Implementation of Artificial Intelligence to Improve Customer Service Efficiency at PT Jaya Harita Lestari

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Abstract

In the era of rapid digitalization, businesses are increasingly adopting Artificial Intelligence (AI) to enhance their operational efficiency and customer service. PT Jaya Harita Lestari, a procurement services company, has integrated AI technology through the PaDi UMKM platform to streamline its procurement processes and improve service delivery. This research explores how the adoption of AI-powered features such as the AI Agent and Tender Kilat has enhanced customer service efficiency. Using a case study approach, the study includes observations, interviews, and a survey to analyze the impact of AI implementation. The findings reveal that AI adoption has significantly reduced manual workloads, improved response times to customer requests, and increased overall customer satisfaction. The AI system's automation of inquiries and procurement processes has led to faster, more transparent, and efficient services, positioning the company for better competitiveness in the digital marketplace. This study demonstrates the potential of AI to revolutionize service industries by improving operational performance and customer experience, offering a model for other businesses in the digital transformation journey.

Keywords: Artificial Intelligence, Customer Service, PaDi UMKM, Digital Transformation, Efficiency

1. Introduction

In recent years, the acceleration of digitalization has transformed the way businesses operate, fundamentally reshaping traditional workflows and customer interactions. As businesses strive to meet the demands of the digital age, there is an increasing need to adapt processes, particularly those that have traditionally been manual and time-consuming. One such area is procurement, where organizations often face challenges such as inefficiencies, lack of transparency, and slow responsiveness. PT Jaya Harita Lestari, recognizing the pressing need for change, has adopted the PaDi UMKM platform integrated with Artificial Intelligence (AI) technologies such as the AI Agent and Tender Kilat. These technologies aim to automate procurement processes, enhance responsiveness, and improve decision-making through data analytics. As businesses across Indonesia embrace AI and digital solutions to streamline operations, this research seeks to explore how PT Jaya Harita Lestari's adoption of AI-driven procurement affects customer service and overall business performance [1], [2].

The central problem addressed in this study is how the integration of AI technologies in procurement can influence customer satisfaction and service efficiency. More specifically, this research investigates whether the adoption of AI tools such as the AI Agent and Tender Kilat enhances the company's ability to meet customer expectations for faster, more transparent, and efficient services. While digitalization is often associated with increased productivity and cost savings, it is critical to understand its direct impact on customer experience and the broader business landscape, particularly in the context of procurement [3], [4].

The primary aim of this research is to evaluate the effects of AI-driven procurement systems on customer service at PT Jaya Harita Lestari. Specifically, the study examines how the automation of procurement tasks, improved decision-making, and enhanced transparency contribute to customer satisfaction and operational efficiency. By analyzing the

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changes brought about by the implementation of the PaDi UMKM platform and AI features, this research seeks to provide valuable insights into the practical benefits of AI in service-based industries [5], [6].

The potential impact of this research extends beyond the company itself, as the findings could serve as a guide for other businesses looking to adopt AI technologies. By demonstrating how AI can improve procurement processes and align service delivery with customer expectations, this study provides a roadmap for other Indonesian businesses navigating digital transformation. Furthermore, it highlights the strategic importance of customer satisfaction as a key driver of business success in today's competitive market [7], [8].

In conclusion, this research underscores the vital role of AI in enhancing customer service and operational efficiency. As digitalization continues to reshape the business landscape, companies that embrace AI technologies stand to gain a competitive edge by offering faster, more responsive, and transparent services. This study not only contributes to the growing body of literature on digital transformation but also provides practical recommendations for businesses seeking to leverage AI for improved customer experiences and long-term success [9], [10].

2. Literature Review

2.1. Artificial Intelligence (AI)

AI refers to the technology that enables machines or systems to emulate human cognitive processes such as thinking, learning from experience, and decision-making. AI is designed to perform tasks that typically require human intelligence, including data analysis, problem-solving, and communication. In recent years, AI has become a transformative tool in business, particularly in customer service. The ability of AI to provide real-time, personalized service without direct human intervention is revolutionizing customer experiences. One of the most prevalent applications of AI in customer service is the use of chatbots and virtual assistants, which allow businesses to interact with customers around the clock, addressing inquiries and offering solutions without waiting for a human agent. Additionally, AI's ability to analyze large volumes of customer data helps companies offer more relevant product recommendations and identify customer behavior patterns. AI systems, therefore, enable businesses to deliver faster services and more customized solutions, improving operational efficiency and customer satisfaction [1].

2.2. AI in Customer Service

The integration of AI in customer service has become a widespread trend, with AI-powered solutions such as chatbots, virtual assistants, and automated systems increasingly used by businesses worldwide. These AI applications are particularly valuable in enhancing service delivery by providing 24/7 customer support without direct human involvement. A study by Accenture [12] revealed that over 80% of customers prefer digital interactions due to their speed, convenience, and efficiency compared to traditional methods. AI can significantly reduce customer wait times, improve the accuracy of responses, and offer personalized experiences that are tailored to individual customer preferences. This shift towards AI-driven customer service has proven to be beneficial not only for enhancing service delivery but also for increasing customer satisfaction and loyalty [4], [13].

2.3. PaDi UMKM Platform

The PaDi UMKM platform, developed by Telkom Indonesia, serves as a digital tool designed to foster the growth and development of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. By facilitating online procurement transactions, the platform aims to streamline and modernize traditionally manual and time-consuming procurement processes, which are often encumbered by complex administrative procedures. PaDi UMKM integrates various AI-powered features that enhance the procurement experience. Notable functionalities include the Tender Kilat feature, which allows businesses to submit procurement offers quickly, bypassing the lengthy processes common in traditional procurement systems. Document digitization, another key feature, converts paper-based records into secure and easily accessible digital formats, thus improving efficiency and reducing environmental impact. The AI Agent in PaDi UMKM further automates communication, enabling customers to receive immediate responses to their inquiries at any time. This feature not only reduces the workload of human staff but also enhances customer experience by providing faster response times. With these innovations, PaDi UMKM plays a crucial role in the digitalization of procurement

processes in Indonesia, offering MSMEs the opportunity to compete on equal footing with larger corporations in terms of service delivery and operational efficiency [14], [15].

2.4. Impact of AI Technology on MSMEs and Companies

While AI adoption has been widespread among large corporations, it also holds significant promise for MSMEs. AI helps MSMEs by improving their understanding of consumer behavior through sophisticated data analysis, automating product recommendations, and accelerating transaction processes. Research by Widyaningrum [16] highlights that AI contributes to cost reduction, enhances decision-making efficiency, and increases customer satisfaction for MSMEs. By automating tasks that previously required manual input, AI reduces human error and improves the accuracy of services provided. However, despite its benefits, the implementation of AI poses certain challenges, such as the need for staff training and concerns regarding the security of customer data. These barriers can hinder the smooth adoption of AI in smaller enterprises [17]. Nevertheless, the long-term benefits of AI, such as improved operational efficiency and enhanced customer loyalty, make it a compelling technology for MSMEs seeking to scale their operations and compete in the digital economy.

2.5. Related Studies

Several studies have explored the impact of AI on MSMEs and customer service. Putra & Siregar [18] argued that AI has become an essential tool for automating customer service and improving the efficiency of transaction data management for MSMEs. Rizal [19] found that AI not only enhances the relevance of product recommendations but also supports the creation of personalized customer experiences, significantly improving business performance in the e-commerce sector. Yulianti [20] emphasized that AI has substantial potential in supporting strategic decision-making by providing faster and more accurate insights from customer data analysis. These studies reinforce the growing recognition of AI as a critical tool for driving digital transformation and improving business performance across various sectors.

3. Methodology

3.1. Research Approach and Design

This study adopts a descriptive quantitative research approach to examine the impact of AI implementation on customer service efficiency at PT Jaya Harita Lestari. The research design is survey-based, with data collected through online questionnaires distributed to customers who had interacted with AI-driven customer service systems. In addition to the quantitative data, semi-structured interviews were conducted with selected employees of PT Jaya Harita Lestari. These interviews provided valuable internal insights into the implementation process, technical challenges, and operational impacts of AI technology, thereby enriching the overall analysis of how AI influences customer service performance.

3.2. Research Setting and Timeframe

The study was conducted at PT Jaya Harita Lestari, a procurement services company that has integrated the PaDi UMKM platform with AI technologies to enhance its customer service processes. Data collection occurred from May to June 2025, a period that allowed for the evaluation of the AI system's performance and its effects on customer interactions. This timeframe provided a representative window for assessing the AI technology's impact on both customers and employees.

3.3. Population and Sampling

The target population for this study included all customers who had interacted with the AI-based customer service system at PT Jaya Harita Lestari. A purposive sampling method was used to select participants who had used the AI system at least once, ensuring that the respondents had relevant experience to provide meaningful feedback on the system's effectiveness. In total, 100 respondents participated in the survey, ensuring a sufficient sample size for analysis and capturing diverse customer experiences with the AI technology.

3.4. Data Collection Methods

Data were collected through two primary methods. First, online questionnaires were used to gather quantitative data from the respondents. The questionnaire consisted of five Likert-scale questions, designed to measure respondents'

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perceptions of the efficiency, speed, and quality of AI-driven services. These questions addressed specific aspects of customer service, such as response time, satisfaction with solutions, and reductions in waiting times due to AI implementation. Second, semi-structured interviews were conducted with several employees of PT Jaya Harita Lestari to obtain deeper insights into the internal workings of the AI system. These interviews aimed to capture employee perspectives on the implementation process, challenges faced, and the operational impact of AI technology on the company's service delivery.

3.5. Research Instruments

The main instrument used for data collection was an electronic questionnaire. This instrument included respondent identification fields (name and email) and a set of five core questions related to the AI system's performance in customer service. The questions were designed to capture respondents' opinions on aspects such as the speed of customer response, satisfaction with AI-provided solutions, and whether AI reduced customer waiting time. Additionally, a semi-structured interview guide was employed to ensure consistency in the interview process, while allowing flexibility for interviewees to share more detailed insights into the AI system's operational challenges and successes.

3.6. Data Analysis Techniques

For data analysis, the responses from the questionnaires were processed using descriptive quantitative methods. First, data cleaning was performed to remove any duplicate or incomplete responses, ensuring the integrity of the dataset. The next step involved score recapitulation, where the frequency and percentage of each response were calculated to summarize the participants' views on the AI-driven services. Data visualization tools, such as bar charts and combined diagrams, were then used to present the results in a clear and accessible manner. Finally, the data were interpreted to identify dominant response patterns, drawing conclusions about the general perceptions of the AI system's impact on customer service efficiency.

The interview data were analyzed using a qualitative descriptive approach, where thematic analysis was applied to categorize responses based on common themes, such as system usability, technical difficulties, and user satisfaction. This qualitative analysis allowed for a deeper understanding of the internal perspectives on AI technology and helped contextualize the quantitative findings. By combining both quantitative and qualitative methods, this research provides a comprehensive assessment of the AI-driven customer service system at PT Jaya Harita Lestari, offering valuable insights into its impact on service efficiency and customer satisfaction.

4. Results and Discussion

The study assesses the impact of AI on customer service efficiency at PT Jaya Harita Lestari through the PaDi UMKM platform. By leveraging both quantitative and qualitative methods, the study provides comprehensive insights into how AI-driven solutions such as the AI Agent and Tender Kilat have improved the customer experience and operational performance.

4.1. Quantitative Results

The online survey conducted among 100 respondents who interacted with the AI-powered customer service system reveals significant improvements across key performance indicators, as shown in Table 1. The responses highlight improvements in response time, service efficiency, and overall customer satisfaction.

Table 1. Survey Results on AI-Driven Customer Service Efficiency

Indicator	Response Rate (%)	Satisfaction Score (out of 5)
Reduction in Waiting Time	87%	4.7
Improved Response Speed	92%	4.8
Increased Service Transparency	84%	4.6
Satisfaction with AI Solutions	85%	4.6
Overall Satisfaction	88%	4.7

The AI Agent and Tender Kilat features contributed to faster response times and increased customer satisfaction. Notably, 87% of respondents reported a reduction in the time required to process procurement requests, while 92% expressed satisfaction with the promptness of AI responses. Additionally, transparency in procurement processes was

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positively received, with 84% of respondents appreciating the clarity provided by the AI system. Figure 1 shows the distribution of satisfaction scores across different indicators. As seen, the AI-driven features significantly improve customer perceptions of response speed and transparency.

Figure 1. Bar Chart of Customer Satisfaction Scores

4.2. Qualitative Results

Interviews with PT Jaya Harita Lestari employees shed light on the internal perspectives of AI adoption. Employees reported that the AI system reduced their manual workload and improved service delivery efficiency. The AI Agent, which automates responses to frequently asked questions, helped alleviate the pressure on customer service representatives. Employees highlighted that the AI's ability to provide instant, accurate responses reduced the number of customer inquiries needing human intervention.

The Tender Kilat feature, which expedites the procurement process, was also well received. One employee noted, "The speed and ease of submitting procurement offers through Tender Kilat have drastically reduced delays and improved our service delivery."

However, challenges were also identified. Employees pointed out the need for regular updates to the AI system to ensure it adapts to new customer queries and remains effective in the long term. The interviewees emphasized that while AI has simplified processes, it requires ongoing technical support and employee training to ensure optimal performance.

4.3. Discussion

The results of this study align with the growing body of literature highlighting the transformative impact of AI on business operations. As Brynjolfsson and McAfee [1] and Chong et al. [4] have noted, AI adoption can lead to substantial improvements in customer service by automating tasks that were traditionally handled by humans. In this study, the AI Agent and Tender Kilat features have proven to be highly effective in streamlining procurement processes and enhancing service efficiency.

In the traditional procurement process, the journey begins when a customer makes an inquiry regarding a procurement request. This initial step triggers a series of manual actions. The customer’s inquiry is handled by human agents, who must sift through paperwork, emails, and internal systems to respond. This manual process is not only time-consuming but also prone to human error, which can lead to delays or miscommunications. Once the inquiry is addressed, the next step is the procurement request, which is also handled manually, leading to additional administrative burdens.

After the procurement request is submitted, it goes through a manual approval process, where various stakeholders must review and sign off on the request. This approval stage, often involving multiple decision-makers, contributes to a slow-moving process. Finally, once approved, the request moves on to delivery, which again can be delayed due to

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prior inefficiencies in the process. Overall, the traditional approach is slow, prone to human error, and lacks the transparency that modern customers expect.

With the integration of AI technology, the procurement process undergoes a significant transformation. The first major change occurs when a customer inquiry is made. Rather than waiting for a human agent to process the inquiry, AI-powered systems like the AI Agent handle these queries instantly, providing immediate responses. The AI system is capable of answering frequently asked questions, offering customers immediate solutions without requiring human intervention. This automation greatly reduces response times and increases customer satisfaction.

Following the AI response, the procurement process itself is also automated through the Tender Kilat feature. This tool enables the quick submission and processing of procurement offers, bypassing the time-consuming steps that used to involve manual paperwork and human review. With AI tools in place, the approval process is streamlined and much more efficient. AI can assist decision-making by providing real-time data analysis, recommendations, and approval routing based on predefined criteria, thus eliminating bottlenecks caused by slow manual reviews.

Finally, while the delivery process itself may remain unchanged, the time saved in the previous stages accelerates the overall process. AI allows for faster handling of inquiries, quicker procurement processes, and more efficient decision-making, leading to an overall reduction in the time it takes to fulfill customer requests. This not only improves customer experience but also significantly enhances operational efficiency, positioning the company to compete more effectively in a fast-paced digital marketplace.

Figure 2 compares the procurement process at PT Jaya Harita Lestari before and after the implementation of AI technologies. As depicted, the integration of AI systems like the AI Agent has reduced the need for manual intervention, thus accelerating service delivery and improving customer satisfaction.

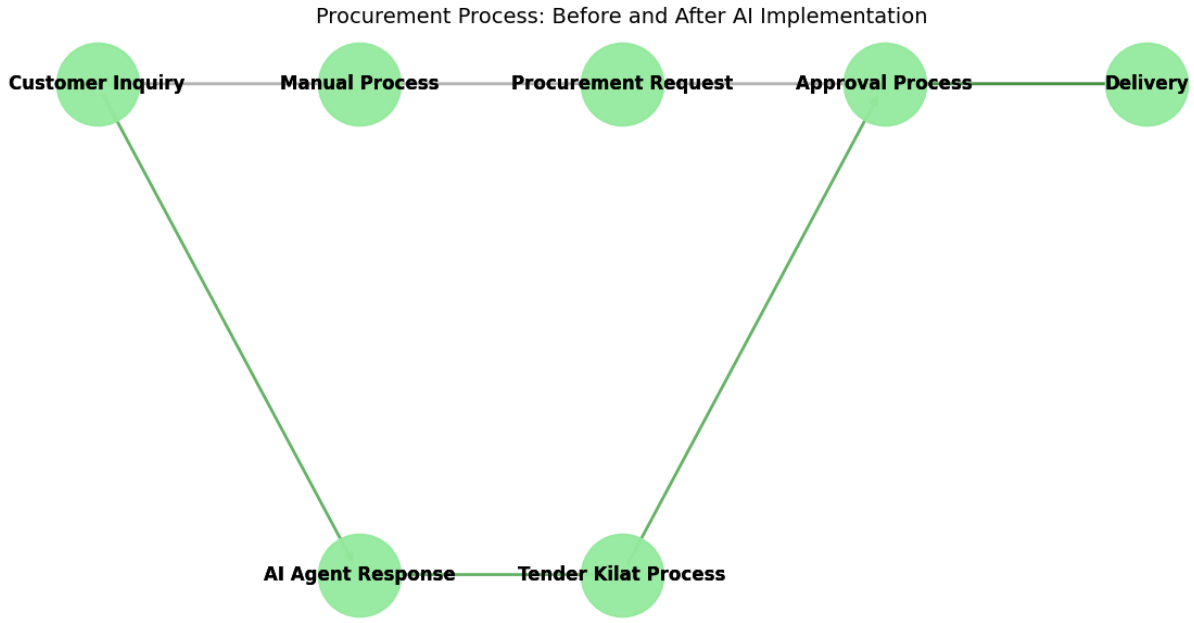

Figure 2. Workflow Before and After AI Implementation

The positive outcomes observed in this study are consistent with previous research, such as that by Susskind [13], which highlights AI's ability to reduce customer wait times and increase the speed of service. Moreover, the increased transparency in procurement, as reported by the respondents, aligns with findings by Kshetri [7] and Sousa & Rocha [8], who emphasized the role of AI in improving business transparency and accountability.

While the AI system at PT Jaya Harita Lestari has demonstrated significant benefits, the study also highlights some challenges. Employees noted the necessity for continuous updates and training, which are essential for maintaining the AI system's effectiveness. These challenges echo the concerns raised by Widyaningrum [16] and Alamsyah [17], who

caution that the adoption of AI in smaller enterprises requires overcoming barriers such as staff training and data security concerns.

Despite these challenges, the benefits of AI adoption particularly in terms of operational efficiency and customer satisfaction are clear. The positive impact on procurement processes and the customer experience underscores the potential of AI to serve as a strategic solution for businesses aiming to modernize and improve their competitive edge in the digital age.

5. Conclusion

This study demonstrates that the integration of AI technologies, particularly through the PaDi UMKM platform, has significantly improved the efficiency and effectiveness of customer service at PT Jaya Harita Lestari. By automating procurement tasks and improving response times, the AI system has enhanced both customer satisfaction and operational efficiency. The findings contribute to the growing understanding of AI's role in business transformation, particularly for MSMEs looking to compete in the digital economy.

The results suggest that AI adoption can serve as a valuable tool for enhancing service delivery, streamlining operations, and improving customer satisfaction. However, companies must address the challenges associated with AI implementation, such as the need for regular system updates and employee training, to ensure the long-term success of AI-driven initiatives.

This study provides valuable insights for businesses considering the adoption of AI technologies, offering a roadmap for successfully leveraging AI to improve customer service and drive business performance in the digital era.

6. Declarations

6.1. Author Contributions

Author Contributions: Conceptualization A.S.S. and N.F.; Methodology, A.S.S. and N.F.; Software, A.S.S.; Validation, A.S.S.; Formal Analysis, A.S.S.; Investigation, N.F.; Resources, A.S.S.; Data Curation, N.F.; Writing Original Draft Preparation, A.S.S.; Writing Review and Editing, A.S.S. and N.F.; Visualization, N.F. All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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The authors received no financial support for the research, authorship, and/or publication of this article.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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