support marketing strategies, minimize time for marketing research and other operations related to the company's marketing policy.

2 Literature review

In the process of research, works on the digitalization of marketing in general, as well as digital tools for managing consumer behaviour, as a separate component of marketing functions, were studied. In general, there are many marketing tools, but recently artificial intelligence technologies have been rapidly developing in various fields, including marketing. In the period of brand competition and digitization of all spheres, research focuses on the issue of integrating artificial intelligence technologies into the process of developing marketing strategies and identifying the skills that marketers need to gain competitive advantages (Ibrahim et al., 2023).

The study of consumer behaviour with AI tools was carried out by Longoni and Cian (2022), who analyse how consumers respond to decisions of AI result when they focus on the functional and practical aspects of a product. That is, in the decision-making process, people prefer or resist the recommendations of AI. Garvey et al. (2023) considered consumer reaction and satisfaction consequences of using artificial intelligence agents compared to human agents. The implementation of artificial intelligence tools in the system of marketing decisions has its advantages and disadvantages were highlighted by Bruyn et al. (2020). According to Cannella (2023), the artificial intelligence tools make the process of data collection and analysis seamless, reduce costs, and provide the opportunity to make marketing and management decisions in real-time. Ultimately, artificial intelligence applied to enterprise marketing strategies paves the way for profitable and effective sales (Kotler et al, 2017). Currently, not enough research has been conducted on the justification of the choice of consumer behaviour management tools, which would be convenient and easy to use. Therefore, it remains relevant to compare artificial intelligence tools for this purpose, classify them and provide practical recommendations for using one of them.

A lot of time is spent developing chat bot services and AI programs to capture consumer interest, increase returns, and provide a personalized customer experience. Companies that have the opportunity to better understand their customers have the opportunity to effectively develop brands by developing products that meet customer expectations. The tools of AI in marketing allow to model the portrait of the target consumer, analyse consumer loyalty through automated content analysis of social networks, cluster consumers by groups, influence consumer behaviour

through personalized communication content, set up personalized advertising appeals, forecast the costs of creating new products, maintain the target the audience. The main direction of the application of AI in the process of managing consumers is to focus on an individualized approach in marketing.

Consumer behaviour management tasks that can be solved using AI tools are focused on social media analysis, sales and consumer behaviour analysis, demand forecasting, personalization of offers for consumers, lead generation, automated content creation, chat bots, pattern recognition, improving advertising messages, augmented reality and electronic marketing. First, artificial intelligence can collect and analyse large amounts of social media data about products, brands, competitors, etc. that cannot be done manually to determine the sentiments of target audiences. Second, artificial intelligence technologies can identify trends and relationships between various factors, such as advertising, prices, promotions, user reviews, etc., to identify factors influencing consumer behaviour and product choices. Thirdly, artificial intelligence tools in the process of collecting data from networks can optimize information to forecast the demand for goods, taking into account such factors as seasonality, weather, number of competitors, etc., as well as in the process of planning production and stocks, to ensure competitive advantages. An important advantage of using artificial intelligence in marketing is the ability to personalize offers for consumers when analysing data about consumers, their interests, previous purchases, etc. Additionally, chat bots are an effective way to deliver personalized customer service at scale.

The artificial intelligence processes a huge amount of data to find ideal customers, performed lead generation, accordingly, for B2B purposes, it will minimize the time at the basic search stage. AI can be used to automate content creation and improve advertising to create personalized emails for each of a company's subscribers based on their previous interactions with the brand, reducing time and cost. Augmented reality can allow the customer to see and feel the products before making an online purchase, which can drive a faster customer response.

3 Classification of AI tools for consumer behavior management

The methodological basis of the research is general (such as generalization, analysis and synthesis) and special (system and structural analysis) methods. The system analysis identifies the features of artificial intelligence tools for consumer behaviour management, and the structural analysis summarizes the functions of artificial intelligence tools for consumer behaviour management. In the process of research, the main artificial intelligence tools that can be used by companies to manage consumer behaviour were collected and structured. The tools are structured according to the main functions of consumer behaviour management, namely consumer analysis, promotion, development and implementation of a consumer behaviour management strategy. The results of structuring are summarized and recommendations are provided for effective management of consumer behaviour using artificial intelligence tools.

Table 1: Artificial intelligence tools those are appropriate to use in the process of consumer analysis

AI tool	Features	Advantages	Disadvantages
Unmetric Analyze Xia	Analyses the content of social networks, providing information about their content, advertising publications and their effectiveness	Consumer analysis and strategy adjustment	Other marketing components are not taken into account, high cost
NetBase Quid	Identifying changes in consumer behaviour and market trends	Collection of information about consumer preferences	Does not take into account consumers who are not in the database
Pathmatics	Analysis of advertising effectiveness of competitors based on sites	Taking into account the experience of competitors	Cost
Crayon Market IQ	Finding potential business clients that match a given "customer profile"	Selection of the target audience in the market	Cost, focus on the B2B market
Albert	Analysis of large volumes of data about site visitors and identification of potential buyers	Selection of the target audience in the market	Not suitable for local business

Source: Influencer Marketing Hub, 2024

In Tables 1-4, artificial intelligence tools are structured according to the possibilities of their application in the process of consumer analysis, promotion, development and implementation of consumer behaviour management strategy. The results of

the structuring made it possible to single out the features, advantages and disadvantages of the specified artificial intelligence tools.

Table 2: Artificial intelligence tools those are appropriate to use in the promotion process

AI tool	Features	Advantages	Disadvantages
Jasper.ai	Automated creation of advertising content, optimization of marketing content (blogs, social networks, emails)	High-quality content, internationality (25 languages), Jasper Chat (personalization)	Cost, fact checking required
Beacon AI Outreach Tool	Creation of persuasive and professional advertising letters	Email personalization, quality content, interface	There is no analytics function
Flick's AI Social Marketing Assistant	Creating social media content	Interesting content ideas	Beta testing is in progress
EBLAI	Creation of chat bots	Personalized interaction with customers, language processing, data analysis	Not integrated with other platforms
Chatfuel	Creation of chat bots, automation of responses, identification of potential customers	Personalized interaction with customers, data analysis	Not all areas of promotion are covered
Customers.ai	Creation of a multi-platform chat bot	Marketing chat content management	Not all areas of promotion are covered
Manychat	Creation of chat bots	Ease of use	Focused on Facebook Messenger, but have support for Instagram Direct
DeepBrain AI	Combining avatars with chat bots	Video creation, internationality (200 languages), diversity of use	Limiting videos to 10 minutes of time
Rapidely	Creating content in social networks	Interesting ideas for social networks, versatility for different industries	No calendar sharing available
ChatGPT	Content creation	Word processing, accuracy	Cost, ethical issues
Copy.ai	Content creation	Speed, simplicity	Limited customization options, subscription required
HeyOrca	Automatic creation of signatures for	Simplicity, great collaboration and approval system,	No re-sharing, limited paid tracking of posts

AI tool	Features	Advantages	Disadvantages
	publications in social networks	integration with Canva for post design	
Persado Motivation AI	Analysing the content of advertising, creating ads	Increasing the effectiveness of work with the target audience	Cost, social media coverage only
Nosto	Identify user-generated visual content from the target audience and convert it into advertising content	Increasing the effectiveness of work with the target audience, cost	Covers visual content only
Facebook Ads Google Ads	Launching programmatic advertising, automatic selection of advertising placement options, obtaining results of optimization of advertising campaigns	Optimization of advertising campaigns, partially free	There are no recommendations for optimizing the created ads
Market Brew	Optimization in terms of site evaluation by search engines, recommendations for improving the site's rating	Ability to increase the position of the site in the search network, cost	Does not affect consumer behaviour
SEO Surfer	Evaluation of the site by keywords and in comparison with competitors, optimization of blog posts	Ability to increase the position of the site in the search network, cost	Does not affect consumer behaviour
Frase.io MarketMuse	Collection of data from sites by keyword, evaluation of texts, creation of a convenient site structure, creation of content by keywords	Ability to increase the position of the site in the search network, cost	Does not affect consumer behaviour
GrowthBar	Evaluation of site content	The ability to increase the position of the site in the search network, cost, ease of use, complexity	Does not affect consumer behaviour, limited customization
Seventh Sense	Creation of a profile of each client and its analysis in order to increase the opening of advertising letters	Personalization of letters increases the interest of the client and increases the number of users, cost	It only affects the effectiveness of email marketing
LivePerson	Automated messaging, voice communication that helps manage communication with customers	Increases the speed of processing requests, customer loyalty	Cost

AI tool	Features	Advantages	Disadvantages
Smartwriter.ai	Creation of personalized letters, with a unique name, product description, links to the site, generation of backlinks	Increasing the interest of potential customers through personalization, value	It only affects the effectiveness of email marketing
Cogito	Real-time analysis of managers' conversations with customers, detection of signals in customer speech	The ability to control the behaviour of managers to obtain the effectiveness of conversations	Cost
Phrasee	Optimizing the language of links, creating copies	Increasing consumer interest	It only affects the effectiveness of email marketing
Acrolinx	Improving the quality of content	Increasing consumer interest	Does not cover all promotion components
InstaText Grammarly	Checking the grammar and spelling of the content	Content quality	Does not cover all promotion components
DeepL	Content translation	Content quality	Does not cover all promotion components
Socialfaim	Marketing of influencers, technologies for brands	Content quality	Cost

Source: Influencer Marketing Hub, 2024

Table 3: Artificial intelligence tools those are appropriate to use in the process of developing a strategy for managing consumer behaviour

AI tool	Features	Advantages	Disadvantages
Optimove	Collecting data about customer actions from various platforms for the purpose of modelling behaviour and forming a marketing strategy	Ability to adjust the marketing plan	Cost
Sens.ai	Analysis of the effectiveness of publications in social networks and providing recommendations for creating strategies	Ability to adjust the marketing plan	Analysis of information from mobile applications only
Evolv	Analysis of the client's behaviour on the site and providing recommendations for changing the strategy	Ability to identify site flaws	Only the client's behaviour on the site is taken into account in the recommendations
Brand24	Social media monitoring and analytics	The breadth of coverage of various media	Data overload, navigation
Uberflip	Analysis of individual customer experience on the	Improving the content strategy	Recommendations only on content, cost

AI tool	Features	Advantages	Disadvantages
Content Camel	site, provision of content strategy recommendations		
Cortex	Analysis of company and competitor content, creation of recommendations for content improvement	Opportunities to improve the content strategy, availability of a free trial version	Applies to content strategy only
GumGum	Analysis of images and page content, providing content recommendations	Opportunities for improving the content strategy	Narrow possibilities
Smartly.io	Planning, testing and running only the most effective ads	Integrates with various platforms	Difficulty of use
Emplifi.io	Management of social networks, tracking the effectiveness of promotion	Management of all profiles in social networks on one panel	Difficulty of use
GRIN	Affiliate Marketing, Consumer Protection, Public Relations, Communications, Influencer Marketing, Brand Content, Branded Content Creation	Content library integration, sales tracking	Lack of transparency of pricing
Brandwatch	Influencer marketing, consumer intelligence, social media marketing, market research, brand management	CRM for influencer management, integration with existing platforms for social media planning and customer analysis	Focused on corporations, individual pricing
Upfluence	Campaign analytics, e-commerce integration, CRM integration	Ease of use	No audience analysis
IndaHash	Development of dynamic marketing strategies, integration of e-commerce	Accurate search results, brand safety	Big size
NeoReach	Scanning major social media platforms, influencer marketing	Accurate search results	Lack of micro-influencers
HypeAuditor	Analytics and influencer identification, campaign management, market analysis	Determining the quality of the audience	Missing Facebook data
Linqia	Data-driven campaign strategy, creative direction, influencer management	Accurate search results	Cost
Trellis	Check prices for different products	Dynamic pricing, advertising targeting	Difficulty of use

Source: Influencer Marketing Hub, 2024

Table 4: Artificial intelligence tools those are appropriate to use in the process of implementing a consumer behaviour management strategy

AI tool	Features	Advantages	Disadvantages
Terminus Emarsys Socialbakers	Tracking the effectiveness of the strategy on the platforms where the promotion is carried out, providing predictive analytics	Opportunities for strategy optimization	Analysis of the current strategy without prevention of incurred losses

Source: Influencer Marketing Hub, 2024

Therefore, the existing tools of artificial intelligence help to change the decision-making result of the marketing specialist and the potential client at all stages of consumer behaviour management: from consumer analysis to the implementation of the consumer behaviour management strategy. The use of artificial intelligence tools by the marketer allows for reducing the time and costs of marketing activities, improving the quality of consumer marketing research and promoting the product as effectively as possible. The main disadvantage of most tools is their high cost or narrow functionality.

4 Discussion and conclusions

Among the main advantages that can be obtained thanks to the use of artificial intelligence is the formation of a portrait of each client. Specialists in the management of consumer behaviour receive a benefit in the form of saved time. In the process of analysing a large amount of data, it is possible to create personalized content and adjust it to manage the behaviour of the consumer according to his psych type. Information about a potential consumer in social networks, comments, online purchases, and reviews about a purchase can influence the formation of a consumer's portrait. This data, combined with specialized software for the analytical processing of information by artificial intelligence, makes it possible to understand the customer.

Summing up, it should be noted that consumer behaviour management tools based on artificial intelligence allow a better understanding of visual images and text. Replacing routine work with a machine algorithm of artificial intelligence allows the use of unstructured data to improve marketing analytics in the context of personalizing content for each consumer, influencing purchases and, in general, the formation and implementation of a marketing strategy. AI tools improve demand

forecasting and inventory management, increase company profitability, and forecast changes in customer behaviour.

Systems can analyse data about consumers, and their buying habits and predict how they will respond to certain marketing measures. Also, AI tools make it possible to analyse the effectiveness of marketing campaigns, identify new potential sales markets, and analyse competitors. The use of artificial intelligence makes it possible to understand and satisfy the needs of consumers, which will increase the effectiveness of marketing campaigns. Prospects for further scientific research are to identify the relationship between cognitive marketing and the use of artificial intelligence.

Acknowledgements

This paper was supported by the project No.09I03-03-V01-000145 funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia.

References

- Artificial Intelligence (AI) Marketing Benchmark Report (2023). *Influencer Marketing Hub*. <https://influencermarketinghub.com/ai-marketing-benchmark-report/>
- AI Marketing Software (2024). *Influencer Marketing Hub*. <https://influencermarketinghub.com/ai-marketing-software/>
- Bruyn, A., Viswanathan, V., Shan Beh, Ye., Kai-Uwe, B.J., & Wangenheim, F. (2020) Artificial Intelligence and Marketing: Pitfalls and Opportunities. *Journal of Interactive Marketing*, 51. 91–105. <https://hal.science/hal-03492336/document>
- Cannella, J. (2023). An Overview of Artificial Intelligence in Marketing. *Resource Hub*. <https://www.jamescannella.com/articles/artificial-intelligence-in-marketing-overview>
- Garvey, A. M., Kim, T., & Duhachek A. (2023). Bad News? Send an AI. Good News? Send a Human. *Journal of Marketing*, 87(1). 10–25. <https://doi.org/10.1177/00222429211066972>
- Ibrahim, M.K., Muhammed, A., & Ahmed, S. (2023). Artificial Intelligence in Marketing: A Theoretical Overview from a Developing Economy. *Austin Journal Business Administration Management*, 7(3). 1064. <https://austinpublishinggroup.com/business-administration-and-management/fulltext/ajbam-v7-id1064.pdf?extxxx>
- The economic potential of generative AI: The next productivity frontier. (2023). *McKinsey Report*. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier#introduction>
- Kotler, P., Kartajaya, H., & Setiawan, I. (2017). *Marketing 4.0: Moving from Traditional to Digital*. Wiley.
- Longoni, C., & Cian, L. (2022). Artificial Intelligence in Utilitarian vs. Hedonic Contexts: The Word-of-Machine Effect. *Journal of Marketing*, 86(1). 91–108. <https://doi.org/10.1177/0022242920957347>
- Top 20 AI Marketing Tools to Grow Your Business in 2022. (2024). *Influencer marketing hub*. <https://influencermarketinghub.com/ai-marketing-tools/>
- Top 11 AI-Powered Influencer Marketing Platforms for Brands & Agencies 2024. (2024) *Influencer Marketing Hub*. <https://influencermarketinghub.com/ai-influencer-marketing-platforms/>

Top 26 AI Marketing Tools to Grow Your Business in 2024. (2024). *Influencer Marketing Hub*
<https://influencermarketinghub.com/ai-marketing-tools/>