



CENTERIS – International Conference on ENTERprise Information Systems 2022

AI-powered Digital Transformation: Tools, Benefits and Challenges for Marketers – Case Study of LPP

Edyta Gołąb-Andrzejak*

Gdańsk University of Technology, Faculty of Management and Economics, Department of Marketing, ul. Narutowicza 11/12, Gdańsk, Poland

Abstract

The article aims to show the role (benefits and challenges) of AI-powered digital marketing tools for marketers in the age of digital transformation. The considerations were related to the Polish market and a case study of LPP, a Polish clothing retailer. The starting point for this study was the analysis of the literature on the concept of artificial intelligence (AI) with reference to digital marketing. In the next steps, the results of the research on the Polish market conducted by the Digital Poland Foundation and presented in the report entitled “State of Polish AI 2021” were reviewed, and an application case study of the largest Polish clothing company – LPP – was conducted. The study is of an introductory and exploratory nature. It recognises the significant role of AI in digital transformation in the context of digital marketing in the Polish market. The implementation of solutions based on artificial intelligence algorithms, such as the Google Cloud, analytical platform and data repository, e-commerce infrastructure, chatbot, Genesys PureCloud, Google Dialogflow and the AI-based function in the PSIWms Warehouse Management System in LPP’s distribution centre significantly improves the efficiency of online order processing without compromising the quality of products and order fulfilment time. By applying a case study analysis, the importance of AI-based tools in the digital transformation process, including digital marketing, in the Polish market was demonstrated. Marketers, including CMOs, were shown the benefits of applying AI-related technological solutions in the field of e-commerce optimisation and customer service.

© 2022 The Authors. Published by ELSEVIER B.V.

This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0>)

Peer-review under responsibility of the scientific committee of the CENTERIS – International Conference on ENTERprise Information Systems / ProjMAN - International Conference on Project MANagement / HCist - International Conference on Health and Social Care Information Systems and Technologies 2022

* Corresponding author. Tel.: 48 58 348 60 19; fax: +48 58 347 24 55.

E-mail address: edyandrz@pg.edu.pl

1877-0509© 2022 The Authors. Published by ELSEVIER B.V.

This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0>)

Peer-review under responsibility of the scientific committee of the CENTERIS – International Conference on ENTERprise Information Systems / ProjMAN - International Conference on Project MANagement / HCist - International Conference on Health and Social Care Information Systems and Technologies 2022

Keywords: artificial intelligence (AI); AI tools; digital transformation; digital marketing; AI in digital marketing; LPP case study.

1. Introduction

“Your life is AI-assisted, and your marketing will be too.”

Paul Roetzer
(Founder & CEO, Marketing AI Institute)

We live in a rapidly evolving environment. The pandemic has accelerated the dynamics of changes in recent years. They take place in the macro- and micro-environment, affecting companies operating on the market and us – the consumers. New technologies are one of the areas where we observe a high intensity of these changes. These are technologies implemented not only in Industry 4.0 but also in digital marketing [see 1]. Therefore, we are dealing with digital transformation, which also applies to marketers. The degree of digitisation and the related digital maturity depends not only on the market (developed vs. developing) but also on the type of industry we are researching [see 2].

The presence of these phenomena was indicated by the Marketing Science Institute (MSI) as one of the key areas of change that should be examined by formulating the following research question: “what new technologies (e.g., automation/robotics, AI, IoT, 5G, voice activation, virtual/augmented reality, etc.) are creating challenges and opportunities for marketing?” in the introduction to “Research Priorities 2020-2022” entitled “Macro Developments Affecting Marketing” [3]. This topic has been broached in this study in order to answer this question.

In view of the above, one can ask: what can we, as marketers, do with newly received AI tools? How we will implement them in our daily marketing actions? How do we benefit from using them? Are we ready for such a challenge?

Taking into account these considerations, the aim of the study was to show the role (benefits and challenges) of AI-powered digital marketing tools for marketers in the age of digital transformation on the Polish market. This aim is closely related to the research gap, which indicates that there are no studies confirming the importance of AI-based tools for marketers on the Polish market.

The article consists of four parts and the introduction. The first part consists of an overview of theoretical issues related to the role of artificial intelligence in digital marketing, as well as a presentation of AI-based tools used in digital marketing. The subsequent section outlines the research methodology, while the results of the study are presented in the third part. The article ends with conclusions and a discussion on the limitations of the research and possible further directions.

2. Literature review

2.1. *The role of AI in digital marketing*

Artificial intelligence and digital marketing are closely related [see 4, 5]. The links between these two concepts have been discussed, among others, by Theodoridis and Gkikas [6, 7]. Digital marketing is an area involving “an adaptive, technology-enabled process by which firms collaborate with customers and partners to jointly create, communicate, deliver and sustain value for all stakeholders” [8]. Artificial intelligence (AI) is defined as a technology-enabled system for evaluating real-time service scenarios using data collected from digital and/or physical sources to provide personalised recommendations, alternatives and solutions to customers’ enquiries or problems, even very complex ones [9, 1].

Companies implement AI-based solutions in digital marketing to optimise activities in this area. The beneficiaries of AI support include both customers and businesses. Thanks to AI-powered solutions, customers are assisted in the decision-making and purchasing process, and also remain in contact with the company. The latter, on the other hand, is better able to monitor and analyse the behaviour of its customers and, as a result, improve their management. This increases the effectiveness and efficiency of actions performed by both parties.

Although the effectiveness of AI-enriched tools and the ubiquitous digital transformation has been proven, we are still at an early stage of their implementation and use by companies, both in the broad context of the company's business activity and in terms of marketing functions. “As with most high-potential technologies, the use of AI in marketing raises not only practical issues, but also ethical issues” [1, p.1]. Despite emerging ethical doubts, artificial intelligence provides marketers with the possibility of reducing costs through intelligent automation of data-driven repetitive tasks and increasing revenues while improving the ability to predict on a large scale. “Traditional marketing technology relies on algorithms where people code sets of instructions that tell machines what to do. Thanks to AI, the machine has the potential to define its own algorithms, chart new paths, and unlock the limitless potential of marketing transformation” [10].

Rapid digital transformation related to AI-based marketing has already been observed in brands such as Amazon, Facebook, Google, Microsoft, Apple and Netflix. AI technologies applied in these companies include “machine learning, deep learning, computer vision, speech and image recognition, natural language processing and natural language generation” [10]. Marketing specialists using technologies based on AI in their activities can thus build a permanent competitive advantage [see 11] thanks to the wide range of benefits offered by AI-powered tools.

2.2. AI digital marketing tools

The amount of data marketers deal with on a daily basis and the number of transactions related to online purchases necessitate the use of tools supporting these processes. Therefore, AI-based tools are more and more commonly used in digital marketing [13]. The 10 AI tools used in digital marketing are listed below [14, see also 13, 15]:

- online advertising – online ads run by a system powered by AI, also referred to as “programmatic advertising”. “In 2021, 88% of all digital display marketing [expenditure] was spent via programmatic advertising” [16].
- personalised user experience – personalisation is possible by collecting and analysing user data. This is also conducive to building relationships with customers [14].
- AI-powered chatbots – AI chatbots are smarter versions of chatbots. Thanks to the use of machine learning and natural language processing, communication with customers is more natural and develops over time, with better adaptation to the target group [21].
- predictive analysis – AI, through the use of statistical models and appropriate software, analyses data and predicts future actions of customers [see 22].
- web designing – AI website design tools entail new possibilities for website design and re-design [see 23].
- content generation – generating user-engaging and human-like content is possible thanks to TB processing of data and analysis of an enormous amount of content [14].
- content curation – AI-powered tools allow searching for more and more popular content, as well as planning and disseminating it accordingly [14].
- e-mail marketing campaigns – AI enables the creation of personalised e-mail marketing campaigns, makes them quicker to develop and increases the effectiveness measured by the rates of openings and clicks [see 24, 14].
- voice search optimisation – AI-powered tools help optimise websites for voice search and increase site traffic over normal search [see 14].
 - e-commerce – a combination of appropriate solutions and an intelligent approach to adoption and data management will help companies to achieve benefits provided by AI [25].

The implementation and application of the aforementioned AI tools entail numerous benefits and simultaneously pose a number of challenges for current marketers [see 26], as shall be presented here based on an LPP case study.

3. Research methodology

The study aimed to show the role (benefits and challenges) of AI-powered digital marketing tools for marketers in the age of digital transformation on the Polish market. In relation to the indicated objective, the research was guided by the following general research problem: what are the benefits and challenges of using AI-powered tools for marketers on the Polish market?



The research process included the following stages:

- An overview of the literature on the use of AI in digital marketing.
- An analysis of a secondary source – evaluation of an available report on AI tools in digital marketing.
- The LPP case study.

The starting point consisted in a review of the literature on the concepts of AI and digital marketing. The analysis of the literature from WoS and Scopus databases revealed a research gap, which indicated a lack of information on the significance (benefits and challenges) of the use of AI-powered tools in digital marketing in the Polish market.

With reference to the aim and research problem, a secondary source analysis of the “State of Polish AI 2021” report from the study conducted by the Digital Poland Foundation was carried out to show the role of AI in the Polish market as the microeconomic background of the study [12]. The survey completed by 200+ companies and institutions developing or using AI in their products, services or performance of the fundamental research was conducted between January and February 2021 [12].

In order to analyse the AI tools applied in the field of marketing activities undertaken by the company, as well as the related benefits and challenges, the study was based on executive research [27, p. 192]. It is a method used to identify current phenomena related to digital transformation and implementations of marketing tools using AI. The research problem that led to the case study was: what are the benefits and challenges of using AI-powered tools for marketers at LPP? The study focused on Polish clothing company LPP, which also operates a chain of stores overseas and uses AI-based tools in its marketing activities, recently implemented in the context of dynamic changes relating to digital transformation, accelerated and reinforced by the pandemic. The research period covered the years 2019-2021. The analysis involved secondary sources, including binding materials on AI in LPP available on the Internet and internal materials from the company, as well as an interview with an expert from LPP.

4. Research results and discussion

The analysis of results presented in the “State of Polish AI 2021” report [12, p. 39] showed that “[...] only 6% of Polish large companies use **machine learning**. This is one of the lowest numbers in the EU. However, it is an outcome very similar to other EU members in the CEE region” [12, p. 108]. **AI services** are provided mainly in sectors, such as IT and telco (58%), finance and banking (41%) and e-commerce (34%) [12, p. 39]. **AI-enabled products/services/activities** were used by only 22% of marketing and PR departments in Poland in the last 18 months. This result is not as high as one might expect. It proves that AI tools are not widely used by marketers on the Polish market. **AI tools and platforms** were used by 19% of the surveyed companies [12, p. 49]. The results of the study demonstrated that only 11% of large Polish companies (over 250 employees) **use data from social media** [12, p. 115]. Most of them did not seem to frequently use data from social media. Compared to Sweden and the Netherlands, where 20% and 33% [12, p. 115] of large companies use such information, this result is relatively low. Taking into account that **a portion of company revenue from the past 12 months came from products or services based on artificial intelligence**, it can be concluded that as many as 46% of companies acquire most of their income from AI. Only 5% of businesses to date do not have revenues from AI (they are still in development) [12, p. 24].

Polish companies encounter many **difficulties when implementing AI**. One of the main obstacles and challenges to AI implementation is the lack of willingness to invest money in artificial intelligence. As many as 40% of the surveyed AI teams indicate this reason as the main barrier. Another challenge is referred to as technical bottlenecks. As can be read in the report: “[...] the transition from proof of concept to production may be difficult (36%) and there may be a problem with obtaining good quality data (33%)” [12, p. 128]. The cost of technology alone is usually not an issue, as only “11% of AI teams see the high cost of computing as a blockage and only 3% of the point as the cost of licenses and software” [12, p. 128]. The main difficulties to the introduction of AI on the Polish market include the tendency to perceive obstacles in their implementation or the lack of readiness to finance AI-based projects (48%), as well as misunderstanding of AI technology and its benefits by management (35%) [12, p. 132]. Furthermore, “[...] the key challenge for AI teams in corporate structures is the cost of obtaining high-quality

data (53%)” [12, p. 132]. The case study of the Polish company LPP is an attempt to find a reference for these research results.

LPP was selected because it is the largest Polish clothing company and one of the fastest-growing clothing businesses in Central and Eastern Europe. Moreover, it is a good example of the implementation of AI-based technology not only from the point of view of managers but also marketers.

LPP SA is a Polish family business. “For over 25 years, it has been successfully operating in Poland and abroad, offering its collection on 25 markets, including in prestigious capitals such as London, Berlin, Tel Aviv or Moscow. LPP SA manages five fashion brands: Reserved, Cropp, House, Mohito and Sinsay. The company has a chain of over 1,700 stores with the total area of over 1 million sq. m. The brand's collections are available online in 30 markets. LPP plays another important role as it employs over 25 thousand people in its offices and sales structures in Poland, Europe, Asia and Africa. The company is listed on the Warsaw Stock Exchange in the WIG20 index and belongs to the prestigious MSCI Poland index” [28].

As can be read on LPP’s website: “[...] over the last few years, the LPP Group has been preparing for the digital transformation through significant investments in the development of the online team and competence development in the analytical (using the Google Analytics tool), cloud (testing AI Recommendation) or performance dimension, responsible for online sales” [28]. Table 1 summarises the AI-based tools implemented in LPP and indicates the benefits they offer the managers of various departments of the company, including marketing.

Table 1. AI-based tools applied and used by LPP

AI tool	Benefits
Google cloud	<i>implementation of Google Cloud technology speed, security and flexibility maintenance of effective development and growth of the Group’s digital channels experience based on analyses from many dispersed systems data democratisation – “different teams can easily work with the collected information for sales, marketing and logistics purposes” [28]</i>
Analytical platform and data repository (the so-called data lakes)	<i>ability to generate comprehensive reports in a short time</i>
E-commerce infrastructure	<i>full improvement of the functioning ensuring smooth and reliable operation of the systems and cost optimisation further increase in the share of online sales in the company revenue structure</i>
Chatbot	<i>increase in the efficiency and accessibility of customer service by the Contact Centre</i>
Genesys PureCloud	<i>efficient scaling of system utilisation and integration of all customer service channels [29]</i>
Google Dialogflow	<i>natural processing engine [29]</i>
AI-based function in the Warehouse Management System PSIWms in the distribution centre	<i>significantly increased efficiency of the order-picking processes at the distribution centre – by more than 11 percent</i>

Source: Internet sources and materials from LPP.

The starting point for the rapid digital transformation and AI-based implementations taking place in LPP was the establishment of a strategic alliance in this area. In 2019, LPP selected a strategic digital partner – Google Cloud: “[...] the established cooperation focuses primarily on introducing advanced solutions, such as an analytical platform or a data repository, but also implementing innovations in e-commerce technical infrastructure and [...] AI-based product recommendations” [28]. It was related to the decision to migrate the e-commerce-related workloads from the local environment to the cloud. The use of the cloud’s potential consisted in allowing the development of online activities and supporting digital transformation in the area of marketing. According to the plans, the company intended to switch to full service of e-commerce technical infrastructure using Google Cloud by the end of 2020 [28].

The strategic alliance in the field of e-commerce and other AI-based tools with Google Cloud undertaken by LPP – a leader in the retail industry in Central and Eastern Europe – was caused by changes observed on the market, consisting in a systematic increase in the share of online channels in purchases, also in the clothing sector, which grew with the outbreak of the Covid-19 pandemic. This was related to an increase in income from e-commerce in the structure of the company's sales revenues. According to the LPP e-commerce director, these activities were aimed at maintaining the effective development and growth of LPP Group's digital channels [28]. As the director stated further: “[...] the Group will tap into Google’s knowledge and expertise in the fields of artificial intelligence, performance marketing, big data, and machine learning. Moreover, Google expert team supports LPP in its expansion into foreign markets” [28].

Google Cloud tools ensure reliability and the sound performance of the e-commerce website, which is particularly important in periods of increased traffic, e.g. promotional campaigns. Maximum efficiency is also achieved by automatically adjusting to the number of customers visiting the website. On the one hand, this entails cost optimisation and on the other, ensures the highest quality of customer service in digital channels. In addition, the applied solutions provide security (a copy of the website minimises the risk of losing business continuity) and savings (infrastructure maintenance costs relevant to the volume of traffic on the website) [28].

Another tool using artificial intelligence (AI), implemented by LPP in 2020, was the second-generation chatbot. This instrument has enhanced the efficiency of customer service. The latest generation chatbot implemented in cooperation with K2Bots.AI handles nearly 30% of cases reported to the Customer Service Office. Dawid Telepski, e-commerce operations manager at LPP, indicates the effectiveness of this tool: “The implementation of the second-generation chatbot is a key step in adapting LPP’s customer service tools to the surge in online sales continuously recorded since April 2020. This innovative solution, with the possibility of transferring difficult conversations to people, is the most effective and at the same time the most easily accessible channel of contact for customers. The next step would be for the chatbot to also support the LPP Contact Centre in foreign markets” [29]. The said tool uses conversational artificial intelligence to allow the company to resolve 200 of the most popular problems reported by e-commerce customers. The second-generation chatbot correctly solves approximately 70% of all cases, among other things due to its ability to answer open-ended questions. This is confirmed by Łukasz Lewandowski, CEO of K2Bots.AI: “[...] we want to set a benchmark for efficiency and understanding natural language that is currently achievable. The conversational AI in LPP-branded stores answers open questions in a way that is as human-like as possible and is not based on choice forms commonly used by first-generation chatbots” [29]. Chatbot implementation includes the cloud-based solution of the Contact Centre (Genesys PureCloud) that handles chatbot-to-human calls and conversations from LPP brand profiles on Facebook: “Genesys PureCloud enables efficient scaling of system utilisation and integration of all customer service channels. Chatbot uses the Google Dialogflow natural processing engine, supplemented by the proprietary K2Bots.AI technology” [30].

Another area, apart from e-commerce customer service, is distribution. In the course of the Covid-19 pandemic, online sales quadrupled. For this reason: “[...] it was necessary to optimise our logistics and IT systems to meet demand without compromising the product quality and the lead time of online orders. This is why we decided to rely on our long-standing business partner, PSI Polska, to roll out the solution based on AI algorithms. This will significantly enhance the efficiency of processing online orders,” said Jacek Kujawa, Vice President of LPP.

LPP has implemented a new AI-based function in the Warehouse Management System PSIWMS in their distribution centre in Poland. “Based on artificial intelligence algorithms, the solution will optimise the order picking route. It will respond to the growing volume of online orders and a noticeable shift in the importance of various sales channels in the market. [...] the machine learning mechanism tool shortened order-picking routes by 30 percent” [31]. Moreover, “[...] thanks to the machine learning mechanism applied at the Fulfillment Center of the Polish clothing producer, the order-picking route shortened and the dispatch of e-commerce orders was significantly accelerated. AI algorithms can efficiently solve the so-called travelling salesman problem (TSP)” [32]. The use of artificial intelligence has allowed LPP to improve the customer service process in e-commerce: “[...] with the new warehouse management system (WMS) underway, LPP can guarantee quick and uninterrupted delivery of online orders to clients. [...] the order-picking route optimisation tool is a part of the larger Warehouse Intelligence project based on the artificial intelligence concept” [32], which is still under development.

As one can see from the example of the aforementioned AI-based solutions implemented in the field of e-commerce and related customer service at LPP, they are closely related to the digital transformation observed in the studied entity.

5. Conclusions and research limitations

The dynamic global digital transformation – also in the area of marketing – raises the question of whether to use AI or not. The search for the answer lies within the responsibility scope of modern marketers – chief marketing officers (CMOs). As mentioned during a webinar organised by the Marketing AI Institute on 9 June 2022, entitled “AI for CMOs: The Real World Playbook for Digital Transformation”: “Every CMO can understand AI, every CMO can apply AI, every CMO can leverage AI to drive digital transformation” [33]. This shows that artificial intelligence can be used to drive the digital transformation we are currently dealing with. Thanks to AI, any marketer can become the next-generation leader.

The example of LPP has confirmed that the implementation of AI-based technologies in e-commerce and customer service activities entails measurable benefits. The introduction of AI-powered tools as part of the digital transformation was largely caused by the dynamic growth of a major shift between the traditional and online sales channels resulting from the pandemic. This will certainly be the direction of change that LPP will follow in the coming years. As can be seen, they bring a number of benefits, related in particular to process optimisation, increased reliability and reduction of operation costs. At the same time, implementations based on AI cause numerous challenges associated with, inter alia, the need to employ appropriately qualified personnel (e.g. IT specialists servicing the machine learning mechanism applied at the LPP Fulfillment Center), or customer feedback (e.g. chatbot service).

To sum up, it should be stated that the meeting of two concepts – artificial intelligence and digital marketing – and their close integration was to be expected. This brings a new quality to marketers (CMOs) in terms of the effectiveness and efficiency of their actions, and ultimately entails measurable economic benefits.

The presence of AI in digital marketing is a fact. It was bound to take place in the age of digital transformation. This is, in a way, another step towards the development of digital marketing. The questions that arise include: to what extent will marketers adapt AI-based tools to their daily activities and how will they be perceived by customers (users)? Will chatbots and other AI-powered tools be able to replace personal contact, especially in the case of services, and build lasting relationships with customers? And the most important one: is it ethical that artificial intelligence, not natural intelligence, guides our behaviour? These questions may be resolved in the next stages of the research.

This study has a number of limitations. Due to the exploratory nature of the research, it was limited to the analysis of a secondary source (report) and a case study. The limited scope of the article describes only one example (LPP) from the Polish market. The next stages of the study are planned to include qualitative methods (individual in-depth interviews with CMOs) and a quantitative study – CAWI and model development, as well as a demonstration of statistical relationships between the variables of the conceptual measurement model (CFA) and the structural model (SEM).

References

- [1] Esch, Patrick Van, and J. Stewart Black. (2021) *Artificial Intelligence (AI): Revolutionizing Digital Marketing*. doi:10.1177/18393349211037684.
- [2] Gołab-Andrzejak, Edyta. (2022) “Enhancing Customer Engagement in Social Media with AI – a Higher Education Case Study.” *Procedia Computer Science*. (accepted for printing).
- [3] “Research Priorities 2020-2022 1.” (2020) *MSI*: 1–13.
- [4] Chintalapati, Srikrishna, and Shivendra Kumar Pandey. (2022) “Artificial Intelligence in Marketing: A Systematic Literature Review.” *International Journal of Market Research* **64(1)**: 38–68. doi:10.1177/14707853211018428.
- [5] Sarath Kumar Boddu, Raja, et al. (2022) “An Analysis to Understand the Role of Machine Learning, Robotics and Artificial Intelligence in Digital Marketing.” *Materials Today: Proceedings* **56**. Elsevier Ltd: 2288–92. doi:10.1016/j.matpr.2021.11.637.
- [6] Theodoridis, P. K., & Gkikas, D. C. (2019) “How Artificial Intelligence Affects Digital Marketing.” *Strategic Innovative Marketing and*

Tourism, edited by Androniki Kavoura et al., Springer: 1319–27.

- [7] Ramon, Jose, et al. (2021) *Setting B2B Digital Marketing in Artificial Intelligence-Based CRMs: A Review and Directions for Future Research* **98(January)** 2021: 161–78. doi:10.1016/j.indmarman.2021.08.006.
- [8] Kannan, P. K., and Hongshuang. (2017) “Alice” Li. “Digital Marketing: A Framework, Review and Research Agenda.” *International Journal of Research in Marketing* **34(1)**: 22–45. doi:10.1016/j.ijresmar.2016.11.006.
- [9] Xu, Yingzi, et al. (2020) “AI Customer Service: Task Complexity, Problem-Solving Ability, and Usage Intention.” *Australasian Marketing Journal* **28(4)**. Elsevier Ltd: 189–99, doi:10.1016/j.ausmj.2020.03.005.
- [10] *AI Score for Marketers™ State of Marketing AI Survey*. (2022). <https://score.marketingaiinstitute.com/>.
- [11] Stone, Merlin, et al. (2020) “Artificial Intelligence (AI) in Strategic Marketing Decision-Making: A Research Agenda.” *Bottom Line* **33(2)**: 183–200. doi:10.1108/BL-03-2020-0022.
- [12] “2021 State of Marketing AI Report.” *Drift and Marketing Artificial Intelligence Institute*, 2022, www.drift.com/books-reports/state-of-marketing-ai/.
- [13] Nair, Kiran, and Ruchi Gupta. (2020) “Application of AI Technology in Modern Digital Marketing Environment.” *World Journal of Entrepreneurship, Management and Sustainable Development* **17(3)**: 318–28. doi:10.1108/WJEMSD-08-2020-0099.
- [14] Agarwal, Sandeep. (2019) *10 Applications of Artificial Intelligence in Digital Marketing*. <https://medium.datadriveninvestor.com/10-applications-of-artificial-intelligence-in-digital-marketing-a562a37db2bd>.
- [15] Sarath Kumar Boddu, Raja, et al. (2022) “An Analysis to Understand the Role of Machine Learning, Robotics and Artificial Intelligence in Digital Marketing.” *Materials Today: Proceedings* **56**. Elsevier Ltd: 2288–92, doi:10.1016/j.matpr.2021.11.637.
- [16] *What Is Programmatic Advertising? The Ultimate 2022 Guide*. (2022). <https://www.match2one.com/blog/what-is-programmatic-advertising/>.
- [17] Cheng, Yang, and Hua Jiang. (2021) “Customer–Brand Relationship in the Era of Artificial Intelligence: Understanding the Role of Chatbot Marketing Efforts.” *Journal of Product and Brand Management* **2(March)**: 252–64, doi:10.1108/JPBM-05-2020-2907.
- [18] Ho, Ree Chan. (2021) *Chatbot for Online Customer Service*: 16–31, doi:10.4018/978-1-7998-7603-8.ch002.
- [19] Schanke, Scott, et al. (2021) “Estimating the Impact of ‘Humanizing’ Customer Service Chatbots.” *Information Systems Research* **32(3)**: 736–51. doi:10.1287/ISRE.2021.1015.
- [20] Meyer-Waarden, Lars, et al. (2020) “How Service Quality Influences Customer Acceptance and Usage of Chatbots?” *Journal of Service Management Research* **4(1)**: 35–51. doi:10.15358/2511-8676-2020-1-35.
- [21] Barker, Shane. (2021) *15 Best AI Chatbot Platforms to Boost Your Conversions in 2022*. https://shanebarker.com/blog/best-ai-chatbot/#AI_Chatbot_Platform_1_Lobster.
- [22] Lawton, George. (2021) *6 Top Predictive Analytics Tools for 2022*. <https://www.techtarget.com/searchbusinessanalytics/tip/6-top-predictive-analytics-tools>.
- [23] *AI & Web Design: Grading the 3 Top AI Website Design Tools*. <https://www.webdesignrankings.com/ai-web-design-tools/>. Accessed 11 Apr. 2022.
- [24] Hegde, Sharat. (2021) *10 Ways to Implement AI in Email Marketing for 2022*. <https://easysendy.com/blog/ai-in-email-marketing/>.
- [25] Zia, Sadia. (2021) *Top 10 Artificial Intelligence Tools You Should Be Using to Boost Sales in 2022*. <https://www.cloudways.com/blog/artificial-intelligence-tools/>.
- [26] De Bruyn, Arnaud, et al. (2020) “Artificial Intelligence and Marketing: Pitfalls and Opportunities.” *Journal of Interactive Marketing* **51**. Elsevier Inc.: 91–105. doi:10.1016/j.intmar.2020.04.007.
- [27] Czakon, Wojciech, editor. (2020) *Podstawy Metodologii Badań w Naukach o Zarządzaniu*. Nieoczywiste.
- [28] *LPP Has Chosen Google as Its Strategic Digital Partner*. (2020). <https://www.lppsa.com/en/informacje-prasowe/lpp-has-chosen-google-as-its-strategic-digital-partner>.
- [29] *LPP Has Introduced the Second Generation Chatbot by K2Bots.AI in Customer Service*. (2020). <https://www.lppsa.com/en/informacje-prasowe/lpp-has-introduced-the-second-generation-chatbot-by-k2bots-ai-in-customer-service>.
- [30] *LPP Wprowadziło Do Obsługi Klientów Chatbota Drugiej Generacji*. (2020). <https://perfectbot.ai/pl/klienci/lpp-wprowadzilo-do-obslugi-klientow-chatbota-drugiej-generacji/>.
- [31] *PSI Implements AI Algorithms in Warehouse Management System at LPP S.A.* (2020). <https://itsubwaymap.com/2020/06/30/psi-implements-ai-algorithms-in-warehouse-management-system-at-lpp-s-a/>.
- [32] *AI Algorithms at the LPP Distribution Centre*. (2020). <https://www.psi.pl/en/blog/psi-polska-blog/post/ai-algorithms-at-the-lpp-distribution-centre/>.
- [33] Rotzer, Paul. *Why CMOs Need to Pay Attention to AI [Report]*. (2022). <https://www.marketingaiinstitute.com/blog/author/paul-roetzer>.