

HOW ARTIFICIAL INTELLIGENCE-POWERED CHATBOTS INFLUENCE CUSTOMER EXPERIENCE AND LOYALTY IN TELECOMMUNICATIONS: A CASE STUDY OF MOROCCO

Rita EL GUERMAI

ORCID: <https://orcid.org/0009-0005-8304-1784>

Cadi Ayyad University, Marrakech, Morocco

Email: r.elguermai.ced@uca.ac.ma

Abdelfattah JAMAL

ORCID: <https://orcid.org/0000-0002-8118-5638>

Cadi Ayyad University, Marrakech, Morocco

Email: abdelfattah.jamal@uca.ac.ma

Bouchra BENRAISS

ORCID: <https://orcid.org/0009-0002-1087-1320>

University Sidi Mohamed Ben Abdellah, Fes, Morocco

Email: bouchra.benraiss@usmba.ac.ma

Andrada-Melania OPREA

ORCID: <https://orcid.org/0009-0009-1628-0856>

University of Craiova, Craiova, Romania

Email: mel_ennium@yahoo.com

DOI: 10.52846/MNMK.23.2.05

Abstract:

The integration of AI-based chatbots, referred to as “conversational agents,” is considered a tool that addresses various user needs, from responding to requests for information to assisting with problems or bottlenecks. Many chatbots developed by companies over recent years have incorporated Artificial Intelligence to improve communication and outcomes with users. Additionally, numerous benefits are associated with these intelligent algorithms, including automation, increased client focus, and an overall enhanced customer experience. Companies that adopt these disruptive technologies have already benefited from increased customer satisfaction, improved business efficiency, and more sophisticated marketing strategies. Given the impact of artificial intelligence on chatbots, the aim is to analyze the consequences for companies in the telecom sector, particularly in terms of marketing strategies, customer experience, and productivity in Morocco. Qualitative research, conducted through semi-structured interviews, was carried out with fifteen selected participants, including marketing managers and other key figures from Moroccan telecom companies that employ AI-powered chatbots. The findings highlight the positive changes observed in customer care and marketing optimization, particularly within the Moroccan telecommunications industry. While these tools enhance levels of personalization and streamline certain processes, the sector continues to face challenges, particularly in adapting to local linguistic and cultural contexts.

Keywords: Artificial Intelligence, Chatbots, Marketing Strategies, Telecommunications, Morocco

1. Introduction

Harbola (2021) consider that the use of email, phone calls, and other conventional methods for resolving customer problems remains relevant today, but is not entirely suited to present-day requirements. Now, businesses should focus on more automated and personalized support. More artificial intelligence is being integrated into chatbots, which represents an advancement in the marketing field. Over time, these chatbots have evolved into sophisticated machines, where artificial intelligence and algorithms that power the bots enable the machines to comprehend and analyze user requests in a contextually relevant manner (Perez-Vega et al., 2021). Artificial intelligence, understood as a set of programs, algorithms, and machines that exhibit a form of intelligence, offers a perfect way to improve these discursive interfaces between the firm and the client (Shankar, 2018; Soava et al., 2017). Considering that most interactions with chatbots are automated, they present numerous benefits over their traditional counterparts, including lower average response times and multi-tasking capabilities. Furthermore, they also present unusual solutions which enhance the customer experience. Moreover, because chatbots are available 24/7, they can assist clients at any time (Harbola, 2021).

However, chatbots are general programs, as noted by Rese et al. (2020), which can interact and hold a conversation in real-time, much like a human. For instance, Suhaili et al. (2021) claim that these bots resemble human interaction in a way because the bots provide real-time responses to specific questions.

In 2023, Sonawane et al. (2023) analyzed the engineering mechanism that enabled the creation of autonomous bots capable of making decisions, completing repetitive actions, interacting with users at high processing speeds, and answering any question as a human would. According to Sulaiman (2022), the first chatbot systems appeared in the world around the same period that computing was being developed. A notable example is Alain Turing, who created a chat system in the 1950s to test whether a person can distinguish between a human being and a machine. Since then, chatbots have undergone significant advancements, including, for example, voice technology and sentiment analysis. A breakthrough occurred in 2010 when a new category of virtual assistants was introduced into the market, including Siri, Cortana, and the well-known Alexa, which enabled nonlinear communication.

Meta (formerly known as Facebook), one of the largest companies worldwide, introduced Messenger, which enabled other companies to develop chatbots, as Sulaiman (2022) explains. Accordingly, with Adam et al. (2020), these virtual assistants are considered one of the most important assets in numerous sectors, including telecommunications, where they not only enhance customer interaction and provide service at any time of day, but also offer low costs and rapid response rates. In fact, due to technological evolution, chatbots have been able to take on even more complex functions, becoming the ideal complements to the customer service departments of many businesses.

As Adam et al. (2020) further explained, AI marketing, chatbots can convert visitors into buyers, maintain positive customer relations, handle customers effectively with minimal waiting, and enhance customer satisfaction. Personalized customer relations and web experiences increase customer loyalty and retention for businesses. However, what is the effect of blending Artificial Intelligence into

chatbots on the marketing practices, customer service, and productivity of Moroccan telecommunication companies? To answer this question, the research will examine the extent to which AI-supported chatbots have been efficient in executing automated marketing processes that reduce operational expenses.

This study aims to explore the effects that AI-based chatbots have had on the telecommunications marketing strategies and customer experience, particularly in Morocco. The qualitative data obtained from semi-structured interviews with marketing managers, customer experience managers, and other key executives of Moroccan companies help focus the research on the opportunities and obstacles presented by these changes. The primary objective of this research is to determine the role of artificial intelligence in chatbots and its impact on the marketing strategies of Moroccan telecommunications companies. Furthermore, this research aims to understand how AI chatbots perform routine tasks and provide personalized experiences for clients, thereby enhancing customer contact and satisfaction. It is also necessary to assess the costs and efforts associated with utilizing AI chatbots in terms of their effectiveness. The research aims to identify the opportunities and difficulties associated with the Moroccan telecommunications sector. This involves analyzing the language barriers that arise from the emerging use of Moroccan dialect, also known as Darija, as well as other factors, such as technological and cultural barriers, that affect customers' preparedness. Another important objective is to develop effective marketing strategies for AI chatbots, particularly in analyzing customer behavior and improving customer retention rates. As such, accomplishing these objectives will yield valuable findings and suggestions for Moroccan firms that plan to incorporate AI tools into their marketing strategies, given the prevailing situation in the country (Burlea-Schiopoiu and Znagui, 2024). The purpose of this paper is to analyze in depth how these advancements in technology enhance advertising effectiveness, improve client interaction with the business, and increase overall customer satisfaction. Different technological questions, with practice within their context, will also be provided, along with an explanation of how they enhance the competitive edge in the sector and shape the direction of marketing in the industry. The results align with the participants' comments, which noted ease of use and perceived usefulness as factors influencing the adoption of chatbots, as highlighted in the Technology Acceptance Model (TAM). Moreover, the fact that chatbots can respond to questions raised by clients further increases their satisfaction, which aligns with the SERVQUAL model regarding responsive service.

2. Literature Review

2.1. Artificial Intelligence in Chatbots: Foundations and Technologies

The advancement of artificial intelligence, from its introduction in the 1950s to its present-day applications, is revolutionary, both in terms of technological innovation and economic transformation (Charlin, 2017). In the past, artificial intelligence was primarily used in scientific research and confined to laboratories a decade or so ago; now it has gradually expanded into most business areas, such as marketing and customer care (Pélissier, 2021). In particular, the incorporation of noetic capabilities, such as machine learning, into process operations is a significant development, as it enhances the automation of the linkage between business and the client (Andrade and Tumelero, 2022).

Such views become increasingly alarming as people become more enticed by the internet. For this reason, enterprises shouldn't hesitate to operate in a virtual space and deliver their services to clients at any time and from any location, as needed (Maroengsit et al., 2019). It has also been noted by Albarq (2024) that another factor equally critical to the company's performance and existence is customer satisfaction. It is a key factor in fostering long-term relationships. Thus, it is clear that the key to companies seeking a competitive advantage lies in customer satisfaction. This is because customer satisfaction is inextricably tied to customer retention, which occurs when those customers are delighted with what the company has to offer (Villacis et al., 2024). One of the most relevant strategies nowadays has been incorporating online communication into the customer experience. Nevertheless, the extent to which contact with customers is automated and how employees interact with customers are noted to be important factors in minimizing customer turnover (McLean and Wilson, 2016).

Nonetheless, according to Aktas (2024) and El Guermai et al. (2026), the application of AI has helped enhance customer relationships, develop internal processes, and target specific customers with appropriate offers. For modern-day business, AI combined with chatbot technology is essential. Such tools indeed appear relatively new; however, functionally, they are pretty mature in their roles, which are communication and quick answers. However, their true power is revealed when they are driven by artificial intelligence, enabling them to significantly enhance their performance and understanding, as well as manage customer and potential customer requests (Hsu and Yu, 2022; Sophia and Jacob, 2021). Such programs allow users to easily engage in diverse types of communication by creating different forms of dialogue within different settings in their native languages (Hsu and Yu, 2022).

The view held by Boguda and Shailaja (2019) is that AI-enabled chatbots have offered new opportunities in this era. This is because, with increasing competition in the business landscape, organizations have been able to raise the level of services they offer, automate their processes, and perform many other activities. Precisely, it is the transformation around the enterprise's ambition to utilize such virtual agents to enhance the quality and efficiency of communication and customer business relations. As Shanke et al. (2021) point out, chatbots are deployed to control customer communication processes, perform various actions, make individualized suggestions, and facilitate intra-company Communication. With embedded artificial intelligence, chatbots provide numerous advantages for businesses. In relation to the benefits of employing chatbots for clients in their companies, customer care agents remain online throughout the day, allowing customers to pose queries at any time. This approach reduces costs while continuously enhancing the customer's relationship during the interaction (Bachhav et al., 2024). According to Doret (2017), some of these benefits relate to reducing the amount of chat that people have to do, as the interaction's backend is more or less fully automated by chatbots, thus improving the business in terms of tasks that do not require manual labor.

When creating a chatbot, it's necessary to develop artificial intelligence components and implement natural language processing technologies. These strategies are used to identify and interpret requests. This is where the reinforcement learning, supervised learning and unsupervised learning techniques

of these systems come into play. It is claimed that these techniques enhance performance and the probability of improving the methods (Harbola, 2021).

Current chatbots are composed of three significant elements, which include ML, DL, and Natural Language Processing (NLP). These three components are essential for the development of these personal workers Cazals and Cazals, 2020).

Machine learning is a component in the development of chatbots (Tebekov and Prokhorov, 2021). In the field of computer science, machine learning is recognized as one of the branches that enables a computer to independently acquire knowledge, rather than being explicitly taught. The following is a method that they can employ to 'learn': Harvest information from data. Thanks to these sophisticated algorithms, chatbots can update their replies in accordance with the history of communication with users. According to Sulaiman (2022), machine learning algorithms enhance the efficiency of data prediction and also enable the system to avoid the strict learning of programmatic details.

Therefore, over time, due to this systematic progressive adaptation, interactions with robots become more efficient, modern, and responsive to users' requirements and needs (De Lièvre et al., 2019).

The concept of Deep Learning, a branch of Artificial Intelligence, has enabled chatbots to process textual and conversational information to a new level. As Velankar et al. (2024) explained: "Deep Learning provides a rich analysis and comprehensive understanding of the users' natural language by using deep neural networks". This method enables chatbots to recognize the sophisticated and nuanced aspects of conversations, thereby enhancing their ability to provide tailored responses to each user (Velankar et al., 2024).

As for natural language processing, there is no doubt that it is the key to the relationship between users and automated messaging systems. Natural language processing can be defined as a branch of artificial intelligence that deals with the analysis and creation of language. According to Rathod (2024), this is a relevant factor for the systems discussed, as this technology enables chatbots to gauge the user's purpose and mood based on their language.

Additionally, Rathod (2024) reported that we are referring to the use of text mining techniques, such as tokenization, lemmatization, named entity recognition, and language modelling, which help analyze and process user messages and respond more naturally. It is a method that enables the 'machine' or 'robot', if you prefer to call it that, to acquire knowledge and comprehend human language. Sulaiman (2022) claims that speaking a few words is only one aspect of a conversation. To skillfully operate any Natural Language Conversation Systems, one should grasp the comprehension of all contextual speech segments.

2.2. Benefits of Integrating Artificial Intelligence in Chatbots

Many monotonous and repetitive tasks can be performed effortlessly with the aid of AI tools. Huang and Rust (2020) further observe that AI-powered chatbots can address some of the client's repetitive queries, target potential customers and even extend personalization depending on each client's needs. AI powered chatbots seem to be providing various solutions in response to the increasing need for customer support as well as efficient business process management during the era of digital transformation (Sonawane et al., 2023). These Artificial Intelligence bots are capable of analyzing vast amounts of information and employing machine learning algorithms to determine their clients' needs, then making suitable recommendations. This strategy is beneficial in enhancing customer satisfaction

and increasing conversion rates (Huang and Rust, 2020). Chatbots that are proactive, responsive, and active during every stage of the client's buying journey maintain a high level of customer satisfaction and establish trust, paving the way for repeat purchases. Customers no longer have to wait long to be assisted, as virtual agents are available to address any inquiries they may have.

This heightens the level of satisfaction for users regarding the responsiveness of customers as well as their needs (Sonawane et al., 2023). The response and availability are, however, relatively high in this case, considering that AI chatbots can be accessed at any hour during the day or night. Huang and Rust (2020) conclude that customers also integrate chatbots as a means to help companies retain customers and maintain positive brand equity.

Marketing and sales personnel have been regarded as an asset to companies, as they incur minimal support costs and their future earnings potential is viewed as positive (Huang and Rust, 2020). According to Sonawane et al. (2023), automated chat support tools, such as chatbots, save a significant amount of time and resources by fulfilling simple customer requests, thereby enabling other departments to perform more complex and revenue-generating functions. This results in significant cost savings for the organization in operational expenses.

3. Methodology of research

3.1. Recruitment, participants, and ethical considerations:

The participants in this interview are employees of a Moroccan telecommunications company.

Recruitment and participation followed relevant ethical protocols of ethics. Data were collected from voluntary participants, with informed consent obtained prior to the survey through an introductory statement that described the study's aim, its procedures, and the anonymity of responses, emphasizing respect, data protection, and transparency. All necessary measures were taken to ensure that the research does not involve the collection of sensitive personal information or data that could be used to identify volunteers.

3.2. Data collection

To investigate the impact of AI chatbots on customer experience in the telecommunications sector, we collected data from a total of 15 respondents, including interview data from both in-person and Microsoft Teams sessions. The sample size is commonly deemed sufficient for thematic analysis and theory development. Table 1

The position of interviewees we selected is mainly senior executives (such as the COO and CIO), department managers (marketing, customer experience, and data science), project leads (including chatbot and digital project managers), and marketing managers, since they were the stakeholders of the AI chatbot service in organizations.

The interviewees were chosen based on three purposeful criteria. Participants were expected to:

1. Participate in the deployment or management of AI-powered chatbots in their department.
2. Be in a decision-making or strategic role within the telecommunications organization.

3. Have relevant experience in customer experience, digital innovation, or AI integration.

Table 1. Participant information

N°	Participant	Age	Education	Gender	Position
1	Informant A	46	Master	Female	Senior Marketing Manager
2	Informant B	46	Master + MBA	Male	Marketing Director
3	Informant C	29	Master	Male	Business Strategy Manager
4	Informant D	26	Master	Male	Chatbot Project Manager
5	Informant E	37	Master + MBA	Male	Strategic Marketing Officer
6	Informant F	45	Engineering Master + MBA	Male	DATA & AI Specialist
7	Informant G	34	Engineering Master + PhD	Male	Lead Data & IA Scientist
8	Informant H	42	Master	Male	DATA & AI Specialist
9	Informant I	33	Engineering + Master	Male	Digital Project Manager
10	Informant J	53	Engineering	Male	Chief Information Officer
11	Informant K	57	Engineering	Male	Chief Operating Officer
12	Informant L	32	Master	Female	Chatbot Project Manager
13	Informant M	39	Master	Female	Head of Customer Service
14	Informant N	44	Master	Female	Senior Marketing Manager
15	Informant O	51	Master + MBA	Male	Customer Experience Director

Source: Authors

The data collection lasted between 15 March and 29 April 2025.

Semi-structured interviews were employed, based on the theoretical framework developed, thereby ensuring the achievement of the research hypotheses. The interviews were designed to be relatively unstructured, allowing participants to express their views and opinions comprehensively. Semi-structured interviews were conducted to address specific themes, including engagement with chatbots, the methods used for engagement, the outcomes of engagement within the chatbots, and the issues that arose from the engagement. This method helped with flexibility in responses while ensuring consistency across interviews. We devised a strategy targeting participants, with a preference for Moroccan corporate marketing specialists, primarily in the areas of customer care and technological advancement within the telecommunications industry.

The participants in this study consisted of fifteen individuals, including marketing managers and other key specialists in chatbot technologies within the telecommunications sector. The diversity of objects of investigation was a relevant

element in ensuring that all stakeholders' views were adequately captured. By selecting the marketing departments of different telecommunications operators in Morocco as our unit of analysis and linking our methodology to the research questions, we expect to provide relevant details and concrete propositions. Through this qualitative methodological strategy, we aim to gain a deeper understanding of the impact of artificial intelligence on marketing strategies, while also assisting Moroccan enterprises in fully leveraging the integration of this technology to operate efficiently in an ever-changing business environment.

Confidentiality and anonymity were ensured, and participants were informed about the purpose of the research, thereby ensuring adherence to the ethical considerations of this study. Regarding internal validity, it was enhanced through peer review and member checking. Document review, supplemented with interview perspectives, was used to validate the information. Thematic coding was employed to identify recurring themes and patterns, and inter-coder agreement was sought in further analysis. Diversity in the composition of the participants was very important so that every stakeholder's viewpoint was considered. This form of inquiry clearly allows for more in-depth analysis of the strategies employed and the nature of customer engagement with AI.

4. Results and discussion

4.1. Artificial Intelligence in Marketing Communication Skills in Telecommunication Companies

According to some responses from the interview, it can be assumed that employing chatbots or automated systems for customer care and support has transformed the marketing approaches of most Moroccan businesses, particularly those in the telecom sector.

The engaging nature of the chatbots reduced the number of contacts made by customers while simultaneously improving customer service by eliminating the monotony of carrying out repetitive tasks. In this case, AI-enabled chatbots can be regarded as basic chatbots that target the resolution of frequently asked questions and complaints, as well as payments, thereby lessening the burden on customer service staff. It follows, therefore, that time-consuming and costly workforce resources can be spent more wisely by focusing on the more straightforward basic areas, such as problem-solving and serving critical clients (Idowu et al., 2017). Due to this overlap of functions, the amount of work necessary was decreased; certain firms also lost several hundred thousand euros each year. These issues are eliminated with AI chatbots because customers can contact the company at any time, from any location, as it is available twenty-four hours a day, seven days a week.

Another exciting technological advancement is that a chatbot can increase the waiting time of a client by at least 15 seconds. This is a good commentary on people's attitudes towards waiting: they know what they want and demand it immediately. However, encouraging to note that this is where AI systems have been able to come in with effective methods of resolving disputes. Consequently, customers who previously complained about system breakdowns and the resulting unavailability of services are now pleased that they no longer need to wait for human agents to attend to them. On the other hand, the receptionist is assisted by chatbots, allowing businesses to close or customers to go without important

requests/clocks. As a result, customers who are tired of waiting for the right time to speak with a sales representative during busy hours can now use the chat context, even before its launch.

Besides handling routine tasks, intelligent artificial intelligence, specifically chatbots based on AI, also requires customer relationship management. Among the many advantages offered by AI-powered chatbots, one of the most distinguishing is the ability to utilize a vast amount of data, making interactions more specific. Information collected about past interactions with customers, their preferences, and actions helps the chatbot provide relevant responses to the target customer. Such a high level of engagement definitely enhances customer involvement, as it allows for a more tailored and interactive context for every communication with the customer. As a result, customers feel appreciated and understood, and the chances of retaining them, earning their loyalty, and encouraging them to return increase.

The chatbots powered by AI have been built with fully equipped machine learning capabilities, allowing them to replicate their performance in the future. The marketing strategy relies heavily on the chatbots' ability to learn from customer interactions, thereby improving their future responses. This feedback loop ensures that each time the chatbots' artificial intelligence systems evolve, they can address more challenging questions and provide more precise answers in the appropriate context. Many of the interviewees expressed the opinion that a significant asset of AI is precisely the ability to *improve with experience*, which enables chatbots to be significantly more flexible and adaptable to changing customer demands and expectations. This potential is beneficial in a market situation where changes in customer preferences and behavior occur rapidly.

It is also important to consider the aspect of client chat prediction through bots in the discussion. These are algorithms for automating AI that can analyze customers' behavior and understand when a customer is likely to become dissatisfied and churn. For instance, predictive models help identify and target clients who are most likely to churn, allowing the company to step in early and attempt to win them back. This will enable companies to produce solutions for such clients before they decide to leave. It also helps in predicting the buying behavior of clients, allowing businesses to make informed decisions about resource allocation and marketing strategies.

It can be stated that customers can be better segmented for marketing purposes with the help of AI chatbots as part of marketing strategies. Using the data collected from the interactions with the may chatbots, refine companies' efforts based on the data and enhance the results of their marketing campaigns. Some have pointed out that AI-based segmentation is not only about splitting people into groups based on their age, gender, location, etc.

However, there are issues related to the use of artificial intelligence chatbots, primarily in the language aspect. In the American context, for example, most AI chatbots in use today are designed only for the English, French, and Classical Arabic languages, among other universal languages. However, for the Moroccans, this is not the case, as most of them use Darija as their dominant dialect. The ability to speak and understand Darija in a deployable AI remains a significant challenge for most companies. The commonplace concepts involve different phraseology, spelling, and idiomatic expressions which most standard AI models were not built to solve. As several of the interviewees pointed out, addressing this

linguistic issue should be the next priority to enable the development of more AI-driven chatbots in Morocco.

To provide better access to their services, businesses should invest in acquiring technologies that enable the development of artificial intelligence mechanisms. These mechanisms will not only understand Darija but also engage with customers naturally and smoothly. This implies that the AI models must be trained on datasets that contain inputs in the Darija Language, and the NLP techniques must be fine-tuned in a way that addresses the issue of dialect. If this is not done, a significant portion of the Moroccan population will be unable to interact with the AI chatbots, rendering them ineffective. For this reason, artificial intelligence chatbots should adapt to the prevailing conditions, even if it is only a matter of language. As far as the language technology of chatbots is concerned, it is only one of the angles, since it is necessary to define the cultural factors and the customer's expectations regarding Morocco's inclusion in the conversations as much as needed. It was pointed out that, as an example of the desired responses, the Moroccan clients should be normalized in terms of cultural expectations regarding respectful interaction with AI chatbots. This means that the peripheral structures of communication must be elaborated to include the cultures and the markets of Morocco.

AI chatbots have become an integral part of the marketing and customer relations management approaches of Moroccan firms, changing the way communication is managed. Virtual conversational assistants have a positive impact, as they reduce costs, improve operational efficiency, and offer better service through faster and more tailored responses to clients' needs, among other benefits. They utilize it extensively in predictive analytics, enabling businesses to tailor their marketing and customer relations strategies to align with their clients' behavior. However, to realize the potential offered by AI chatbots, certain issues related to language and culture with a contextual aspect must be addressed. In the Moroccan context, these agents need to match the target market. As more companies implement artificial intelligence in their businesses, it will be important to address the challenges that arise in the future, particularly in enhancing customer experience in Morocco through the use of artificial intelligence.

4.2. Assessment of Automation, Customization, and Improved Customer Experience Benefits: Perspective of the Users

Based on the responses provided during the interviews, the integration of AI into chatbots is viewed as a positive trend. Nevertheless, several factors inhibit their greater utilization. The experts are quite emphatic that there is a genuine resolve to invest in these technologies to enhance customer satisfaction while streamlining marketing operations. Chatbots present managers with new, business and cost-effective methods of servicing customers and quickly addressing their requirements. However, they also point out the challenges, which include the regular upskilling of staff to meet business disruptions resulting from innovative technological changes and the implementation of practical solutions that suit the business's specific requirements and geographical needs.

Marketing and customer experience specialists appreciate the power and capabilities that come with artificial intelligence, but also note some cautions that need to be put in place. It is relevant to emphasize the imperativeness of data security and protection. One of the interviewees understood the importance of protecting data and educating staff on the associated risks. It is also important that

organizations implement necessary measures to mitigate the risks of data leaks and cyberattacks. There is also a need to modify the regional granularity of these bots, such as Moroccan Darija, because the existing solutions can't cover the regional peculiarities, which would affect their efficiency. This issue is not only related to the Moroccan market, but also to all countries with populations that use dialects instead of languages, such as the Maghreb countries, Middle Eastern countries, and African countries. This peculiarity should be kept in mind for those firms that want to introduce chatbots in different regions, where particular or dialectal usage is approached instead of standard languages.

It makes sense to recognize that training employees to be part of this changing movement, rather than being a change agent, is equally important. It helps not only marketers but also all professionals to appreciate and capitalize on the opportunities presented by artificial intelligence. Therefore, training is necessary to minimize errors and maximize the benefits from these artificial intelligence tools during their integration. While it is understood that AI will save costs through increased automation, it is also expected to augment revenue, for example, by enhancing customer journeys and improving the ease of transactions, such as buying goods online or paying bills, as well as other services with revenue goals.

The marketers, for their part, understand that artificial intelligence is assuming a more central role in their strategies, and the integration of AI is now more of a necessity than an option (Bhattacharya et al., 2023). Companies should look forward to investing in setting up Artificial Intelligence, providing necessary technological training to employees and optimizing such capabilities through adequate training and practical exercises. There are many best practice examples across the globe that can serve as a good starting point for integrating this in Morocco. Fear of change, uncertainty about which technological solutions to use, and data security risks are among the other barriers to incorporating AI.

To provide a distinctive offering to customers, the interviewed experts emphasized the importance of predicting customer needs by understanding their expectations and preferences. There are opportunities to enhance customer service and reduce costs by integrating AI into chatbots, which can improve interaction management and enhance the overall customer experience. The experts interviewed all endorse the view that, in principle, there is a need for ethical concerns and fair treatment of clients regarding personal information, which is used in accordance with applicable laws and guidelines. Today, it is vitally important to secure the trust of clients and strengthen the protection of such information. Today, businesses owe it to their clients to be transparent and safeguard their private details.

The use of artificial intelligence is viewed as a way to advance and fulfil the growing, complex customer expectations. Still, it requires cooperation with other organizations and internal changes to be fully leveraged. In them, artificial intelligence is identified as an opportunity to transform the approach to digitalization and enhance the customer experience. However, they are aware of the challenges that accompany the change process, including the need to shift mindsets and train employees, as well as concerns about data security. There are issues with data ownership, protection and the 'bias' of the algorithms, for instance. In other words, change must be welcomed, and people should be trained on how to incorporate artificial intelligence into the companies' strategies. Therefore, marketers in Morocco have come to appreciate how AI can enhance the customer

journey and have identified the opportunities it presents for improving customer segmentation and personalizing the customer experience.

4.3. Effects on Moroccan Firms

4.3.1. Marketing Approaches with the Implementation of Artificial Intelligence in Chatbots

Based on the above findings, it can be stated that the use of AI technology, specifically chatbots, is expected to transform the marketing strategies of Moroccan companies as follows: The application of intelligent systems has created possibilities, primarily in the handling and application of large volumes of disorganized customer data. There was a time when companies collected data on market demand patterns, customer behaviors, and their transitions along the life cycle. However, this information was not utilized predominantly because it was almost impossible to analyze such massive datasets manually.

Artificial intelligence has revolutionized this. Thanks to both computing power and Data Processing capabilities, AI's amazing technologies can now analyze that data too, and many can successfully extract heretofore buried data patterns and uncover them. Because of her newly acquired skills, organizations can enhance their customers' appreciation of her and communicate more effectively with them. Such actions will not only boost CSATs but also strengthen customer retention.

One of the key advantages of these agents in marketing is the ability to expand segmentation. To put it simply, it is no longer enough for companies to know the demographic characteristics of their customers. AI-based solutions enable businesses to understand not only what kind of offer would work, but also with whom and who is likely to consider the various offers. Therefore, since customers' preferences for AI and chatbots can help identify the correct targets for marketing strategies, they can be leveraged. This segmented approach not only increases the probability of a sale being made but also increases the marketing return on investment by reaching only the right customers.

The interviews further indicated that the marketing activities of the companies have been revolutionized through the use of artificial intelligence chatbots, which can automate repetitive functions once they are programmed. These chatbots can perform various functions, including but not limited to responding to client questions through chats and suggesting goods or services based on previous recommendations or purchases made. This automation not only boosts the effectiveness of marketing teams but also relieves an immense amount of workload, allowing them to focus on more important managerial tasks.

To demonstrate this issue, one of the marketing directors replied that marketing teams with the application of AI chatbots did not use a lot of time on the same routine actions and instead spent the time on creating campaigns, strategizing and doing analysis of the data obtained, which in the end positively affected the quality and efficiency of the marketing activities of the company. This shift of resources enables marketers to focus their attention on activities that contribute high value to the company, thereby further enhancing growth.

Duly noted, but still, the respondents mentioned during the interviews the AI's ability to target customers by sending them messages at the right time. In this way, chatbots, with the help of artificial intelligence, have the potential to send instant offers that are of interest to customers and respond to their questions about these offers. As a couple of entities asserted, AI-based chatbots were used to advertise products to customers who had previously interacted with them through views and purchases. The

combination of these interaction ratios makes customers feel more valued, thereby deepening their relationships with the company. Furthermore, as part of an active engagement model where bots may suggest or assist customers at relevant points in time, these bots are also likely to help strengthen customer interactions.

Yet, the interviews showed that clients would adopt the technology where there is a perfect balance of culture within the organization, and AI chatbots offer some value. Some of the interview participants commented on the necessity to be more focused on the problems of customer relationships. For example, it is necessary to describe to customers the connection between data and AI, and how exactly AI helps them. Some AI-powered services can automatically shape the perception of the organization by providing more relevant recommendations, faster delivery, and more suitable product offers, helping society accept the use of AI without significant concerns about data protection. Because the clients feel that their sensitive information is protected and that AI will be used to enhance the experience, they are willing to utilize such services.

The introduction of artificial intelligence chatbots in the delivery aspect of the company's services and operations process requires companies to maintain optimal proportions between automation and human interactivity. It is acknowledged that while machine learning is beneficial for performing monotonous tasks, in some cases, a qualified specialist is needed, most often for resolving complicated or delicate situations with customers. All the interviewees mentioned that clients value the specific approach, especially in situations where there is a need for understanding or so-called 'softer' solutions. Therefore, there is an opportunity for companies to integrate AI chatbots effectively, ensuring that customers can seamlessly transition from automated services to human interaction. This hybrid system is the best of both worlds; therefore, routine requests are handled by artificial intelligence, while people handle more complex and customized needs. In this case, clients benefit from machine-assisted services and the comfort of human interaction.

A third theme that resonated with many participants was ensuring that AI-powered chatbots are relevant across the broader business context and in line with customer expectations. The introduction of artificial intelligence chatbots should not be treated as an independent venture, but rather as part of a wider marketing and customer relations strategy of the business. It is only when companies define measurable purposes for artificial intelligence that they effectively embed it into their marketing strategies. These purposes might include, for instance, increasing customer loyalty, boosting average order value through targeted recommendations, or reducing operational costs with automation. When artificial intelligence capabilities of chatbot technology are integrated with a company's overall business aims and objectives, the company stands to gain the most from investing in the technology.

In this case, with the help of chatbots, an enterprise can remain agile and responsive to changes in the environment and evolving customer expectations. The more data these chatbots can collect and analyze, the better their business becomes, as it grows. The next move they make and how they handle it are necessary for these businesses to remain competitive in the market, while also offering good services to customers.

Several interviewees emphasized that this flexibility is particularly relevant for Morocco's telecommunications market, as the current situation differs from what it

was in the past. AI chatbots enable companies to be proactive and agile in meeting customers' needs, thereby bringing back a competitive edge.

According to the research, the adoption of AI chatbots will accelerate Moroccan businesses' ability to connect with customers, optimize processes, and enhance marketing efficiency. The use of artificial intelligence in the form of off-the-shelf cameras to scan large volumes of text, as well as greater customer mass segmentation assisted by AI algorithms, and increased standardization of processes, is already yielding positive results in terms of the efficiency gained and the level of customer satisfaction achieved. At the same time, to fully leverage the potential of artificial intelligence chatbots, companies must be cautious in setting goals, provide clear answers to their clients, and strike a balance between technology and human interaction. This will enable the company to deliver more targeted, though automated messages while contributing to overall business growth.

4.3.2. Improving Customer Satisfaction and Performance Ratios

When we utilize artificial intelligence in chatbots, several advantages become available to customers. The following are the benefits of chatbots: First, these chatbots can handle multiple requests simultaneously, thereby reducing customer waiting time. Due to this ability, waiting time is decreased, and customers are always attended to swiftly. AI-powered chatbots help build effective customer satisfaction by providing better and more appropriate answers to customers' needs. This means the bots can provide customers with accurate information by understanding their requests and accessing relevant data from their accounts, thereby enhancing the relationship. Therefore, integrating artificial intelligence into chatbots enhances their effectiveness. They improve customer understanding by automating repetitive tasks and concentrating on higher-value strategic goals, which boosts the company's overall productivity. In summary, bots' free teams from routine work, enabling them to focus on creative processes that are essential for the company's future growth.

By performing mechanical operations, agents can also manage more complex and high-value interactions, thereby improving efficiency. Ultimately, artificial intelligence can significantly enhance customer satisfaction and, consequently, revenues.

It has been established that all these objectives are necessary in the integration of AI and can help businesses effectively address customer needs. It certainly has the potential to increase the competitiveness of firms willing to incorporate the technology. It offers the opportunity to enhance internal processes and improve a company's performance, especially in the area of customer relations. The purpose of adopting artificial intelligence is to enhance the customer experience by providing faster and more tailored digital solutions and to boost team efficiency through task automation.

4.3.3. Data-Driven Decision Making

The strategies to consider include implementing these technologies, as any company aiming to grow in the coming years and adapt to the latest trends in the global marketplace should integrate them into its plans. Therefore, they must take into account the following:

It is necessary to ensure that employees are educated and informed about innovative technologies, such as chatbots, so that they can utilize these technologies effectively in their work. They need to be trained on both the technologies and the associated risks. When it comes to AI, companies must effectively integrate it into their marketing and operational strategies. This can also

provide companies with the essential experience and tools to develop new techniques that evolve in tandem with emerging technologies (Burlea-Schiopoiu et al., 2023). In the competition for available market space, the findings of this paper also emphasize the importance of operations and product or service innovations. Consequently, they can become self-sustaining within the market by meeting changing customer demands and capitalizing on business opportunities created by new technologies.

Technological advancement is a key way for businesses to grow and fulfil their operational objectives, and AI chatbots are one of the tools that can enhance customer satisfaction and increase revenues. There are indeed several control limits in place, which include managing risk and ensuring accurate data security measures. Many trends are likely to change how companies operate, and AI chatbots are a prime example of this. In so doing, this is, in many cases, also what is entailed: this can be achieved in the following ways: Ensuring proper understanding among the employees about the need for data protection and compliance with most data protection measures. Several respondents emphasized the need to integrate chatbot analytics with CRM software to provide comprehensive 360-degree analytics coverage for the customer journey. In any case, there are dangers associated with the accuracy and interpretation of data, which means that AI models will require constant supervision and improvement.

Another important factor is effective interaction with customers to build confidence in the artificial intelligence interface. This also relates to hiring the right individuals to present artificial intelligence and equipping staff with the necessary skills to tackle technical challenges. Some of these challenges include data security and change management, especially in this context (Sghari et al., 2019).

AI tools enable companies to integrate this technology into their business operations, enhancing their capabilities through partnerships and collaborations with specialized entities, thereby staying competitive in the Moroccan market. Moreover, businesses need to understand how to meet the changing customer demands with the strategic use of AI, which is necessary for their long-term sustainability.

5. Conclusions

AI-powered chatbots have been implemented to handle customer requests, customize offers, and manage complaints. Not only has this automation reduced operational costs, but it has also provided an opportunity for more strategic marketing initiatives. Chatbots are used to answer customers' queries promptly and accurately via various channels, including websites, WhatsApp, and Messenger. As for the perceived benefits, humans perform mundane and routine tasks, while they can solve complex and high-value problems. They are equipped with state-of-the-art NLU (Natural Language Understanding) and NLG (Natural Language Generation) capabilities, which enable them to provide personalized responses based on customers' profiles and their previous behavior. Additionally, chatbots are available 24/7, which enhances customer satisfaction by reducing response times.

It will also continue to improve its chatbots through advances in artificial intelligence, particularly in natural language understanding and generation. The addition of new features, such as voice recognition and multimodal responses, may also enhance the customer experience. This is because, as issues related to data privacy arise, telecommunications companies will need to make increasingly

significant investments in security and meet or even surpass the new norms and standards. Furthermore, future research should focus on enhancing chatbots' ability to process and humanize their language, while also addressing specific dialects and cultural nuances.

Further research should be conducted to increase the sample size, develop more detailed theoretical frameworks, and include both qualitative and quantitative data to strengthen the study. Additionally, it would be prudent for businesses to allocate resources towards developing AI chatbots that focus on monolingual and cultural relevance to improve their receptiveness and satisfaction. It will also be essential to undertake longitudinal studies to examine how the integration of Artificial Intelligence in chatbots affects customer satisfaction, loyalty, and the company's overall financial performance. Moreover, exploring how technologies such as augmented reality (AR) and virtual reality (VR) can be combined with chatbots to create engaging customer experiences would be beneficial for gaining more in-depth insights.

It is also important to identify how employees can be trained in the use of Artificial Intelligence technologies, as well as raise awareness about the proper use of the technology to prevent misuse.

REFERENCES

- Adam, M., Wessel, M., Benlian, A. 2020. AI-based chatbots in customer service and their effects on user compliance. *Electronic Markets*, 31(2), 427445. <https://doi.org/10.1007/s12525-020-00414-7>
- Aktas, B. 2024. Data-Driven Decision Support Systems for Business Process Improvement. *American Journal of Business and Operations Research*, 11(1), 7988. <https://doi.org/10.54216/ajbor.110109>
- Albarq, A. N. 2024. Mobile services sector in Saudi Arabia: A systematic literature review of the effective strategies for enhancing customer satisfaction. *International Journal of Data and Network Science*, 8(1), 585596. <https://doi.org/10.5267/j.ijdns.2023.8.026>
- Andrade, I. M., Tumelero, C. 2022. Increasing customer service efficiency through artificial intelligence chatbot. *Revista de Gestao*, 29(3), 238-251. <https://doi.org/10.1108/REGE-07-2021-0120>
- Bachhav, G., Teke, D., Patel, J., Ghutukade, V., Singh, A. 2024. PDF Reader Chatbot. *International Journal for Research in Applied Science and Engineering Technology*, 12(4), 933937. <https://doi.org/10.22214/ijra-set.2024.59905>
- Bhattacharya, A., Dutta, S., Krit, S., Lai, W.C., Azzaoui, N., Burlea-Schiopoiu, A. 2023. A Stacking Ensemble Framework for Android Malware Prediction. In: Dutta, P., Chakrabarti, S., Bhattacharya, A., Dutta, S., Piuri, V. (eds) *Emerging Technologies in Data Mining and Information Security. Lecture Notes in Networks and Systems*, vol 491. Springer, Singapore. https://doi.org/10.1007/978-981-19-4193-1_7
- Boguda, S. K., Shailaja, A. 2019. The Future of Customer Experience in the Information Age of Artificial Intelligence - Get Ready for Change. *International*

- Journal of Engineering Research and Technology*, V8 (06).
<https://doi.org/10.17577/ijertv8is060622>
- Burlea-Schiopoiu, A., Popovici, N., Panait, N.G. 2023. Metaverse Acceptance by the Accounting Community as a Premise of Sustainable Behavior. *Systems*, 11(12):560. <https://doi.org/10.3390/systems11120560>
- Burlea-Schiopoiu, A., Znagui, Z. 2024. Knowledge Production in a Territorial Network of Organizations: Identifying the Determinants in the Case of Moroccan Technopole. *Administrative Sciences*. 14(3):43. <https://doi.org/10.3390/admsci14030043>
- Cazals, F. Cazals, C. 2020. Chapitre 8. Des ChatBots et des hommes. Dans: F. Cazals & C. Cazals (Dir), *Intelligence artificielle: L'intelligence amplifiée par la technologie* (pp. 147-166). Louvain-la-Neuve: De Boeck Supérieur.
- Charlin, L. 2017. Intelligence artificielle: une mine d'or pour les entreprises. *Gestion*, 42, 76-79. <https://doi.org/10.3917/riges.421.0076>
- De Lièvre, B., Temperman, G., Di Emidio, S. 2019. Intelligence artificielle & Éducation: Quelle complémentarité? ResearchGate. https://www.researchgate.net/publication/338357413_Intelligence_artificielle_Education_Quelle_complementarite
- Diouf, F. M., Marone, R. M. N. 2024. Conception d'un « chatbot » pour soutenir les services d'information. In *les bibliothèques universitaires*. Hal. Science. <https://doi.org/10.34874/IMIST.PRSM/jis-v22i2.41192>
- Doret, J. (2017, 20 septembre). Mémoire sur les chatbots [Diapositives]. SlideShare. <https://fr.slideshare.net/slideshow/mmoire-sur-les-chatbots/79974202>
- El Guermai, R., Jamal, A., Aissaoui, K. 2026. Exploring Explainable AI Transparency In Managerial Decision-Making: A Multi-Sectoral Analysis Of Organizational Trust In Morocco. In *Transparency In Ai-Assisted Management Decisions* (pp. 45-78). IGI Global Scientific Publishing. <https://doi.org/10.401-8/979-8-3373-1737-3.ch002>
- Harbola, A. 2021. Design and Implementation of an AI Chatbot for Customer Service. *The Philippine Statistician* (Quezon City), 70(2), 12951303. <https://doi.org/10.17762/msea.v70i2.2321>
- Huseynov, F. 2023. Chatbots in Digital Marketing. In *Advances in marketing, customer relationship management, and e-services book series* (p. 4672). <https://doi.org/10.4018/978-1-6684-7735-9.ch003>
- Huang, M., Rust, R. T. 2020. A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49(1), 3050. <https://doi.org/10.1007/s11747-020-00749-9>
- Hsu, I., Yu, J. 2022. A medical Chatbot using machine learning and natural language understanding. *Multimedia Tools and Applications*, 81(17), 2377723799. <https://doi.org/10.1007/s11042-022-12820-4>
- Idowu, S., Burlea-Schiopoiu, A., Vertigas, St. 2017. Corporate Social Responsibility in Times of Crisis: A Summary, in: Samuel O. Idowu & Stephen Vertigans & Adriana Schiopoiu Burlea (ed.), *CSR, Sustainability, Ethics & Governance*,

- Corporate Social Responsibility in Times of Crisis, Springer. pp. 154-196. 10.1007/978-3-319-52839-7
- Maroengsit, W., Piyakulpinyo, T., Phonyiam, K., Pongnumkul, S., Chaovalit, P., Theeramunkong, T. 2019, March. A survey on evaluation methods for chatbots. In Proceedings of the 2019 7th International conference on information and education technology (pp. 111-119).
- McLean, G., Wilson, A. 2016. Evolving the online customer experience... is there a role for online customer support? *Computers in human behavior*, 60, 602-610. <https://doi.org/10.1016/j.chb.2016.02.084>
- Nicolescu, L., Tudorache, M. T. 2022. Human-computer interaction in customer service: The experience with AI chatbots—a systematic literature review. *Electronics*, 11(15), 1579. <https://doi.org/10.3390/electronics11101579>
- Perez-Vega, R., Kaartemo, V., Lages, C. R., Razavi, N. B., Männistö, J. 2021. Reshaping the contexts of online customer engagement behavior via artificial intelligence: A conceptual framework. *Journal of Business Research*, 129, 902910. <https://doi.org/10.1016/j.jbusres.2020.11.002>
- Pélissier, D. 2021. Design De L'ia Et Responsabilités De L'organisation: Les Chatbots De Recrutement. Management & Data Science. <https://doi.org/10.36863/mds.a.15487>
- Rathod, K. 2024. Research on Revolutionizing Learning with AI-Powered Chatbots and NLP Techniques. *Indian Scientific Journal of Research in Engineering and Management*, 08(04), 15. <https://doi.org/10.55041/ijrsrem31253>
- Rese, A., Ganster, L., Baier, D. 2020. Chatbots in retailers' customer communication: How to measure their acceptance? *Journal of Retailing and Consumer Services*, 56, 102176. <https://doi.org/10.1016/j.jretconser.2020.102176>
- Schanke, S., Burtch, G., Ray, G. 2021. Estimating the Impact of "Humanizing" Customer Service Chatbots. *Information Systems Research*, 32(3), 736751. <https://doi.org/10.1287/isre.2021.1015>
- Sghari, A., Chaabouni, J., Burlea-Schiopoiu, A. 2019. Effets de l'usage des technologies mobiles par les clients sur le métier des chargés de clientèle dans les banques, *Recherches en Sciences de Gestion-Management Sciences-Ciencias de Gestión*, numéro 130/2019, pp. 147-177. DOI: 10.3917/resg.130.0147
- Shankar, V. 2018. What an Artificial Intelligence (AI) is Reshaping Retailing. *Journal of Retailing*, 94(4), vixi. [https://doi.org/10.1016/s0022-4359\(18\)30076-9](https://doi.org/10.1016/s0022-4359(18)30076-9)
- Soava, G., Mehedintu A., Burlea-Schiopoiu, A. 2017. Innovative Technologies, the Premises of Big Data in Ehealth, 29th IBIMA Conference, 2-4 May 2017, Vienna, Austria. <http://ibima.org/accepted-paper/innovative-technologies-the-premises-of-big-data-in-ehealth/>
- Sonawane, P., Kunekar, P., Bhatele, P. R., Sonkusare, S., Sonar, R., Bisen, S., Sonar, K. 2023. ConvoMind: a user-friendly AI chatbot. *International Journal for Research in Applied Science and Engineering Technology*, 11(12), 15. <https://doi.org/10.22214/ijraset.2023.57180>

- Sophia, J., Jacob, T. P. 2021. EDUBOT-A Chatbot for Education in Covid-19 Pandemic and VQAbot Comparison. 2021 Second International Conference on Electronics and Sustainable Communication Systems (ICESC). <https://doi.org/10.1109/icesc51422.2021.9532611>
- Suhaili, S. M., Salim, N., Jambli, M. N. 2021. Service chatbots: A systematic review. *Expert Systems with Applications*, 184, 115461. <https://doi.org/10.1016/j.eswa.2021.115461>
- Sulaiman, R. B. 2022. AI Based Chatbot: An Approach of Utilizing on Customer Service Assistance. arXiv (Cornell University). <https://doi.org/10.48550/arxiv.2207.10573>
- Tebenkov, E., Prokhorov, I. 2021. Machine learning algorithms for teaching AI chat bots. *Procedia Computer Science*, 190, 735744. <https://doi.org/10.1016/j.procs.2021.06.086>
- Velankar, M., Mahalle, P. N., Shinde, G. R. 2024. Rethinking Machine Learning and Deep Learning. In *Cognitive Computing for Machine Thinking* (p. 2541). https://doi.org/10.1007/978-981-97-0452-1_3
- Villacis, M. Y., Merlo, O. T., Rivero, D., Towfek, S. K. 2024. Optimizing sustainable inventory management using an improved big data analytics approach. *Journal Of Intelligent Systems and Internet of Things*, 11(1), 5564. <https://doi.org/10.54216/jisiot.110106>
- Yours. 2024, 7 mars. The Best AI Chatbots for Sales and Marketing. Nandbox Native App Builder. <https://nandbox.com/the-best-ai-chatbots-for-sales-and-marketing/>