Robots as a catalyst for Marketing automation: Potential and limitations

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ABSTRACT: In a world full of technological advancements, change is truly inevitable in every segment of everyday life. Marketing is synonymous with innovation and change. Technological advancements and digital transformation have fundamentally changed the way businesses operate. Rapid automation and the integration of artificial intelligence (AI) have become fundamental strategies for optimizing and redefining business models. Modern machine intelligence, including robots, significantly impacts the lives of people around the world. Robots are increasingly being integrated into marketing as part of innovative solutions to improve services and improve efficiency. The use of robots in marketing opens up new opportunities for automation, personalization, and improving the user experience. In this context, it is necessary to critically analyze the role that robots play in the implementation of marketing and their ability to transform the conventional business model. This paper aims to explore the effects of implementing robots in marketing processes, focusing on their impact on efficiency, productivity, and customer satisfaction. The research will be based on primary and secondary data sources in order to collect relevant information to meet the research objectives. The data analysis shows that adaptation to new technologies is inevitable and should be realized gradually. The results indicate that robots have both positive and negative effects in the implementation in marketing. Although there are concerns about their impact on jobs, robots are proving to be efficient, reliable and innovative tools for improving business processes.

Key words: robots, marketing automatization, digital transformation, customer satisfaction, personalized marketing
Field: Social Sciences

1.Introduction

In the contemporary digital era, marketing is being transformed through the synergy between artificial intelligence (AI), machine learning, and robotic technologies. Robots and intelligent automated systems are emerging as catalysts in the processes of marketing automation, enabling the optimization of communication strategies, the personalization of content, and the enhancement of operational efficiency. This paper explores the potentials and limitations of robots in marketing automation, analyzing how they are redefining the relationship between consumers and brands.

According to Davenport and Ronanki (2018), the application of AI in marketing facilitates the streamlining of complex processes, yet it also raises a series of questions related to ethical implications, consumer trust, and the boundaries of automated creativity. Furthermore, as Kaplan and Haenlein (2019) emphasize, robotic marketing agents are altering the way brands communicate; however, their reliance on algorithmic predictions may lead to cognitive biases and a lack of human intuition in marketing decision-making.

This study aims to provide a systematic overview of current research in the field, evaluating both the practical benefits and the limitations of robots as drivers of marketing automation. Through an analysis of recent trends and industry case examples, the study investigates the balance between technological efficiency and the human factor in shaping the future of marketing automation.

2. Methodology

The research *"Robots as Catalysts for Marketing Automation: Potentials and Limitations"* was conducted using a qualitative research approach, with a focus on case study as the primary method of analysis. This method was chosen for its ability to provide in-depth understanding of the processes, technologies, and strategies related to the implementation of robots in marketing across various global brands.

For the purposes of the research, four globally recognized companies from different industries were analyzed, all sharing a common feature — the integration of robotic technologies and artificial intelligence into their marketing strategies. The selected brands are:

- Domino's Pizza – food industry and logistics
- L'Oréal – cosmetics industry
- H&M – retail and fashion
- Audi – automotive industry

The data was collected through a systematic review of secondary sources, including scientific and professional articles, company reports and presentations, online media publications, and consultancy firm studies. Additionally, comparative analysis and content analysis were used to identify: the types of robotic technologies applied, the potential benefits of their implementation, and the key challenges and limitations.

The data was organized and analyzed according to three main criteria:

- Type of robotic technologies implemented by the brands in their marketing strategies (e.g., chatbots, autonomous systems, virtual assistants)
- Impact on marketing (efficiency, engagement, personalization, cost reduction)
- Limitations and risks (technological, ethical, financial, and human factors)

The results of the analysis are presented in both tabular and descriptive formats, in order to ensure clarity and comparability among the different brands.

3. Literature Review and Findings

Contemporary technologies, led by artificial intelligence (AI) and robotic systems, are creating new paradigms in marketing, driving the automation of marketing processes, the personalization of content, and the enhancement of customer interaction (Wirtz et al., 2018). Their application ranges from virtual assistants to physical robots in retail environments, resulting in increased efficiency and improved user experience (Belanche et al., 2020). This chapter analyzes key concepts related to the application of robots in marketing, beginning with their definition and

classification, continuing with theoretical approaches to marketing automation, and concluding with a critical assessment of their potentials, limitations, and ethical implications.

3.1. Definition and Classification of Robots in the Marketing Context

In marketing, robots can be defined as autonomous or semi-autonomous intelligent systems used to automate communication, analytical, and interactive processes (Huang & Rust, 2018). One of the most widespread forms of robots in the marketing context includes virtual assistants and chatbot systems. These robots use artificial intelligence (AI) to process customer inquiries, provide product recommendations, and automate customer support (Lu et al., 2020). Companies like Sephora and H&M utilize these technologies to personalize the customer experience (Gursoy et al., 2019).

They can be classified into several categories:

Chatbots – Algorithmically driven programs that simulate communication with consumers via textual or voice interfaces (Shumanov & Johnson, 2021).

Humanoid robots – Physical robots designed to imitate human interactive capabilities, most commonly used in service industries (Belanche et al., 2020).

Automated communication systems – Algorithmically driven marketing platforms that integrate predictive analytics, personalization, and dynamic content adaptation (Davenport et al., 2020).

3.1.1. Types of Robots in the Marketing Context

In the context of marketing automation, different types of robots are used to transform how brands communicate with consumers, optimize marketing processes, and generate personalized experiences. These robots—both virtual and physical entities—are classified according to their functions, user interaction capabilities, and ability to learn and adapt to new situations. The following section explores the most important categories of robots in marketing: chatbots, humanoid robots, and automated communication systems.

Chatbots – Chatbots are autonomous digital agents that use natural language to interact with users through text or voice interfaces. These robots can answer questions, resolve issues, or complete transactions without human intervention. They play a critical role in marketing strategies for personalized communication and consumer experience optimization. According to Gnewuch et al. (2017), chatbots can enhance service efficiency, but also raise concerns about user experiences in relation to emotional intelligence and creativity. Chatbots can be divided into two main types:

Rule-based (rigid) chatbots, which operate according to predefined rules and cannot adapt to new or unexpected situations. These are commonly used for automated processes such as FAQs.

AI-based adaptive chatbots, which are capable of learning from user interactions and adapting to new contexts. These bots utilize natural language processing (NLP) and machine learning to improve their responses and mimic human-like interactions (Jouzdani et al., 2020).

Humanoid Robots – In contrast to virtual chatbots, humanoid robots are physical entities designed to replicate human features and capabilities. They are used in marketing to interact with people and create emotional connections with consumers, especially in service and

promotional contexts. Humanoid robots are applied in retail stores, exhibitions, or as part of advertising campaigns. A prominent example is Pepper, a humanoid robot developed by SoftBank Robotics, used for brand activation in physical spaces. According to Belanche et al. (2020), humanoid robots provide personalized experiences in locations such as shopping centers and hotels, but their effectiveness depends on their design and adaptability. The main types of humanoid robots include:

Hospitality robots – used to welcome clients and provide information in restaurants and hotels.

Branding and advertising robots – designed to attract attention and deliver marketing messages through physical interaction.

These robots have the potential to enhance inclusive customer experiences but are also subject to criticism regarding their ability to foster trust and empathy, which are essential for successful customer engagement (Kramer et al., 2019).

Automated Communication Systems – These are complex platform-based solutions that use advanced algorithms and data to automate marketing communications across various channels, such as email, mobile applications, and social media. They include email marketing software, Customer Relationship Management (CRM) platforms, and AI-driven recommendation systems, designed to identify patterns in consumer behavior and generate personalized messages and offers (Davenport et al., 2020). These systems not only improve campaign efficiency but also enable seamless communication with consumers, fostering long-term relationships. According to Malthouse et al. (2019), these platforms are often integrated with data analytics systems, allowing marketers to optimize campaigns based on real-time insights such as consumer behavior and preferences.

Automated communication systems can significantly enhance marketing strategies related to personalization and market segmentation. However, they also face challenges concerning data privacy and the transparency of algorithmic decision-making (Tambe et al., 2020).

3.1.2. Theoretical Approaches to Marketing Process Automation

The automation of marketing processes represents one of the most significant achievements in today's business environment, grounded in the use of advanced technologies such as artificial intelligence (AI), machine learning, and sophisticated algorithms. The development of these technologies is transforming marketing and consumer communication strategies, enabling faster, more efficient, and highly personalized management of marketing activities.

Theoretical approaches to marketing automation are based on concepts from various fields such as cognitive science, complex systems theory, adaptability theory, and data economics. In this context, the most influential theoretical frameworks shaping marketing automation include the Service Automation Theory, Social Interaction Theory, Adaptive Systems Theory, Cognitive Systems Theory, and Complexity Theory.

Service Automation Theory - This theory examines how robotic and automated systems replace or augment traditional human roles in marketing and services. According to Wirtz et al. (2018), the theory focuses on the dual role of technology—as a tool for efficiency and as a medium for enhancing customer experience. In the context of marketing, automation is seen as a way to increase productivity and efficiency by using digital tools that substitute human resources. Unlike traditional marketing, which relies on human-to-human interaction, automated marketing enables continuous communication, personalized offerings, and rapid responsiveness to consumer needs. Successful implementation, however, requires integrating technology with the human factor, as social interaction, trust, and emotional connection with consumers cannot be fully replicated by algorithms and robots.

Social Interaction Theory - Originating from social psychology, this theory plays a crucial role in marketing process automation, especially when considering robots and chatbots in marketing communication. According to Hu et al. (2020), this theory focuses on how consumers interact with automated agents and how they perceive their responses. It explores the perceptions and emotions consumers develop during interactions with machines, including robots and AI systems. Research shows that human-like features in robots—such as visual and speech capabilities—can increase consumer trust and friendliness toward automated systems (Gnewuch et al., 2017). Communication rooted in social interaction is essential for building emotional bonds between brands and consumers, which is a fundamental component of marketing strategies.

Adaptive Systems Theory - This theory is based on the principle that systems must adapt to changing environmental conditions. In marketing automation, this means systems should respond to new data and shifting market conditions. Grewal et al. (2020) argue that automated marketing systems must be designed to self-optimize and learn from new data in order to meet consumer needs in real-time. This approach leverages advanced technologies like machine learning and data-driven predictions to deliver personalized marketing that is flexible and dynamic. Adaptive systems enable marketers to optimize communication and deliver precise marketing solutions that respond to market shifts and consumer behavior changes.

Cognitive Systems Theory - This theory pertains to the application of cognitive processes in machines, particularly those used in marketing automation. Rooted in psychology, it assumes that intelligent systems can mimic human cognitive functions such as learning, memory, and problem-solving (Bengio, 2019). According to this theory, automated systems not only gather data but also analyze, interpret, and make decisions based on context and human assumptions. These capabilities power recommendation systems, personalized ads, and fully integrated CRM platforms that optimize consumer interaction. Advancements in cognitive systems make marketing more intuitive, predictive, and tailored to individual consumer needs (Kalyanaraman et al., 2020).

Complexity Theory - Complexity Theory studies systems composed of many interacting components. In marketing automation, it explains the complex dynamics between various elements of marketing strategies: consumers, communication channels, social media, and artificial intelligence (Malthouse et al., 2019). According to this theory, marketing systems are not simple but are made up of numerous variables influencing the final outcome. Automation in such complex systems integrates all elements into a functioning whole capable of responding to market changes in real time. This includes consumer preferences, demographic shifts, and global trends. Complexity Theory demonstrates how automation helps manage these variables through prediction models and optimization tools.

The theoretical foundations discussed reveal that these approaches are crucial for developing modern marketing strategies. Applying these theories not only enhances marketing efficiency and productivity but also enables deeper personalization of consumer experiences. However, the successful implementation of automation in marketing largely depends on an organization's ability to integrate these theories into their strategic planning - especially considering the complexity and rapid pace of change in today’s market environment.

3.2. Potentials and Limitations of Robots in Marketing Strategies

In the modern marketing context, robots and automated systems play a crucial role in transforming strategies for communication with consumers. With the advancement of technologies such as artificial intelligence (AI), machine learning, and natural language processing (NLP), robots have become not just tools for automating repetitive tasks, but also instruments for personalizing marketing, creating better customer experiences, and increasing

operational efficiency. However, while robots offer significant advantages, their application in marketing is not without challenges and limitations.

3.2.1. Potentials of Robots in Marketing Strategies

- **Personalization and Enhanced Customer Experience** – One of the greatest potentials of robots in marketing is their ability to create personalized experiences for consumers. Advanced machine learning algorithms and artificial intelligence enable robots to analyze large volumes of consumer data and offer individualized recommendations, promotional messages, or products. According to Stone et al. (2016), robots can analyze past purchasing habits, demographic data, and real-time events to generate recommendations that accurately meet each user's needs. This type of personalization increases the likelihood of purchase and consumer satisfaction, which is fundamental to successful marketing strategies.
- **Automation of Marketing Processes and Efficiency** – Robots significantly increase the operational capacity of marketing teams by automating repetitive tasks and processes. These tasks include automated content generation, management of social media campaigns, personalized email marketing campaigns, and market segmentation. According to Chaffey (2019), automating these activities allows for greater efficiency and significant time savings, enabling marketers to focus on strategic tasks and the creative aspects of marketing.
- **Real-Time Interaction and Continuous Availability** – Robots, such as chatbots and virtual assistants, enable continuous communication with consumers. They can answer questions, guide users through purchasing processes, or help resolve issues in real time. This creates instant consumer satisfaction and increases their loyalty to brands. According to McLean (2020), the constant availability of robots at any time improves customer service and reduces wait times, directly influencing the brand's positive image.
- **Improved Campaign Efficiency** – Using advanced analytical tools, robots can provide quick and accurate data on the effectiveness of marketing campaigns, enabling faster strategy adaptation. Advanced optimization tools, such as A/B testing and predictive analytics, enhance marketing performance. According to Davenport et al. (2020), robots can provide real-time feedback, allowing marketers to optimize campaigns for better results and higher return on investment (ROI).

3.2.2. Limitations of Robots in Marketing Strategies

- **Lack of Emotional Intelligence** – Although robots can simulate human behavior through advanced algorithms, they lack true emotional intelligence. This limitation affects their ability to understand the emotional states of consumers and respond in a way that fosters emotional connection. In marketing, emotional intelligence plays a vital role, as many consumers are driven by feelings and perceptions of a brand, not just rational arguments (Gnewuch et al., 2017). In situations that require human warmth and empathy—such as service industries or complex customer needs—robots may not be as effective as humans.
- **Privacy and Data Security Issues** – Robots, especially those that use advanced data analysis algorithms, rely on large amounts of personal and sensitive data to personalize marketing activities. This aspect of the technology poses serious risks to consumer privacy. According to McKinsey (2020), data security and protection from misuse are among the biggest barriers to widespread acceptance of robots in marketing. Concerns

about personal data protection and the implementation of appropriate security measures can undermine consumer trust in automated systems.

- **Technological and Ethical Barriers** – Although robots are significantly advanced, they still have limitations in functioning within complex, unstructured situations. Sometimes, robots cannot adapt to unusual or unforeseen scenarios, which can lead to negative user experiences. Issues with the accuracy of robotic systems and their ability to understand context and intent in communication can affect the effectiveness of marketing strategies (Ghosh et al., 2020). Simultaneously, ethical concerns regarding the use of robots—such as worries about job automation and replacement of human labor—represent additional limitations in applying these technologies in marketing.
- **Implementation Challenges and High Costs** – Although robots hold great potential, their implementation and maintenance can be expensive and complex. Integrating robots into marketing strategies requires a high level of technical expertise and significant capital investment in infrastructure and training. For many small and medium-sized enterprises, these costs can be a serious barrier to the widespread adoption of robotic solutions (Davenport et al., 2020).

Robots have enormous potential to transform the marketing industry by providing enhanced customer experiences, increased efficiency, and personalized marketing solutions. However, their implementation is not without challenges. Issues such as emotional intelligence limitations, data privacy, technological barriers, and high implementation costs are among the most significant constraints in applying robots to marketing strategies. These challenges require careful management, technological adaptation, and ethical considerations for their long-term use.

3.3. Ethical Aspects and the Impact on the Workforce

With the increasing integration of robots and artificial intelligence (AI) in marketing, significant ethical and social challenges arise, particularly regarding privacy, transparency, and the impact on the workforce (Kaplan & Haenlein, 2019). While robots bring operational efficiency and personalization, they also raise questions about job security and the moral responsibility of companies. Several ethical aspects emerge from the use of robots in marketing, and among them, the following can be highlighted:

- **Privacy and Data Protection** – One of the biggest ethical challenges is the processing of personal data by AI systems. Robots collect and analyze massive amounts of user data to personalize marketing content, which can lead to privacy violations (Davenport et al., 2020). Companies must ensure transparent data protection policies and compliance with regulations such as the General Data Protection Regulation (GDPR).
- **Transparency and Trust** – Consumers are often unaware when they are interacting with robots instead of humans, which can raise concerns about the confidentiality of shared information (Wirtz et al., 2018). Companies should provide clear identification of robotic systems and their limitations in order to avoid manipulation or deception.
- **Algorithmic Bias and Discrimination** – AI algorithms can unintentionally reinforce bias if trained on unbalanced data. This may result in discriminatory marketing strategies and unequal treatment of different consumer groups (Belanche et al., 2020). Companies should invest in the development of ethical AI systems that minimize these risks.

On the other hand, the impact on the workforce is manifested through the following challenges:

- **Automation and Job Loss** – With the rise of automation, traditional marketing positions, especially those related to routine tasks, may be replaced by automated

systems (Gursoy et al., 2019). This leads to a reduced demand for human labor and presents challenges for employees who need to acquire new skills.

- **Changing Roles in the Marketing Industry** – While robots may replace some jobs, they also create new opportunities in areas such as data management, AI optimization, and maintenance of automated systems (Davenport et al., 2020). Companies should invest in reskilling and educating employees to prepare them for these changes.
- **Coexistence of Humans and Robots** – One of the key challenges is how humans and robots will collaborate within the marketing sector. While robots improve efficiency, the human factor remains essential for creativity, empathy, and strategic thinking (Kaplan & Haenlein, 2019). The optimal approach is a combination of human and automated processes.

Based on current theoretical insights, we can conclude that the use of robots in marketing brings significant benefits, but also creates ethical and social challenges. Companies must carefully balance technological innovations with responsible workforce management and the protection of consumer privacy. The development of ethically oriented AI systems, transparent practices, and employee reskilling will be key to the sustainable integration of robots into the marketing industry.

4. Researching

The integration of robotics and artificial intelligence (AI) into marketing strategies has become a key factor in enhancing customer behavior, operational efficiency, and brand innovation. Global brands continue to explore the use of robotic technologies as a means to optimize their marketing strategies.

For the purposes of this paper, I used case study data from four prominent global brands, each operating in different industries but sharing a common trait: they all implement robotic technologies within their marketing strategies—Domino's Pizza, L'Oréal, H&M, and Audi (Latitude Digital). In this research, I will highlight the types of robots used, their potential benefits, and inherent limitations.

1. Domino's Pizza – Pioneering Autonomous Delivery and AI-Enhanced Ordering

Types of Robots Used:

AI-powered chatbots: Domino introduced “Dom,” a voice-activated AI assistant capable of taking orders and responding to customer requests through natural language processing.

Autonomous delivery vehicles: The company collaborates with robotics firms to deploy self-driving robots and drones, aiming to revolutionize the delivery process.

Potential Benefits:

Enhanced customer experience: The AI assistant “Dom” provides personalized recommendations and streamlines the ordering process, increasing customer satisfaction.

Operational efficiency: Autonomous delivery vehicles reduce dependency on human drivers, potentially lowering delivery times and operational costs.

Limitations:

Technological challenges: The deployment of autonomous vehicles faces regulatory hurdles and technological constraints, such as navigating complex urban environments.

Customer acceptance: The novelty of robot-delivered pizzas may require time for widespread consumer acceptance.

2. L'Oréal – Leveraging AI for Personalized Beauty Experiences

Types of Robots Used:

AI virtual assistants: L'Oréal has developed virtual beauty advisors that offer personalized product recommendations and tutorials.

Potential Benefits:

Personalized customer engagement: Virtual assistants provide tailored beauty advice, enhancing customer satisfaction and promoting brand loyalty.

Data-driven insights: AI analytics enable L'Oréal to better understand consumer preferences, guiding product development and targeted marketing strategies.

Limitations:

Privacy concerns: Collecting and analyzing personal data requires strict data protection measures to maintain consumer trust.

Technological dependency: Reliance on AI demands ongoing updates and maintenance to ensure accuracy and relevance.

3. H&M – Implementing AI for Improved Customer Interaction

Types of Robots Used:

AI chatbots: H&M uses AI-powered chatbots to assist customers with product inquiries and deliver personalized shopping experiences.

Potential Benefits:

Improved customer service: AI chatbots provide instant responses to customer inquiries, enhancing the shopping experience and reducing wait times.

Operational efficiency: Automating customer service tasks allows human staff to focus on more complex issues, optimizing resource allocation.

Limitations:

Limited understanding: AI chatbots may struggle to interpret nuanced customer requests, leading to potential dissatisfaction.

Integration challenges: Ensuring seamless integration of AI systems with existing platforms can be technologically demanding.

4. Audi – Enhancing Customer Experience with AI-Driven Solutions

Types of Robots Used:

AI digital assistants: Audi employs AI-powered virtual assistants to provide customers with personalized vehicle recommendations and support.

Potential Benefits:

Tailored user experience: AI assistants offer customized information on vehicle features and services, increasing customer engagement.

Streamlined sales process: Automated assistance accelerates decision-making, potentially boosting sales efficiency.

Limitations:

Complexity of requests: AI assistants may not effectively handle very complex or specific customer inquiries, requiring human intervention.

User adaptation: Customers accustomed to traditional sales interactions may hesitate to engage with AI-driven systems.

A table below summarizes the findings of the research, showing which type of robot each brand implements in their marketing strategies, the potential benefits, and the associated limitations.

Table 1 Findings from research

Brand	Type of robots	Benefits	Limitations
Domino's Pizza	AI – Powered chatbots	Enhanced customer experience Operational efficiency	Technological challenges Customer acceptance
L'Oreal	AI - Powered Virtual assistants	Personalized customer engagement Data – driven insights	Data privacy concerns Technological dependence
H&M	AI chatbots	Improved Costumer Services Operational Efficiency	Limited understanding Integration challenges
Audi	AI - Powered digital assistants	Customized user experience Streamlined Sales Process	Complexity of queries User adaptation

4.1. Discussion

The growing integration of robotic technologies into the marketing strategies of Domino's Pizza, L'Oréal, H&M, and Audi demonstrates a significant shift toward automation and personalized customer engagement. This transformation is reshaping the way brands communicate with consumers and optimize their business processes. While automation opens up new opportunities, it also introduces certain challenges and risks that must be carefully managed.

Automation through robots and artificial intelligence enables marketing strategies to become more dynamic, adaptive, and based on precise data analysis. Robots—particularly in the form of chatbots, virtual assistants, and autonomous marketing systems—can deliver personalized and contextualized interactions with customers, leading to increased engagement and improved user experiences. By collecting and processing large volumes of data, these systems create predictive models that allow brands to respond proactively to consumer needs and preferences.

Moreover, automation contributes to the reduction of operational costs by eliminating repetitive tasks, allowing human capital to focus on more creative and strategic activities. However, despite these advantages, marketing strategies must be adapted to maintain authenticity and emotional connection with customers, as full automation can potentially lead to a sense of alienation among consumers.

With the advancement of artificial intelligence, robots are expected to play an even greater role in marketing, going beyond their current use as communication assistants and customer support tools. In the future, robots could be integrated into creative processes—assisting with content generation, trend analysis, and automation of multichannel marketing campaigns.

Additionally, physical robots—such as humanoid assistants and autonomous delivery devices—are already being tested as part of marketing experiences. For example, interactive robots in

retail environments can communicate directly with consumers, recognize their preferences through visual analysis, and offer personalized recommendations.

Advanced AI systems could also automate in-depth analyses of consumer segments, enabling highly accurate predictions of customer behavior and the creation of hyper-personalized marketing campaigns.

5. Conclusions

Modern marketing strategies are significantly influenced by technological advancements, with robots emerging as catalysts in the automation processes. This research explores the role of robotic technologies in transforming marketing, emphasizing their potential and limitations.

The use of robots in marketing automation enables increased efficiency, enhanced customer experience, and significant reduction in operational costs. Chatbots, humanoid robots, and automated communication systems create new opportunities for consumer interaction, where personalization and speed become key factors in boosting satisfaction and loyalty. Major global brands such as Domino's Pizza, L'Oréal, H&M, and Audi are already implementing robotic solutions to optimize their marketing processes, indicating a trend toward greater digitalization of the consumer experience. However, the research highlights several critical limitations, such as technological and financial barriers, ethical dilemmas, and the potential impact on the workforce.

To optimally utilize robots in marketing processes, companies should adopt a hybrid approach—combining robotic technologies with human oversight to maintain a high level of customer experience. It is advisable for brands to invest in adaptive AI algorithms that allow for more accurate analysis of consumer behavior and personalized marketing strategies. Additionally, the development of regulatory and ethical frameworks is necessary to ensure the security of user data and to prevent potential discrimination by algorithmic systems.

Regarding the development of ethical guidelines for the use of robots in marketing, ethical principles must be integrated into the design and implementation of automated systems. Companies should advocate for transparency in AI operations, responsible data management, and the elimination of algorithmic bias. Establishing ethical codes and regulations can help mitigate the risks associated with misuse of technology.

Future research in this field should focus on studying the long-term impact of robots on consumer behavior, as well as the development of innovative robotic solutions that can overcome current limitations. Moreover, further research is needed on the effects of marketing automation on the labor market and on opportunities for creating new forms of human-machine collaboration.

In conclusion, robots in marketing automation represent a powerful tool for transforming the industry, but their successful implementation depends on responsible management, strategic adaptation, and continuous scientific analysis of their effects on consumers and society.

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