

The Role of GenAI Chatbots in Customer Service: an Application in a Brazilian Luxury Pool Company

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Abstract

The customer service sector is overloaded with repetitive tasks, limiting its potential to contribute to significant improvements and generate metrics to analyze its performance. In addition, waiting times are wasteful and compromise the company's image, especially in the high-end construction sector. As an alternative, one of the emerging solutions to this problem is the use of generative artificial intelligence (GenAI) in the form of a chatbot. Thus, this article aimed to evaluate the impacts of implementing a chatbot in a Brazilian company that sells high-end swimming pools. The results showed that integrating GenAI into the company's strategy helped in decision-making and increased the sales team's assertiveness and productivity, with a 94% reduction in the average time for response to the customer.

Keywords

Generative artificial intelligence, consumer-AI interaction, Business strategy, time reduction, process improvement.

1. Introduction

The customer service process, like other transformations, is also evolving towards the digital world. From the first call centers with the introduction of online services to the current era of automation, technology has developed and consumer profiles have changed. The value of having satisfied customers is increasingly recognized, as they impact the companies' success (Cao et al., 2024).

According to the Global Customer Experience Trends Report in Brazil, 89% of the companies surveyed agreed that customer service directly impacts business performance. However, in practice there is still a gap when customers

report that one of the main problems is the long waiting time. The survey was conducted with more than 97,000 customers, and each customer expectation that is not met decreases brand loyalty, in addition to the loss of revenue and damage to the organizations' image (Zendesk, 2024).

The construction industry's share of Brazil's GDP is 5.8%, according to data from the Brazilian Institute of Geography and Statistics (IBGE, 2023). This article focuses on the high-end swimming pool market, which is growing 4% per year worldwide. Even though Brazil has the lowest share when considering the 2% in South America, this sector has grown above the world average (18% per year). On a global scale, North America has the largest market share (55%), followed by Europe (30%), Asia-Pacific (10%), the Middle East (3%) and South America (2%) (Mordor Intelligence, 2024).

1.1 Objectives

This article aimed to evaluate the impacts of implementing a chatbot in a Brazilian company that sells high-end swimming pools. The contribution is the comparison of indicators such as time for response to the customer and the number of customers who were left without a response, especially on weekends. The relationship between chatbots and human customers and in industrial applications was analyzed in the literature, as well as the acceptance of this AI tool in luxury markets, and the opportunities and challenges in the industrial environment such as business-to-business (B2B) and business-to-consumer (B2C) sales were evaluated. This analysis of the two types of businesses is also a differential, since (Lin et al., 2022) mentioned that 58% of chatbot implementations are in B2B and 22% in B2C.

2. Literature Review

Technological advances have driven digital transformation in several sectors, especially with regard to customer service. In this context, chatbots emerge as an innovative solution, being widely adopted by companies in several segments. According to (Chung et al., 2020), chatbots are seen as digital services capable of assisting consumers, acting as efficient substitutes for human agents. This perspective is reinforced by (Y. Li et al., 2024), who define a chatbot as a "computer program that communicates with a human being through text or voice messages in real time, in a highly personalized way."

Chatbots are a significant AI manifestation applied to human interactions. The term chatbot refers to computer programs designed to simulate natural dialogues with users, often used on online platforms to provide assistance or information. In other words, they are mainly text-based conversational agents that simulate conversations with users (Ashfaq et al., 2020).

The ability to personalize and be constantly available are intrinsic characteristics of chatbots, which, as highlighted again by (Chung et al., 2020), add an additional layer of support for service quality. This continuous availability ensures that customers receive personalized service at any time, regardless of their location. This revolution in customer service is the result of the integration of new technologies, including AI-based applications. As described by (Lo Presti et al., 2021), these innovations have expanded interactions in businesses, making them more agile, personalized, and efficient. In addition, the same authors reinforce that interaction with chatbots contributed to costumers' purchase intention, resulting from their ability to stimulate the entire process, regardless of familiarity with the brand.

This is due to the fact that chatbots allow for better use of available technologies, focusing on continuous improvement in the quality of services provided. In short, chatbots are not just technological tools, but represent an evolution in the customer service paradigm, benefiting both consumers and companies.

In terms of benefits, chatbots have been recognized as effective instruments in several areas. Firstly, the ability to respond immediately and continuously stand out, meeting the contemporary demand for efficiency and immediacy in interactions. This not only optimizes the user experience, but also contributes to the organizations' operational efficiency. However, as mentioned by (Ashfaq et al., 2020), these technologies can sometimes make users become frustrated because their needs cannot be met, requiring a combination of excellence in service provided by the chatbot along with the human agent.

Nonetheless, according to (Massucato, 2023), chatbots have disadvantages such as lack of emotions, given that are not capable of maintaining a humanized interaction, besides need of sequence of information for responses. Another

negative point is lack of reliability, considering that the information used in training may not be entirely accurate, which can lead to communication failures.

According to (Giebelhausen et al., 2014), the use of chatbots in customer service, in spite of offering several advantages in terms of efficiency and availability, has significant disadvantages that cannot be ignored. One of the main limitations is the chatbot inability to solve all customer problems. Given the programmed and sometimes rigid nature of chatbots, they often struggle to deal with complex or unique issues that require a deeper understanding or a personalized approach.

In addition, according to (Rapp et al., 2021), there is still not enough evidence of what people expect, feel, and experience when they encounter chatbot service. Furthermore, chatbots cannot use means of communication that are as refined and assertive as human service, and therefore they are not able to change, for example, the tone of voice, gestures and facial expressions according to each customer. In this way, this idea further reinforces that chatbot services are excellent alternatives to reduce waiting times and meet customers' needs instantly, but they are still not capable of completely replacing individualized human service.

Confirming these facts, (Zhu et al., 2022) state that lack of empathy is the main reason why chatbots fail to deal with service issues effectively, given that empathy consists of affective and cognitive components (characteristics of human service). Considering the importance of empathy in the process of resolving service issues, many researchers are very interested in how to improve the chatbot empathy. The existing literature on chatbots states that appearance and language styles influence the empathy perceived by customers.

As stated by (Chen et al., 2022), chatbots have advantages when compared to humans, such as information storage, computational power, advanced learning capacity, accurate personalized recommendation, being always online and ready to respond to customers' needs at any time, and being more stable than human service, which can be influenced by the emotions of the person providing the service.

When studying the implementation of chatbots, the target audience have to be analyzed, since, as pointed out by (Misischia et al., 2022), in the case of luxury brands, customer needs are particularly specific, as customers expect to be served in a personalized and unique way, with human service being more interesting and assertive. In short, chatbots stand out for providing efficiency, personalization, and automation. These benefits, when applied appropriately and to the ideal audience, in addition to wisely balancing where automated service ends and human service begins, have the potential to transform organizational dynamics and user experiences, promoting an innovative approach in the field of human-machine interaction.

Contemporary consumers' growing demands have driven the widespread adoption of chatbots as a strategic tool to improve the customer experience. According to (Jiang et al., 2022), customers tend to respond favorably to chatbot agents. Satisfying the needs of customers who seek agility and immediate service results in positive attitudes and behaviors towards the use of chatbots.

The ability to understand contexts, interpret linguistic nuances, and provide personalized responses plays a fundamental role in customer satisfaction and in the chatbot effectiveness as an interaction interface. (Rese et al., 2020) affirm that from a company's perspective, it is necessary to analyze to what extent the communication structure provided is accepted by customers. Although there have been rapid advances in artificial intelligence, conversations with text-based chatbots often reach their limits and are concluded relatively quickly. Therefore, one way to improve interaction and provide greater proximity to the customer is through speech-based chatbots, and should be a tool to be compared with traditional text-based chatbots.

In the same way, (C.-Y. Li & Zhang, 2023) point out that interactions between employees and customers affect both the creation and the exchange of value, as well as the response to the customer. The quality of this communication is a key factor in customer evaluations. When customers understand human-machine collaboration, they become more familiar with a technological service, thus, they can obtain solutions to their problems more easily and efficiently. In addition, personalization, another critical component in the customer-chatbot interaction, is based on the

individualized understanding of the customer's needs and purchase history. The chatbot ability to anticipate demands and provide personalized recommendations contributes significantly to customer satisfaction.

The chatbot proactivity, when initiating interactions and offering relevant assistance or information, is intrinsically aligned with modern customers' expectations. This proactive approach demonstrates the company's commitment to anticipate and meet consumer needs. (Ngai et al., 2021) concludes in their study that the time for response to the customers was significantly shorter when the chatbot was used, compared to when it was not used. Furthermore, human effort can be significantly reduced, and it was observed that the accuracy of the responses to the customer using chatbots was higher when compared to the human staff. Therefore, the results showed that chatbots can effectively improve efficiency in handling customer queries and, therefore, in managing customer relationships.

In this way, it is clear that the relationship between today's customer behavior and chatbots is intrinsic to the evolution of costumers' expectations and demands. The chatbot ability to effectively align with these expectations directly influences the perceived effectiveness of these tools in improving the customer experience and, consequently, in achieving organizational objectives.

3. Research design and methodology

The theoretical part, for the understanding of concepts and analyses of publications related to the topic, was a systematic literature review. Web of Science and Science Direct databases were used, limited to documents from 2019 to 2023. Litmaps was used as support tool, making it possible to identify the "seed maps," which are the most cited articles in other publications and with greater relevance. After understanding the tool to be implemented, action research was developed, based on the implementation of a customized chatbot for a construction company focused on high-end swimming pools located in the city of Goiânia, state of Goiás (Brazil).

The action research methodology is characterized by the participation of those involved, in which they solve a problem, analyzing data and taking action to change. It also differs from other methods by offering the bases and procedures for the researcher to expand scientific knowledge while intervening in the real environment and finding relevant practical solutions (Tripp, 2005).

Therefore, the action research began with the identification of customer service processes, in which unstructured interviews were conducted with managers to understand customer classification and the main difficulties. Then, meetings were held with the sales team to understand the process of customer acquisition, seeking to develop the conversation flow to be used in the chatbot. In this phase, brainstorming was also used to identify the main tools to be employed and platform for the chatbot implementation. The subsequent stage was dedicated to testing, which lasted two weeks. In the first week, testing took place within the development platform, with message delivery in the same

way as in a real environment. In the second week, testing was carried out on the service channel itself, when interactions of 65 customers with the company were simulated, with all possible conversations in the developed flow.

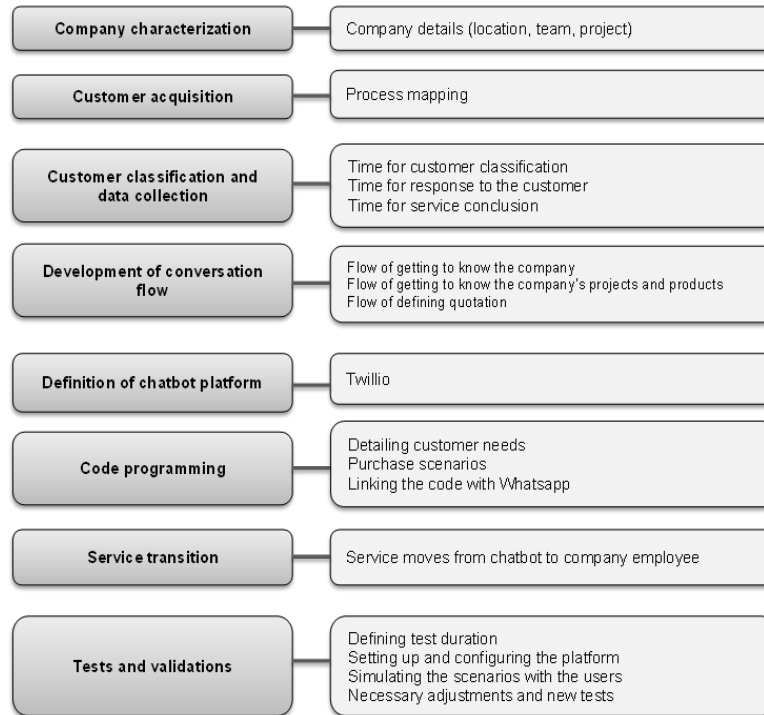


Figure 1. Action research steps

Finally, in the last stage, the results obtained with the chatbot implementation were analyzed; the indicators before and after implementation were compared and the graphs, other visual representations and the feedback received were analyzed. Figure 1 presents such methodological steps.

4. Data Collection - Chatbot Implementation in the company

The company under study, where the chatbot was implemented, sells high-end residential pools made of fiberglass-reinforced polyester composite material. The branch is located in Goiânia/Brazil, and the brand, through a wide range of options in finishing, shapes, sizes and accessories, offers several possibilities for those seeking exclusivity and quick installation and stands out positively when compared to a conventional masonry pool, as it offers a longer lifespan, water tightness and safety. The company has been operating since 1995 in southern Brazil and it is currently present in more than 50 countries, with a turnover of 952 million reais (approximately 160 million dollars) in 2020.

The main customer acquisition process is related to traffic from social networks, whether from a paid traffic strategy or organically. In this way, there is an average weekly acquisition of 30 to 40 new customers, who contact the company's sales team, generating different time criteria, such as:

- Time for customer classification: time in minutes required to classify customers into: customer who does not have purchasing power; end customer (looking for a pool for their project); small builder (purchase limited to 10 pools for their projects); land developer (projects with negotiations for more than 10 pools);
- Time for response to the customer: time in minutes for the first response to the customer;
- Time for service conclusion: time in minutes required to deliver a final quotation to the customer.

When analyzing the customer portfolio served by the company, it was found that the main frequent contacts were land developers that have a longer sales process, requiring detailed attention to large-scale pool sales, generating a large

number of messages daily. A filter for this customer type is necessary, since this is an approach different from that one to an end customer seeking to purchase a pool for their project.

On the other hand, the service for the end customer is faster when compared to the time from the beginning of the service to the completion of the sales contract regarding the land developer. In addition, when analyzing the percentage of end customers with regard to the acquisition of new customers, it is found that it is 80% to 89% of the total, on average. In view of this great demand from customers seeking a value-added product, it was extremely important to design strategies to improve both the service team and the metrics that seek service quality. In Figure 2, it is possible to understand that the pool acquisition process is classified into B2B and B2C customers.

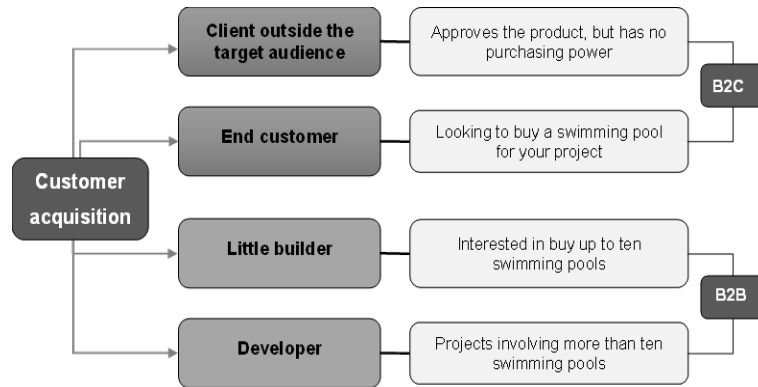


Figure 2. Classification of customer types

Early in the development of the customer acquisition flow, it was identified that a quick and accurate customer classification is essential to determine the most appropriate service approach. To this end, a detailed analysis was conducted with the customer service team. This analysis focused on understanding the main questions customers had; assessing the percentage of those who already had in-depth knowledge of the product; identifying those who were aware of the company's differentials, and discerning those who fit within the logistical limits of delivery. These factors were crucial to an effective customer categorization, thus enabling the provision of personalized and agile service, aligned with each customer's specific needs and expectations.

This understanding of customers not only sped up the classification process, but also brought significant benefits to the service team. With this data in hand, attendants were able to personalize their interactions, approaching customers with information and solutions that directly aligned with their needs and level of knowledge, resulting in more efficient communication, reducing service time, and increasing the chances of conversion. Additionally, by anticipating customer questions and concerns, the team was able to provide proactive responses and solutions, improving the customer experience and increasing satisfaction rates. This data-driven approach also allows the service team to identify trends and patterns, making it easier to adapt strategies and create standardized responses to the most common queries.

The Twilio platform was chosen to implement the chatbot, which represents a significant step in the automation and optimization of customer service. (Chaidrata, 2021) states that Twilio is recognized globally for its robust cloud communication solutions, offering a versatile platform that is widely used by companies around the world. Its ecosystem allows the integration of various communication features, including voice and instant messaging, making it an ideal choice for chatbot implementation.

According to (Varfa, 2023), the platform allows the chatbot implementation in a practical and commercial manner, and has an environment with tutorials and tests on the main features offered. Therefore, it was necessary to select the

packages and tools to solve the existing problems and develop the logic to structure the conversation flow behind the chosen strategy.

The first crucial step was the logical design of the detailed conversation flowchart, following all the steps of the conversation flow strategically designed to solve problems cited by the study made along with the customer service team. As example, the flowchart serves as the backbone for the implementation, structuring all possible paths of interaction with the user. The objective was to simulate various scenarios, including standard responses, no-response situations, and cases of unconventional responses.

This planning stage was essential to ensure that the chatbot could organize the various dialogue situations effectively, facilitating the flow for the customer to understand the product, thus increasing the chances of a quotation being requested. This process was also important to encourage the customer to answer the questions that would make their rating, generating continuous interaction until they click on the link that will forward them to the sales team.

The structural part of the chatbot implementation (conversation flow programming) is stored on a database on the platform itself, and can be accessed and updated remotely. In this sense, when the customer contacts the sales team, the implemented chatbot acts as an immediate attendant, providing information about the company to the customer, directing them to request a quotation, asking the initial questions that will allow the customer to be rated and generating a link that will provide the customer with service. When implementing the code, for each question asked to the customer, the selected answer is linked to a part of the final link that, when generated, takes the customer to the human attendant's WhatsApp account, and the service will be provided with the team already knowing the information about the customer's interest. The conversation flow was implemented in partnership with the customer service team. Based on knowledge of the contacts made by the company's last customers, standard questions were developed to classify the customer during the service. When the customer clicks on the link provided by the chatbot, a message is generated with the information answered by the user. In this way, the attendant who will provide the service has the customer's classification instantly as soon as they begin to talk to the customer.

Chatbot implementation and validation were planned in a structured three-and-a-half-week schedule. The first phase, which lasted approximately one and a half weeks, focused on setting up and development. This period was crucial for configuring the platform, developing the dialogue scripts and integrating the chatbot with existing systems, ensuring that the technological base and conversation logic were aligned with customer service objectives. Then, the following two weeks were for the testing and adjustment phase. During this period, several interaction scenarios with users were simulated to identify and correct any flaws or usability issues. These tests ranged from standard responses to more complex situations, such as no response or non-standard requests. At the end of this period, the final review and necessary adjustments were carried out, culminating in the finalization and effective launch.

To validate the results, a test was structured over a one-month period to collect message data and structure the metrics collected for comparison.

5. Analysis of results

To assess the changes generated in the customer service sector, a comparative analysis was conducted during two similar periods in terms of days, one before and one after the chatbot implementation. This analysis focused on a quantitative evaluation of the conversations, using specific metrics to measure and compare the service performance.

First, to analyze the metrics, all the messages that the company received from new customers during the period from August 1 to 31, 2023 – a total of 157 new customers – were analyzed, which contains the following metrics: a) date and time of first message; b) waiting time for receiving a response (min); c) time for classification (min) and d) time until proposal delivery (min).

These data were manually analyzed and filled out to develop a comparison, in order to validate a possible improvement in customer service with the chatbot implementation. In this way, it is possible to analyze in Figure 3 the waiting time for each customer until receiving the first response. In the case of customer service provided during business hours, it is possible to analyze those interactions occurred outside business hours generated an unusual waiting time. In

addition, there were four peaks related to weekend interactions that are only answered on Mondays from eight o'clock in the morning.

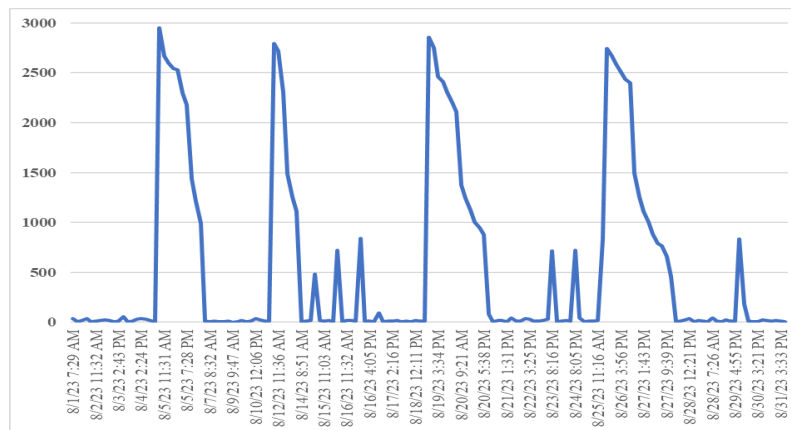


Figure 3. Waiting time for receiving a response (min) x message period

The average time for response on weekends was 557 minutes, well above the standard when compared to the daily data in the time list. In this sense, three filter options were developed to help analyze the results. First, the average time for response to the customer, selecting only messages received during business hours, is 16 minutes, leading to the assumption that if interactions only occurred during business hours, the average time for response would be significantly lower than the total average. Next, the average time for response is analyzed, filtering only interactions that occurred on Saturdays, totaling 2523 minutes (42 hours), and on Sundays, with 1100 minutes (18 hours). Thus, it can be stated that this lack of immediate service on weekends generates points that are very far from the averages on weekdays, which can result in customer dissatisfaction or even in customers giving up on buying.

Another metric analyzed is the average time for customer classification, which is the average time counted from the moment the attendant responded to the customer until the moment they were able to classify such customer, already knowing which and how to pass on the pertinent information. In this manner, the total average time for customer classification is 49.73 minutes, but there are points outside the standard; this occurs because such classification depends on the customer's responses, and it is possible that they are not able to carry out the entire response process continuously, then a filter was generated excluding the points above 120 minutes of time for classification, generating a result of 33.22 minutes for the average time for classification with filter.

For a more in-depth analysis of the customer's purchase interest, one also analyzed how long it takes for a complete quotation interaction to occur, in which the customer gets in touch, is classified, and receives their quotation. Therefore, out of a total of 157 customers, 21 received no response (no quotation was delivered), 38 received feedback after 24 hours, 56 received feedback between 12 and 24 hours, and 42 customers received feedback within 12 hours, as can be seen in Figure 4.

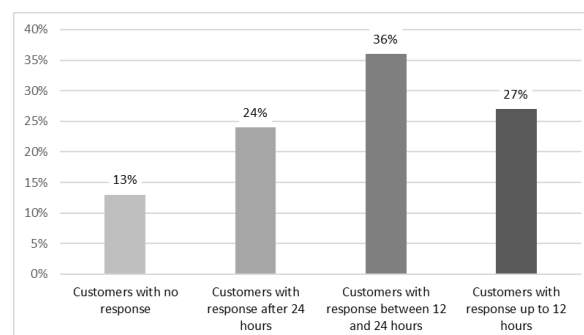


Figure 4. Customer classification according to response

After chatbot implementation, for an effective comparison of the results obtained, the metrics analyzed followed the same patterns before the chatbot implementation. The month of October was also considered in its entirety (from October 1st to October 31st, 2023), with a total of 169 new customers.

With the implementation in operation, the waiting time for receiving a response with the chatbot was analyzed, and the time remained constant (one minute in all interactions), and this is due to the fact that the logic developed seeks that, regardless of the date or time, the response will be automatic and immediate.

When the time for classification was analyzed with the implementation in operation, the average was 10 minutes, both for the total and for the application of the filter, given that if the customer does not respond to the messages for a long period, the chatbot restarts its operation. Therefore, no times outside the standard were verified, and the averages were maintained.

Then, in the customer classification regarding the interaction time until the quotation was returned, of the 169 customers analyzed in the month of August, 10 customers received no response (no quotation was delivered), 29 received feedback after 24 hours, 28 received feedback between 12 and 24 hours, and 102 customers received feedback within 12 hours (see Figure 5).

The chatbot implementation in the customer service structure marked a significant step in the optimization of sales processes. When analyzing the three metrics, that is, time for customer classification; time for response to the customer, and time for service conclusion and customer satisfaction, a notable improvement was observed, especially with regard to the effectiveness of the sales team. One of the impacted metrics was the time for customer classification, which varied between 10 and 33 minutes, where the shortest time was verified with the use of the chatbot and the longest without its use.

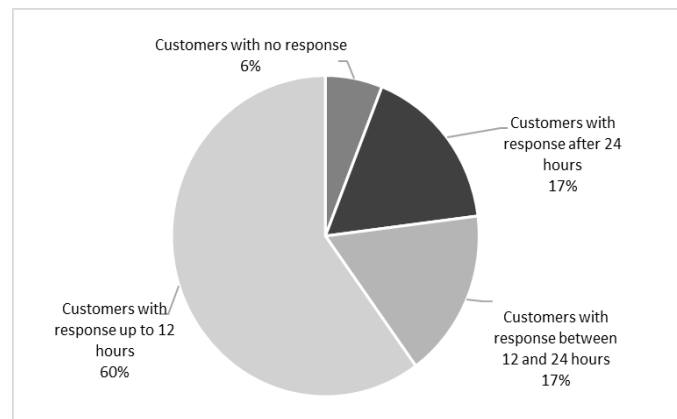


Figure 5. Customer classification according to interaction time

This improvement in time for classification had direct effects on other areas of service. With classification being done more quickly and accurately, a significant reduction in the time for response to the customer was observed, which, in turn, contributed to speeding up the time for service conclusion. These operational improvements had a positive impact on the company's dynamics in relation to directing customer traffic to the appropriate department.

One of the most significant results of the chatbot implementation was the significant improvement in the time for response to the customer. When analyzing the data for the month of August, before the chatbot implementation, it was observed that the average time for response to the customer, considering only business hours, was 16 minutes in the best of situations. After the chatbot implementation, there was a notable transformation, with the average time for

response dropping to approximately one minute. This represented a 94% improvement when compared to the period before the implementation.

This reduction in the time for response represents not only a significant operational improvement, but also an important advance in the customer experience. The chatbot allowed for almost instant service, which is essential in a scenario where speed of response can be decisive for customer satisfaction and sales.

Practical observation revealed that immediate service had a significant impact on customer service. It was noted that, when receiving a response at the exact moment they are interested in making a purchase, customers tend to have a lower dropout rate. After implementation, there was a 52% reduction in the absence rate in conversations, as the number of customers served increased from 42 to 102. The presence of the chatbot may have created a more dynamic environment, encouraging customers to interact more quickly and consistently. This is an important indication that the chatbot not only facilitated initial communication, but also helped maintain customers entertained, thus reducing the likelihood of lost communication or delays in responses.

With the development and analysis of these metrics, the improvement in the management of customer acquisition for the sales team is evident. In this way, the routine became more practical and a standard was structured in terms of communication. The immediate response generated continuity in service and a quick classification, facilitating traffic to the appropriate service and with the approach that best adapts to the selected audience.

It was not possible to concretely satisfy the customer with the chatbot implementation given the few months of test evaluation. There is an approach that needs to be implemented after the end of communication with the attendant.

However, with the strategy developed, the chatbot initially participates by providing a form analysis and generating traffic for the attendant. To solve and analyze customer satisfaction and maintain customer service, it is necessary to integrate the chatbot with a **Customer Relationship Management (CRM)** platform, making each customer who contacts the company automatically generate data for monitoring all communication. *CRM it's a system that helps businesses manage interactions with customers and potential customers.*

With the final analysis of the results, it became clear that the chatbot implementation in the company's customer service sector generated significant results, and it is possible to see a positive analysis for this type of change and how it can impact contact with customers. In addition, it is possible to verify that there are new types of implementations that can generate positive results in customer service. Table 1 compares the gains obtained.

Table 1. Comparison between metrics analyzed before and after the chatbot

Metrics analyzed	Before	After	Improvement %
Time for response (min)	16.03	1.00	94
Time for classification (min)	33.22	10.23	69
Number of customers with no response	21	10	52
Number of customers with responses within 12 hours	42	102	142

6. Conclusion

This article aimed to evaluate the impacts of implementing GenAI in the form of a chatbot in a Brazilian company that sells high-end swimming pools. The main result obtained was a reduction both in the time for response to the customer and in the number of customers with no response, indicators directly related to customer satisfaction. The incorporation of this technology into the company's strategy confirmed existing research in the literature and reinforced the advantages of using GenAI for industries and in the relationship with the end customer.

The principle of not responding to the customer and identifying the acceptance of chatbot service by high-end market customers was the main motivation for this research, contributing to expanding the applications of AI technologies beyond complex environments, including banks and healthcare systems (Dwivedi et al., 2023), where preserving data security is a challenge. From the classification of the four types of customers analyzed in the company under study – customer outside the target audience, end customer, little builder, and land developer – the acceptance of the chatbot was greater for the end customer, a new customer that generally invests fewer resources than construction companies and for whom receiving company's information, product catalog and basic information is already enough, enabling to

continue the service in a humanized manner. Therefore, there are differences in the application of AI for different business models and sectors, including for the customer types (B2B or B2C).

The studies analyzed showed that there is no consensus on the unique service (exclusively by chatbot or human), but all point to a hybrid model, in which artificial intelligence has an advantage in providing quick responses, scalability and cost-effectiveness, while the service provided by people offers personalized experiences (Tickoo et al., 2024).

The gains were also for the sales team, given that the reduction in the average time for response to the customer showed a significant improvement of being 16 times faster compared to standard service with interactions during business hours. However, this improvement has even more impact when considering the waiting time on weekends, since without the chatbot the customer would not receive a response for this entire period.

Another indicator that had positive results for the company was the average time for customer classification, which generated a result at least three times faster when compared to manual service. Other possible analyses were also generated with the data obtained, such as the increase in customers who received their quotations within a 12-hour window. This was only possible because the chatbot provides an almost immediate response and allows for faster and more efficient customer classification when the attendant takes over the communication.

The contributions of this research were also related to the evolution of the topic related to chatbots and customer satisfaction, since the combination of hybrid artificial intelligence systems with human service increasingly raises customer satisfaction standards. In addition, the development of this work is still ongoing in the company, where the data analyzed will be effective for updating and maintaining the chatbot and mainly for structuring the CRM for the customer service team.

The study provided a demonstration of the impact of a GenAI-powered chatbot on customer service efficiency in a Brazilian company. By providing empirical evidence, it reinforces AI's role in enhancing customer engagement and optimizing sales processes, while also offering insights for broader applications. For instance, the paper presents an interesting comparison of chatbot performance in B2B vs. B2C models, but this insight is not emphasized enough in the conclusion. Similarly, the impact on the luxury market segment—a distinctive aspect of this research—could be reinforced to better showcase its relevance. In addition, the article also presented a comparison of chatbot performance in B2B vs. B2C models and the impact on luxury market segments, applied to a swimming pool company in Brazil.

For future implementation the suggestion is the integration of a CRM system that promises not only the consolidation of customer information, but also a more in-depth analysis of the data, allowing a more detailed understanding of customer needs and behaviors. Furthermore, this work can be replicated for other sectors and thus generate a benchmarking of the relationships between types of industries and their relationships with customer satisfaction, in addition to cultural issues that may also have an impact, as well as each costume's category and level of demand.

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