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The effect of Artificial Intelligence (AI) and Customer Experience (CX) use in telemedicine on customer satisfaction moderated by service duration

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Abstract

Purpose: This study investigates the effects of Artificial Intelligence (AI) use and Customer Experience (CX) in telemedicine services on customer satisfaction, with service duration as a moderating variable.

Methods: A quantitative approach was applied using survey data from 121 active telemedicine users. Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS 4, including measurement model evaluation, structural analysis, and moderation testing.

Results: The results show that AI use has a positive but insignificant effect on customer satisfaction. In contrast, Customer Experience has a positive and significant effect on customer satisfaction, indicating its central role in telemedicine services. Service duration significantly and negatively moderates the relationship between AI use and customer satisfaction, suggesting that longer AI-based service processes reduce satisfaction. However, service duration does not significantly moderate the relationship between Customer Experience and customer satisfaction.

Conclusion: Customer satisfaction in telemedicine is influenced more by experiential quality than by AI adoption alone. Effective AI implementation should emphasize service efficiency to enhance satisfaction.

Limitation: This study is limited to a single telemedicine platform and uses a cross-sectional design, which may limit generalizability.

Contribution: This research highlights the importance of Customer Experience and demonstrates the conditional effect of service duration on AI-driven telemedicine satisfaction.

Keywords: *Artificial Intelligence, Customer Experience, Customer Satisfaction, Telemedicine, Service Duration*

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1. Introduction

Technological advancements continue to grow rapidly in line with the progression of time. In the current era of Digital 5.0, speed, cutting-edge technology, and practicality are paramount. With the emergence of technology in this era, it is expected to enhance the trust in Artificial Intelligence (AI) in human life. However, not everyone can effectively utilize AI as they are still unaware of its functions and usage. AI still requires guidelines and ethics for its implementation, as it can only

process data based on user instructions (Awadh et al., 2025). PT Good Doctor Technology Indonesia is a collaborative telemedicine company formed by the digital insurance company Ping An Healthcare and Technology, Grab, and Softbank, established in 2019. Headquartered in Singapore, GDT is dedicated to fulfilling its mission of ensuring "One Doctor for Every Family in Southeast Asia." Good Doctor, branded as GrabHealth, offers teleconsultation services and medication delivery. By leveraging digital technology, GDT focuses on bridging the gap between professional healthcare providers and patients through telemedicine services. Digital outpatient services are a modern healthcare model that integrates digital technology into traditional outpatient systems (Alrasheedi, Al-Mohaithef, Edrees, & Chandramohan, 2019; Brahmana & Karo, 2022).

Good Doctor is one of the 11 telemedicine platforms designated by the Ministry of Health to serve Covid-19 patients in Indonesia from 2020 to 2022 (Adeogun & Faezipour, 2025). Currently, Good Doctor has its own app, available for download from the Playstore or Appstore. The platform serves more than 80 cities in Indonesia, with a network of 1,000 doctors and specialists, in collaboration with over 3,500 companies and 5,000 supporting partners such as pharmacies, laboratories, clinics, and hospitals, and has partnered with nearly 90% of insurance companies in Indonesia.

Good Doctor has adopted Artificial Intelligence (AI)-Based Service Interaction in its service process to enhance the telehealth platform's performance (Kruse et al., 2017). The chatbot feature provides initial information about customers' symptoms and other related patient information for doctor reviews (Becker & Jaakkola, 2020). Good Doctor continues to commit to improving this platform to ensure that the Indonesian population can access healthcare services, obtain health consultations, and receive accurate information from its network of doctors. Through its digital application platform, the company offers remote medical consultations, AI-based medical consultations and actions, e-prescriptions from doctors with medication delivered via online motorcycle services, and health data management, including laboratory appointments and doctor bookings. The telemedicine platform is integrated with advanced health technology, enabling a more personalized, comprehensive, and efficient approach, making telemedicine a crucial component of modern healthcare services, including the Good Doctor or Grab Health app (Chen et al., 2025).

Customers are an integral part of the marketing cycle, serving as a source of creativity and innovation (Hassan, Abdelraouf, & El-Shihy, 2025). Customer satisfaction and loyalty are keys to the success of an online business. Companies need to establish strong and enduring relationships with loyal customers to ensure the business continues to function well, with prospects for sustainable growth in line with the company's founding goals. Building customer trust is a gradual process, shaped by their satisfaction with the services we provide (Josephine, Tj, & Fushen, 2023).

To create and capture new demand, companies can measure customer satisfaction through surveys (Khatun et al., 2024). Customer assessments of online consultations are depicted by ratings ranging from 1 to 5. These assessments cover aspects such as the application, waiting times, consultations with the attending doctor, speed of medication delivery, laboratory appointment scheduling, and all of these are categorized under Customer Experience (CE), though the term CX is now more commonly used. Online-based applications like this are not as perfect as face-to-face consultations, as they may misinterpret a doctor’s empathy through written communication (Awadh et al., 2025). Often, in daily service, there are undesirable situations, such as the application being under maintenance, making certain features unavailable, doctors taking longer to respond due to the need to serve multiple patients simultaneously, reductions in the prescribed medication, or prescription cancellations by pharmacies. In such cases, teamwork is required to foster a good relationship in resolving patient or customer issues (Chen et al., 2025).

The front line of a company's marketing is no longer just the marketing team offering products and services but also the role of Customer Service as the recipient of complaints and the provider of feedback for company services. According to Keni and Sandra (2021), Customer Experience is defined as the spontaneous response and reaction of customers in the form of cognitive, emotional, physical, sensory, and social responses to stimuli associated with their interactions with the products

or services they receive as customers. However, many companies now see the role of Customer Service as being replaced by Customer Experience. Customer Service is the team that handles all customer complaints, processes them, and provides immediate solutions to the problems they face, while Customer Experience goes beyond merely serving customer requests and focuses on creating an overall positive experience, aiming to deliver the easiest and most comprehensive service (Mufti, Ikhsan, Sani, & Fauzan, 2024).

Service skills entail having effective communication methods for greeting, asking, answering, and explaining. These three basic service principles must be possessed by every employee, from top to bottom, without exception, with ongoing service excellence training. In this professional context, company employees must be good listeners, clear in their positioning, using common language, respecting the customer's time, and, importantly, always highlighting the company's strengths and uniqueness (Keni & Sandra, 2021). Although Good Doctor has adopted AI support, the role of partner doctors and customer experience is crucial, as Good Doctor uses AI-Based Service Interaction with a Human In The Loop (HITL) approach. These two aspects must be interconnected to maintain Good Doctor's excellent service and achieve customer loyalty. Good Doctor is committed to continuously developing and improving its system to ensure customer satisfaction in every service provided.

Based on the above explanation, this study aims to examine the *The Effect of Artificial Intelligence (AI) and Customer Experience (CX) Use in Telemedicine on Customer Satisfaction Moderated by Service Duration*.

2. Literature Review

2.1 Theoretical Concepts

2.1.1 Artificial Intelligence (AI)

Intelligence, according to the Indonesian Dictionary (KBBI), refers to intellect, the perfection of the mind, skill, and sharpness of thought. Meanwhile, artificial refers to something man-made, not natural. Therefore, artificial intelligence (AI) is a general term in Indonesian used to refer to the ability of computers or machines to mimic human intelligence (Brahmana & Karo, 2022). AI enhances efficiency, yet humans remain essential because of their empathy. The two can be integrated to handle sensitive customer interactions and complex issues. This AI approach aims to support rather than replace the role of humans, ensuring that customer interactions maintain high value. AI is now integrated with customer experience, and companies should adapt to and strive to maintain strong relationships with their customers (Josephine et al., 2023; Pratiwi, Luh Putu Agustini Karta, Ramanita, Aprilia, & Wardani, 2023).

The role of artificial intelligence (AI) can be utilized to optimize customer experience (CX) through service processes, such as reducing appointment scheduling durations, speeding up registration and consultations, and enhancing the overall application. In the formulation of the National Artificial Intelligence Strategy 2020-2045, AI must comply with the ethical values embedded in Pancasila as the national foundation, with principles such as reverence for God, humanity, nationality, democracy, and welfare. The implementation of AI should also be reliable, open, responsive, legally accountable to users, and auditable. AI systems are built with two approaches: human-in-the-loop (HITL) and human-over-the-loop (HOTL), both of which can be employed while considering human interests, control, and oversight.

Before being launched, AI must be tested according to general security standards. The five roles in AI ethics are the regulator (government), educator (universities), communicator (society), implementer, and supervisor. AI systems must be carefully designed to ensure the security of information, systems, including personal data protection, social impact, and the safety (sustainability) of humans and the environment. Without proper supervision and regulation, the potential threats of AI misuse can endanger people if exploited by those with malicious intent (Becker & Jaakkola, 2020; Rachmawati & Al Amin, 2025).

Artificial Intelligence-Based Service Interaction (AIBSI) is a form of service interaction that leverages AI technology to support digital health consultations. AIBSI in telemedicine in Indonesia typically appears in the form of chatbots, automated symptom triage, or virtual assistants that help users obtain initial information before connecting with a doctor. AIBSI aims to facilitate access to health information, accelerate service response times, and reduce the workload on doctors for routine questions. Thus, AI does not operate independently but is supervised by medical personnel through a Human-AI Collaboration approach. The implementation of AI-based service interaction also fosters a more responsive, consistent, and trustworthy customer experience. According to Mufti et al. (2024), the quality of service interaction directly influences user satisfaction with health applications. Additionally, Ardoni (2022) emphasize that service quality serves as a key intermediary between trust and patient satisfaction in telemedicine. This implementation supports usability and information quality, as AI can present accurate, relevant, and easily understood information, making the triage process more efficient. AIBSI innovation is crucial in the transformation of telemedicine services in Indonesia to meet patient expectations for fast, safe, and humane services. In this study, AIBSI is positioned as a variable that is expected to directly or indirectly affect customer experience and satisfaction.

2.1.2 Customer Experience (CX)

According to the KBBI VI, a customer is someone who consistently purchases (uses, etc.) goods (such as newspapers, etc.). A customer is also someone who has experienced (felt, undergone, borne, etc.) something. Customer Experience (CX) refers to a customer's perception of the service, value, and actions they receive from a product or business, from the initial interaction until its usage. Loyal customers who are willing to promote a brand, leading to the acquisition of new customers, are one of the benefits of CX, and this is still part of a marketing strategy/Customer Relationship Management (CRM).

Ardoni (2022) explains that CX leads to benefits such as increased loyalty, differentiation from competition, increased revenue, valuable feedback, enhanced brand awareness, reduced costs, and good market penetration. The effectiveness of customer experience implementation can be assessed using the Net Promoter Score (NPS). According to the results, 23% of customers who have a positive experience will inform at least 10 people about their experience.

In Febrianti, Azizah, and Rusadi (2025), customer experience (CX) is shaped by several factors in telemedicine, including ease of use through technology, real-time communication that is empathetic and continuously improved, fast service time, affordable costs, and obtaining good consultation results. The better the service received, the higher the customer satisfaction. Conversely, if customers do not experience ease while navigating telemedicine applications, customer satisfaction will not be achieved. Despite several customer experience theories, gaps still exist, so companies must pay more attention to operational factors (Andriani & Nisaa, 2023).

Law No. 8 of 1999 on Consumer Protection does not specifically mention patient satisfaction as this law broadly regulates consumer protection in various sectors. However, principles relevant to patient satisfaction can be found in several articles that regulate consumer rights, such as Article 1, which explains that goods and services must be provided and offered to the public for consumer use, and every business actor must conduct promotions to introduce and disseminate information about goods or services to attract consumer interest. Article 4 explains the consumer's right to comfort, security, and safety in consuming goods and/or services. Article 7 discusses the obligation of business actors to provide accurate, clear, and honest information about the condition and guarantees of goods and/or services. Article 8 prohibits business actors from producing and offering goods or services that do not match their promotions (Kuntardjo, 2020; Pemayun & Dewi, 2025).

Companies must have competent and reliable service staff, as customer service involves two factors: the human element providing the service and the communication required to serve. The willingness to serve leads to a service-oriented attitude, which then results in the ability to serve (knowledge) and service skills (skill). The attitude mentioned refers to showing politeness, ethics, engaging

communication style, friendliness, and genuine sincerity. Knowledge of service goals, company objectives, language, and empathetic communication are essential.

2.1.3 Service Duration

Service duration refers to the time it takes for patients to receive healthcare services, from registration to examination by a doctor. According to the Ministry of Health of the Republic of Indonesia, the ideal waiting time for outpatient services is less than 60 minutes. Long service durations are often a source of complaints for patients, while shorter waiting times can increase patient satisfaction.

Theories that explain service duration include Expectancy-Disconfirmation Theory by Oliver in 1980, which states that customer satisfaction is determined by expectations before the purchase, performance during, and after the purchase. The second is the SERVQUAL Model by Parasuraman, Zeithaml, & Berry in 1985, based on five dimensions of service and Customer Expectations of Service, updated in 1993. The third theory related to service duration expectations is that customers expect service at the levels of Desired Service and Adequate Service. Of these three theories, the SERVQUAL model is most closely aligned with telemedicine services. SERVQUAL, short for Service Quality, measures the gap between customer expectations before receiving service and their perceptions after receiving it, including response time and service speed. This theory is directly related to patient satisfaction, which will be discussed in the next point. The five dimensions of SERVQUAL are:

a. Tangibles: Physical evidence of the service, including facilities, medical equipment, employee appearance, application, and features.
b. Reliability: The ability to deliver promised services accurately and consistently.
c. Responsiveness: Willingness to assist customers and provide services as quickly as possible.
d. Assurance: Knowledge, politeness, and capability of employees in creating trust and confidence in customers.
e. Empathy: Employee care and attention to customers.

2.1.4 Customer Satisfaction

Customer satisfaction is the target of every company that recognizes the importance of customers as the key to the company's long-term operation. It is from customer satisfaction that customer loyalty will emerge, which is expected by all companies, whether small or large, government or private, or local or foreign (Hassan et al., 2025). According to PM Budi Haryono, there are factors that must be evaluated by companies to create customer satisfaction. Achieving customer satisfaction is not an easy task; companies must continuously improve service quality and good management amidst market changes and competition through employees or staff who directly interact with customers.

By providing excellent service that satisfies customers, benefits will be obtained for both the company and its employees. The benefits include customer loyalty because of their high satisfaction with the service, strengthening the relationship between the company and the customer so that the customer will not hesitate to use the company's services, regardless of the price offered. Additionally, employees benefit by being more productive, motivated to serve, and becoming more loyal to the company as customers feel satisfied. Customer satisfaction can be measured using the Net Promoter Score (NPS). This simple survey can assess the likelihood of a customer, on a scale from 1-10, to engage in marketing or recommend a business from person to person. The higher the score, the more satisfied the customer is with the product or service.

2.2 Conceptual Framework

Based on the previous discussion, a research model or conceptual framework can be developed, as outlined below. The influence of Artificial Intelligence on Customer Satisfaction, the influence of Customer Experience on Customer Satisfaction, Artificial Intelligence moderated by Service Duration on Customer Satisfaction, and Customer Experience moderated by Service Duration on Customer Satisfaction.

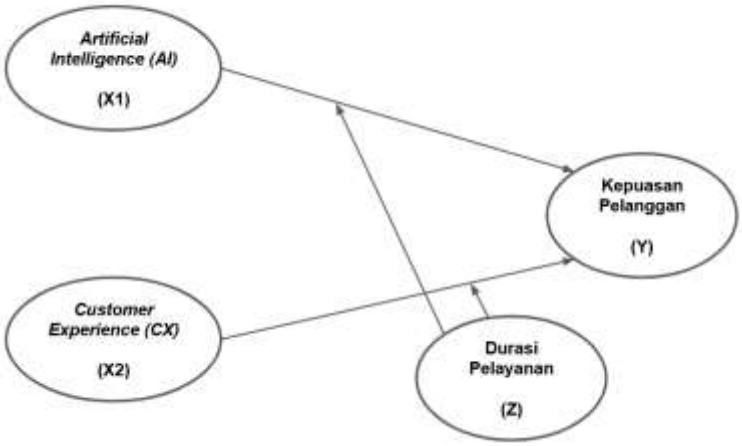

Figure 1. Conceptual Framework
Source: Researcher's Analysis, 2025

2.3 Hypothesis Development

2.3.1 The Influence of Artificial Intelligence (AI) on Customer Satisfaction

Artificial Intelligence (AI) has become an important technological innovation in the service sector, including in the digital healthcare industry such as telemedicine. AI plays a role in processing big data, personalizing services, improving response speed, and providing fast and accurate medical recommendations (Ferdian, 2024; Jiang et al., 2017). AI enables healthcare providers to offer more responsive and efficient experiences to customers, thanks to its ability to quickly adapt and its machine learning-based system.

Research by Kruse et al. (2017) does not directly address patient satisfaction, but the application of AI in various aspects of healthcare services, such as communication, initial consultations, care personalization, service efficiency, and patient monitoring, can contribute to increasing patient satisfaction. This technology helps reduce patient wait times, lighten the workload of medical staff, and provide fast and accurate information, ultimately enhancing customers' perceptions of the quality of the services received.

Further studies by Van Nguyen et al. (2023) in Vietnam and Kim & Lee (2020) in South Korea found that AI-based service personalization improves customer perceptions of quality and reliability, meaning AI is positively correlated with digital health application user satisfaction. More recent research by Novianti (2023) and Pramana, Utari, Alkhajar, and Widianti (2025) highlights that AI has greatly assisted in healthcare and medical services in today's advanced technological era.

Based on these studies, the following hypothesis can be proposed:
H1: Artificial Intelligence (AI) positively influences Customer Satisfaction

2.3.2 The Influence of Customer Experience (CX) on Customer Satisfaction

Customer Experience (CX) is the overall perception and emotional response of customers to various interactions they have with a company, both before, during, and after the purchase process. In the context of services, CX not only includes the quality of the service provided, but also encompasses ease of access, comfort, personalization, and the company's responsiveness to customer needs. Positive customer experiences will shape good impressions, strengthen the relationship between customers and the company, and enhance customer satisfaction (Taufik, Muhaqiqin, Ilman, & Sholehurrohman, 2023).

Research by Primasatya (2024) found that customer experience influences customer loyalty through customer satisfaction as a mediating factor. Additionally, Reddy, Fox, and Purohit (2019) stated that CX can shape a positive company image, customer satisfaction, and customer loyalty. Outside the medical context, research conducted by Ricard, Winoto, and Tecoalu (2025) on GoFood users or food

delivery apps showed that CX has a significant positive effect on customer satisfaction and loyalty. Similarly, Rosady, Lazuardi, and Sastrowijoto (2022) studied GrabBike services in Samarinda and concluded that Customer Experience, along with other factors such as ease of use, promotions, and trust, has a positive impact on customer satisfaction. Similar results were also found by Risdiawati, Merlina, and Mayangky (2022) in the restaurant context, where a pleasant customer experience proved to enhance consumer satisfaction.

Based on these findings, it can be concluded that Customer Experience (CX) is crucial in shaping customer satisfaction. Therefore, the hypothesis proposed in this study is:
H2: Customer Experience (CX) positively influences Customer Satisfaction

2.3.3 The Moderating Effect of Service Duration on Customer Satisfaction
Service duration is an important indicator in assessing service quality, especially in digital services like telemedicine. Waiting times or service duration reflect the efficiency and effectiveness of the service customers receive. Risdiawati et al. (2022) states that in the context of selecting online medical services, customers tend to choose doctors based on experience, ratings, price, and how quickly the service responds and the waiting times. Short service durations, particularly in technology-based systems like telemedicine, are considered a highly valued form of convenience by customers.

Research by Alarcon-Ruiz, Heredia, and Taype-Rondan (2019) in Peru highlights the importance of service duration in shaping patient satisfaction. Every additional 10 minutes of waiting time negatively impacts patient satisfaction, with an adjusted Odds Ratio (aOR) of 0.98 (95% Confidence Interval [CI]: 0.97–0.99). Conversely, longer consultation durations have a positive effect, where every additional 10 minutes of consultation increases patient satisfaction significantly (aOR: 1.59; CI: 1.26–2.01). This effect is more pronounced when waiting times are ≤90 minutes and consultation durations are ≤15 minutes. These findings suggest that managing service duration is not only important in operational efficiency but also plays a crucial role in maintaining and enhancing customer experience and satisfaction, especially in technology-based services like telemedicine that prioritize speed and convenience.

The findings by Barahama, Wijiastuti, Rawi, and Lewenussa (2022) show that longer waiting times decrease patient satisfaction. Patients who waited more than 30 minutes reported much lower satisfaction levels compared to those who waited less than 30 minutes. Research by Rozet et al. (2024) in a hospital in the UAE also found that the faster patients are served, the greater the improvement in their satisfaction levels.

These findings are highly relevant to the development of digital healthcare services. Customers have high expectations for the speed and efficiency of services. AI technology is used, and customer experience has been well-designed, but if service duration is not effectively managed, satisfaction may still decline. Service duration can either strengthen or weaken the effect of AI and CX on customer satisfaction. To create customer satisfaction, AI and CX through applications must be user-friendly, feature-complete, and communicate responsively. On the other hand, if AI technology fails to create a good customer experience due to unavoidable issues such as signal disruptions, application maintenance, long queues, or poor communication from partner doctors, customers will be disappointed and provide low ratings.

Based on this research, the following hypotheses can be proposed:
H3: Service Duration moderates the effect of Artificial Intelligence (AI) on Customer Satisfaction
H4: Service Duration moderates the effect of Customer Experience (CX) on Customer Satisfaction

3. Research Methodology

3.1 Research Object

The main focus of this study is the users of the Good Doctor application, one of the telemedicine service platforms in Indonesia. This study will utilize primary data, which will be obtained through a set of questions in a questionnaire distributed to the users of the Good Doctor telemedicine application. The questionnaire is systematically designed to gather the perceptions of customers regarding the application of Artificial Intelligence (AI), Customer Experience (CX), and customer satisfaction levels during their use of Good Doctor's services (Brahmana & Karo, 2022).

Primary data will be obtained through the distribution of an online questionnaire, which is based on indicators adapted from previous studies and designed according to the measurement standards of constructs in the PLS-SEM model. The results of the questionnaires will then be tabulated and submitted as input data, to be processed using statistical software for hypothesis testing purposes.

3.2 Population and Sample

3.2.1 Population

The population in this study consists of all the subjects of the research. In this study, the population includes all customers who have used Good Doctor's telemedicine services within the past six months throughout Indonesia. Sampling will be conducted through an online questionnaire distributed through personal networks or customer emails via voluntary sampling.

3.2.2 Sample

A sample is a subset of the population, determined using purposive sampling with criteria such as having used the Good Doctor telemedicine service, being between 18-60 years of age, and being willing to participate in the study. The sample size is calculated using the formula from Megawati, Machmud, and Alfarizi (2024), with 5-10 times the number of indicators. From the four theories described above, there are 15 indicators, so the minimum number of respondents is 75-150 people.

3.3 Operational Variables

Each variable will be measured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

3.3.1 Independent Variables

Artificial Intelligence (AI) (X1): measured based on diagnostic accuracy, service personalization, and AI usage effectiveness. Customer Experience (CX) (X2): measured based on the ease of use of the application, access, service speed, medical staff interaction and response, as well as the user's experience.

3.3.2 Dependent Variable

Customer Satisfaction (Y): measured based on the level of satisfaction with the healthcare services provided by the partner, measuring loyalty, and willingness to recommend to others.

3.3.3 Moderating Variable

Service Duration (Z): the time taken starting from the customer accessing the application, selecting a doctor partner, consulting, receiving medication recommendations, ease of payment, to the waiting time for medication delivery to the customer.

3.4 Data Collection Technique

Data will be collected through an online questionnaire using Google Forms, which will be distributed to Good Doctor customers. The questions in the questionnaire will cover the use of AI in teleconsultation services, customer experience, the services provided by Good Doctor's partners, and customer satisfaction levels.

3.5 Data Analysis Technique

Data analysis technique involves processing data into information. Data will be collected through Google Forms with a structured questionnaire. Before analysis, the data will be checked for missing values, outliers, and suspicious response patterns according to the guidelines of Megawati et al. (2024).

3.5.1 Measurement Model Evaluation

The measurement model evaluation is a crucial stage in the PLS-SEM method to ensure that latent constructs are measured validly and reliably before performing structural analysis. In reflective models, evaluation is performed on four main aspects:

1. Convergent Validity refers to the extent to which indicators of a construct truly measure the same concept, evaluated using Average Variance Extracted (AVE) with a threshold ≥ 0.50, meaning the construct explains more than half of the variance of its indicators.
2. Discriminant Validity is used to ensure that a construct is truly distinct from other constructs in the model, commonly tested using the Heterotrait-Monotrait Ratio (HTMT), with values <0.90 as the threshold. Failure to meet these criteria can result in inaccurate or biased model estimation, so this evaluation process is very important in SEM-based research.
3. Indicator Reliability is determined through outer loading values, which show the contribution of each indicator to the construct. Megawati et al. (2024) suggest that the outer loading value for indicator reliability should be ≥ 0.7, though values between 0.40–0.70 may still be considered if they enhance content validity.
4. Internal Consistency is measured with two main indices: Cronbach's Alpha and Composite Reliability (CR), where the recommended values are ≥ 0.70 to indicate adequate reliability.

3.5.2 Structural Model Evaluation

After the measurement model has been validated and found reliable, the next step in PLS-SEM is to evaluate the structural model, which aims to test causal relationships between latent constructs. Megawati et al. (2024) suggest five important steps in this evaluation:

1. Collinearity Test among constructs, checking for multicollinearity among predictors, using the Variance Inflation Factor (VIF), with recommended values <5 to ensure the model is free from multicollinearity issues.
2. Significance and Relevance of Structural Relationships (Path Coefficient). The relationships between constructs are tested for significance using bootstrapping techniques, a resampling procedure to calculate t-statistics and p-values for path coefficients. A t-value >1.96 at a 5% significance level indicates that the relationship between constructs is statistically significant, i.e., $t > 1.96$ at $\alpha = 0.05$.
3. Model Fit (R^2), the explanatory power of the model is indicated by the R^2 value (coefficient of determination), which shows the proportion of variance in the endogenous construct explained by the exogenous constructs. R^2 values of 0.75, 0.50, and 0.25 are interpreted as high, moderate, and low, respectively.
4. Model Predictive Power (Q^2) uses the Q^2 indicator (Stone-Geisser's Q^2) to measure the model's predictive relevance for new observations; positive Q^2 values indicate that the model has predictive relevance.
5. Effect Size (f^2) and additional goodness-of-fit criteria using PLSpredict if necessary. The f^2 effect size is used to evaluate the magnitude of the predictor constructs' contribution to the R^2 of the target construct—f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively. A comprehensive evaluation of this structural model enables the researcher to assess the validity of the theoretical model and conclude whether the proposed hypotheses are empirically accepted.

3.5.3 Hypothesis Testing

Hypothesis testing is the final stage in PLS-SEM analysis, which aims to test the assumed relationships between variables in the structural model based on empirical data. This process involves testing the significance of path coefficients from exogenous variables to endogenous variables, including the moderation interaction effects included in the model. According to Megawati et al.

(2024), PLS-SEM does not use traditional statistical tests like F-tests or ANOVA, but rather employs bootstrapping, a resampling method that estimates the stability of coefficients by generating an empirical distribution from repeated random samples (e.g., 5,000 subsamples). This technique is used to calculate t-statistics, p-values, and confidence intervals for each path relationship between constructs in the model.

The decision criteria for hypothesis testing refer to t-statistics ≥ 1.96 or p-values < 0.05 at the 5% significance level. If these values are achieved, the hypothesis is accepted or statistically significant. In this study, the hypotheses tested include direct effects (AI → Satisfaction, CX → Satisfaction) as well as moderation interaction effects (AI × Duration → Satisfaction, CX × Duration → Satisfaction). The results of this hypothesis testing will explain whether AI and CX variables directly affect customer satisfaction, and whether service duration moderates or weakens these effects. Hair et al. also suggest evaluating the practical or substantive effects of these relationships through path coefficients (β) and effect sizes (f^2) for a more comprehensive interpretation. If a small but significant coefficient is found, it may indicate statistical significance but not practical significance. Conversely, insignificant results may indicate that the relationship is weak or irrelevant in the context of the studied population.

4. Results and Discussion

4.1 Data Analysis

The data analysis in this study aims to test the validity and reliability of the research instruments before hypothesis testing is conducted. The measurement model in this study uses SmartPLS 4 to evaluate all the indicators that represent the variables of Artificial Intelligence (AI), Customer Experience (CX), Customer Satisfaction, and Service Duration as a moderating variable.

The model used consists of two main components: the outer model and the inner model, which are used to test the relationships between constructs. Hypothesis testing uses path coefficients to describe the strength and direction of the relationships between variables. Using the results from bootstrapping, hypothesis tests can determine whether the relationships between these variables are statistically significant. The research instrument is designed using a Likert scale with a range of 1 (Strongly Disagree) to 5 (Strongly Agree). This scale is used to measure the respondents' perceptions of each statement representing the research constructs.

4.2 Measurement Model Analysis (Outer Model)

The analysis of the measurement model or outer model is conducted to test the relationship between indicators and constructs or latent variables. This process is performed to ensure that the measurement model used is valid and reliable. There are five tests conducted in this study on the outer model, which include Convergent Validity, Discriminant Validity, Composite Reliability, Average Variance Extracted (AVE), and Cronbach's Alpha, all of which refer to the criteria set by Megawati et al. (2024).

1. Measurement Model
   The measurement model in this study shows the relationship between indicators and constructs using SmartPLS 4. This tool tests the validity and reliability of the constructs according to current literature standards. SmartPLS ensures accurate interpretation of results, allowing the indicators to precisely represent the concepts measured and ensuring scientific accountability.

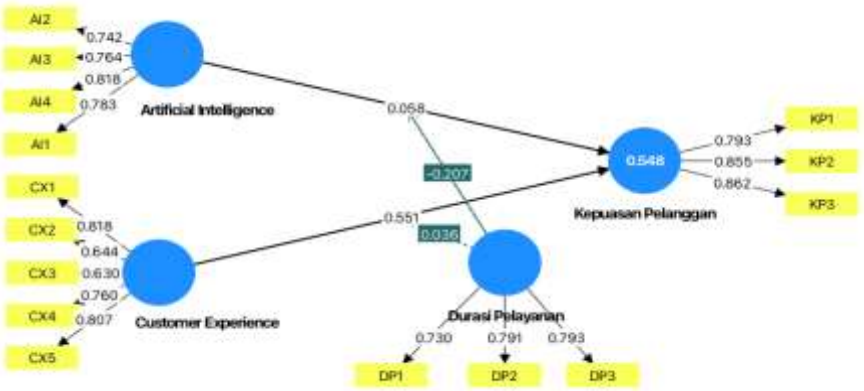

Figure 2. Graphics Output PLS Algorithm
Source: SmartPLS 4 Data Processed by Researcher (2025)

2. Validity Test
   Reliability and validity tests in this study show that most constructs meet the recommended standards for SmartPLS analysis. The Cronbach's alpha values for customer experience, customer satisfaction, and artificial intelligence are above 0.7, indicating high internal consistency and reliability. However, the service duration construct has a Cronbach's alpha of 0.663, suggesting its internal reliability needs further attention.
3. Reliability Test
   Composite reliability values for each construct are mostly above 0.7, except for rho_a in service duration, which is 0.671. The composite reliability of rho_c for service duration is 0.815, which is acceptable.

Table 1. Construct Reliability and Validity Values

Variable	Cronbach's Alpha	Composite Reliability (ρa)	Composite Reliability (ρc)	Average Variance Extracted (AVE)
Customer Experience	0.784	0.794	0.854	0.542
Customer Satisfaction	0.786	0.787	0.875	0.701
Artificial Intelligence	0.782	0.790	0.859	0.604
Service Duration	0.663	0.671	0.815	0.596

Source: Data processed using SmartPLS 4, 2025

Composite reliability tests show high internal consistency and reliability, even though the service duration construct is slightly below 0.7, which is within the tolerance for developing new measurement tools. This indicates that the constructs are reliable for further analysis. For convergent validity, all constructs have AVE values >0.5, indicating that the indicators explain more than 50% of the variance in the construct. This confirms that convergent validity is met. In the discriminant validity test, three methods were used: Heterotrait-Monotrait Ratio (HTMT), Fornell-Larcker criterion, and cross-loadings. Katarina, Sukamto, and Kadir (2023) recommend that HTMT values for variable pairs be <0.9, indicating that discriminant validity is met. Here are the results from the discriminant validity tests.

Table 2. Heterotrait-Monotrait Ratio (HTMT) Test Results

	Customer Experience	Customer Satisfaction	Artificial Intelligence	Service Duration	Service Duration × Customer Experience	Service Duration × Artificial Intelligence
Customer Experience	-	-	-	-	-	-
Customer Satisfaction	0.863	-	-	-	-	-
Artificial Intelligence	0.917	0.639	-	-	-	-
Service Duration	0.791	0.758	0.606	-	-	-
Service Duration × Customer Experience	0.085	0.152	0.094	0.161	-	-
Service Duration × Artificial Intelligence	0.144	0.191	0.132	0.131	0.653	-

Source: SmartPLS Data Processed by Author, 2025

Table 3. Fornell-Larcker Test Results

	Customer Experience	Customer Satisfaction	Artificial Intelligence	Service Duration
Customer Experience	0.736	-	-	-
Customer Satisfaction	0.686	0.837	-	-
Artificial Intelligence	0.708	0.513	0.777	-
Service Duration	0.571	0.553	0.435	0.772

Source: SmartPLS Data Processed by Author, 2025

According to the Fornell-Larcker criterion by Wong (2013), the square root of AVE values in the diagonal axis should be greater than the correlations between variables, confirming that discriminant validity is met. For customer experience (0.736), customer satisfaction (0.837), artificial intelligence (0.777), and service duration (0.772), the constructs represent their own indicators better than others. Cross-loadings, according to Rozet et al. (2024), indicate that each item correlates higher with its corresponding variable, satisfying the discriminant validity evaluation.

Table 4.Crossloadings Test Results

	Artificial Intelligence	Customer Experience	Service Duration	Customer Satisfaction	Service Duration × Customer Experience	Service Duration × Artificial Intelligence
AI2	0.742	0.543	0.291	0.385	0.086	0.168
AI3	0.764	0.484	0.353	0.383	-0.001	-0.025
AI4	0.818	0.653	0.329	0.463	0.093	0.105
CX1	0.487	0.818	0.482	0.513	0.017	0.029
CX2	0.713	0.644	0.291	0.439	0.047	0.180
CX3	0.568	0.630	0.424	0.492	-0.113	-0.089
CX4	0.503	0.760	0.489	0.467	0.072	0.086
CX5	0.388	0.807	0.406	0.593	-0.027	0.081
DP1	0.313	0.408	0.730	0.357	-0.025	0.008
DP2	0.307	0.405	0.791	0.467	-0.220	-0.202
DP3	0.387	0.508	0.793	0.445	-0.059	-0.038
KP1	0.526	0.611	0.459	0.793	-0.089	-0.193
KP2	0.324	0.498	0.469	0.855	-0.145	-0.154

KP3	0.421	0.601	0.459	0.862	-0.105	-0.079
AI1	0.783	0.500	0.387	0.350	0.079	0.066
Service Duration × Artificial Intelligence	0.103	0.075	-0.110	-0.170	0.653	1.000
Service Duration × Customer Experience	0.084	-0.005	-0.140	-0.133	1.000	0.653

Source: SmartPLS Data Processed by Author, 2025

Cross-loading analysis in this study shows that indicators exhibit good discriminant validity, with each having the highest loading value on its original construct. Most indicators have higher values on their main construct, indicating good discriminant validity. However, some negative cross-loading values, especially in the moderating indicator, indicate an inverse correlation with other constructs. When one construct increases, the indicator decreases in another, signaling inconsistency. This finding ensures that each construct has distinct, valid, and reliable measurement characteristics, so the results of the inner model or structural analysis can be interpreted scientifically and be accountable.

4.3 Structural Model Analysis (Inner Model)

After the measurement model (outer model) is deemed valid and reliable, the next step is to evaluate the structural model (inner model). According to Cantika, TJ, and Tecoalu (2023), this evaluation aims to assess the relationships between latent variables, the predictive strength of the model, and the direct and indirect effects between variables. In other words, it examines the R-Square values for each endogenous latent variable as the predictive strength of the structural model.

The structural model depicts causal relationships between independent and dependent variables in accordance with the proposed hypotheses. Hypothesis testing in this study is performed using bootstrapping techniques to test the statistical significance of paths in the structural model. This method determines whether the relationships between variables have significant effects and provides an overview of the predictive strength of the variables on model performance.

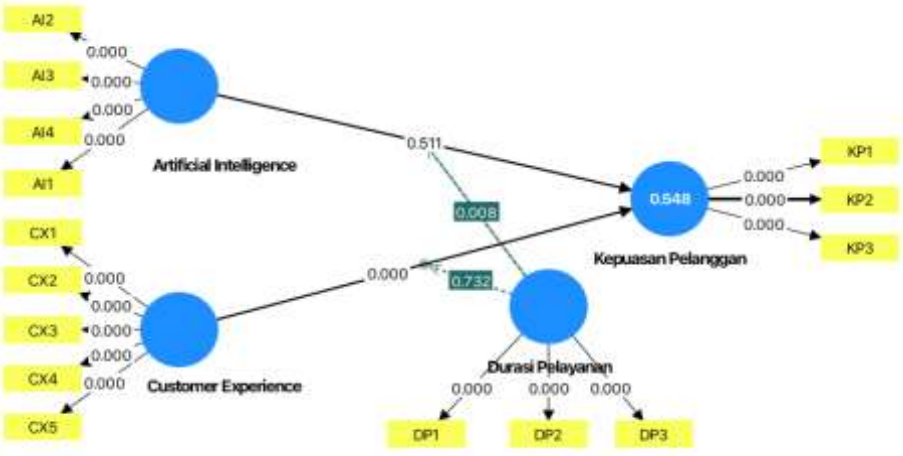

Figure 3. Graphics Output Booststrapping
Source: SmartPLS 4 Data Processed by Researcher, 2025

1. R-Square (R^2) Value

R^2 represents how much of the variation in the dependent variable (Customer Satisfaction) can be explained by the independent variables (AI and CX) and the moderating variable (Service Duration).

Table 5. R-Square Determination Coefficient

Variable	R-square	R-square Adjusted
Customer Satisfaction	0.548	0.528

Source: SmartPLS Data Processed by Author, 2025

The R-square value for the Customer Satisfaction construct is 0.548, indicating that 54.8% of the variance in Customer Satisfaction can be explained by customer experience, artificial intelligence, service duration, and the moderation among these variables. The remaining 45.2% is explained by factors outside the model. According to Victorya, Tj, Tecoalu, and Wahyoedi (2024), an R-square value of 0.548 indicates a moderate effect of AI, customer experience, and service duration on customer satisfaction. Typically, R-square values above 0.75, 0.50, and 0.25 are considered strong, moderate, and weak models, respectively. This model explains more than half of the variation in customer satisfaction, making the results informative and relevant for managerial decision-making and theoretical implications.

2. f-Square (f^2) Value

The f-square results show the effect or contribution of each variable to Customer Satisfaction individually. The f-square value for customer experience on Customer Satisfaction is 0.273, which is categorized as a moderate effect, according to Victorya et al. (2024). This indicates that improving customer experience can significantly impact the primary outcome variable in this study.

Table 6. f-Squared Results

	f-square
Artificial Intelligence → Customer Satisfaction	0.004
Customer Experience → Customer Satisfaction	0.273
Service Duration × Artificial Intelligence → Customer Satisfaction	0.059
Service Duration × Customer Experience → Customer Satisfaction	0.001

Source: SmartPLS Data Processed by Author, 2025

The contributions of artificial intelligence (0.004), service duration (0.054), service duration moderating customer experience (0.001), and service duration moderating artificial intelligence (0.059) to Customer Satisfaction have small f-square effects, all below the 0.15 threshold. The largest and most meaningful contribution to customer satisfaction comes from customer experience, while other factors contribute minimally according to the f-square approach (Cantika et al., 2023). Thus, customer experience plays the most prominent role in improving customer satisfaction. Service strategies should focus on enhancing customer experience to achieve optimal satisfaction levels.

3. Path Coefficients Significance

Path coefficients are used to indicate the strength and direction of the direct effect of independent variables on the dependent variable in the structural model. Path coefficients are evaluated using bootstrapping to obtain t-statistics and p-values, which indicate the significance of relationships between variables. In this study, hypotheses are accepted if the t-statistic is greater than 1.978 at a 5% significance level, or if the p-value is <0.05.

It is evident that customer experience has the strongest effect on customer satisfaction, with a path coefficient of 0.551. This means that any improvement in customer experience will significantly increase customer satisfaction. Meanwhile, artificial intelligence has a positive path coefficient of 0.058 on customer satisfaction, but its contribution is relatively weak, so its impact on customer satisfaction is less than that of customer experience. The following table shows the results for each path relationship:

Table 7. Path Coefficient and Bootstrapping Results

			Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Remarks
H1	H1	Artificial Intelligence → Kepuasan Pelanggan	0.058	0.657	0.511	Positive & Not Significant
H2	H2	Customer Experience → Kepuasan Pelanggan	0.551	5.814	0.000	Positive & Significant
H3	H3	Durasi Pelayanan × Artificial Intelligence → Kepuasan Pelanggan	-0.207	2.664	0.008	Negative & Significant
H4	H4	Durasi Pelayanan × Customer Experience → Kepuasan Pelanggan	0.036	0.343	0.732	Positive & Not Significant

Source: SmartPLS Data Processed by Author, 2025

From the statistical analysis table above, the following conclusions can be drawn:

Artificial Intelligence (AI) Impact on Customer Satisfaction

The results show that the impact of artificial intelligence on customer satisfaction is positive, with a path coefficient of 0.058 and a t-statistic of 0.657. However, this is not statistically significant, as the p-value is 0.511. Although the direction of the effect is positive, AI usage and implementation in services have not significantly improved customer satisfaction in this telemedicine model.

Customer Experience (CX) Impact on Customer Satisfaction

The results for the impact of Customer Experience on Customer Satisfaction show a path coefficient of 0.551 and a t-statistic of 5.814, which is greater than the 1.978 threshold, and a p-value of 0.000, which is less than the significance level of 0.05. Therefore, Customer Experience has a positive and significant impact on Customer Satisfaction. This result supports the acceptance of the second hypothesis in this study.

Moderating Role of Service Duration on the Impact of Artificial Intelligence (AI) on Customer Satisfaction

The results show that service duration negatively moderates the effect of AI on customer satisfaction. The moderation path coefficient is -0.207, with a t-statistic of 2.664, which is greater than 1.978, and the p-value for the moderation path is 0.000, indicating significance. Thus, service duration moderates the relationship between AI and customer satisfaction negatively. The longer the service duration while using AI, the lower the customer satisfaction. This suggests that customers expect faster and more efficient AI-based processes, and if the process takes too long, satisfaction decreases. Customers might prefer in-person service with doctor partners instead.

The Moderating Role of Service Duration on the Impact of Customer Experience (CX) on Customer Satisfaction

Based on the results of testing the role of Service Duration in the impact of Customer Experience (CX) on Customer Satisfaction, the path coefficient is 0.036, and the t-statistic is 0.343, which is less than 1.978, while the p-value is 0.732, which is greater than the significance level of 0.05. Therefore, the moderating role of Service Duration on the impact of Customer Experience (CX) on Customer

Satisfaction is positive but not significant, meaning that Service Duration does not play an important role or has not yet shown a real impact on Customer Satisfaction through this model.

4. Inner VIF (Variance Inflation Factor) Test Results

In the structural model above, all indicators show VIF values well below the 5 threshold, ranging from 1.000 to 2.146.

Table 8. VIF Results

	VIF
AI2	1.641
AI3	2.088
AI4	1.768
CX1	1.970
CX2	1.314
CX3	1.328
CX4	1.811
CX5	1.927
DP1	1.290
DP2	1.268
DP3	1.318
KP1	1.373
KP2	2.071
KP3	2.017
AI1	2.146
Service Duration × Artificial Intelligence	1.000
Service Duration × Customer Experience	1.000

Source: SmartPLS Data Processed by Author, 2025

This indicates that there is no multicollinearity issue among the independent variables affecting the customer satisfaction construct in this model. Each exogenous variable can be interpreted individually without undue influence from other variables, making the path coefficient estimates and model analysis results more valid and accurate.

5. Goodness-of-Fit (GOF) Evaluation

The goodness-of-fit value indicates that the model has adequate fit.

Table 9. GOF Results

Fit Measure	Saturated Model	Estimated Model
SRMR	0.103	0.103
d_ULS	1.282	1.280
d_G	0.515	0.514
Chi-square	332.514	331.465
NFI	0.627	0.629

Source: SmartPLS Data Processed by Author, 2025

The Standardized Root Mean Square Residual (SRMR) is 0.103, which is below the threshold of 0.10–0.12, indicating good fit between the predicted and observed covariance matrices. The low values of d_ULS and d_G show model consistency, while the small Chi-square value indicates minimal deviation between data and the model. NFI values between 0.627 and 0.629 approach the ideal value of 0.90 but are still acceptable in the overall evaluation. Overall, this model is suitable for further interpretation with some potential improvements going forward.

5. Conclusion

5.1 Conclusion

Based on the data analysis and discussion results in Chapter IV, several key points can be concluded as follows:

1. Artificial Intelligence (AI) has a positive but not significant impact on customer satisfaction. The statistics show a small result, indicating that AI does not significantly increase customer satisfaction, meaning that the implementation of AI in telemedicine in this study sample has not yet shown a real impact on customer satisfaction. AI effectiveness still requires optimization in aspects like user experience, patient emotional context, personalized interaction, and ease of use in the telemedicine service ecosystem.

   In this study, the use of AI technology in the Good Doctor app, such as medical chatbots, drug recommendation systems, and early symptom detection, enhances customer perception of service quality. AI helps speed up service processes, provide more accurate diagnoses, and build trust in the system. These findings support the Technology Acceptance Model (TAM), which emphasizes the importance of perceived usefulness and ease of use in user satisfaction. Thus, AI supports faster, more accurate diagnoses and improves user trust when other factors are also prioritized.
2. Customer Experience (CX) has a positive and significant impact on customer satisfaction, meaning that better customer experiences in terms of communication quality, service speed, ease of navigation, and comfort will improve customer satisfaction in telemedicine services. This underscores that consistent management of all aspects of customer experience is the most effective strategy to build and maintain customer satisfaction in today's digital service era. This aligns with the Customer Experience Management (CEM) theory and previous research, which emphasizes that enjoyable digital user experiences significantly contribute to customer loyalty and satisfaction.
3. Service Duration Moderation weakens the relationship between Artificial Intelligence and Customer Satisfaction, meaning that if AI in telemedicine does not speed up or reduce service time, and instead prolongs the process, customer satisfaction will decrease significantly. As service duration becomes more efficient, the impact of AI on customer satisfaction becomes stronger. Optimizing AI algorithm speed directly impacts the perception of service quality. This is an important reminder for teleconsultation service managers to ensure that AI system reforms prioritize both service duration efficiency and responsiveness.
4. Service Duration Moderation on the Impact of Customer Experience on Customer Satisfaction is positive but not significant, meaning that while service duration and customer experience are aligned, they do not significantly affect customer satisfaction because their effect is too small or not strong enough to be considered meaningful. Customer experience is more influenced by the quality of interaction and service value perception, rather than just the service duration. This finding emphasizes that digital customer experiences are more influenced by effective communication, ease of access, and system speed than by the wait time or technical service duration.

Overall, this study proves that the success of telemedicine services is not only determined by technological aspects but also by a comprehensive customer experience. The combination of effective AI and excellent CX is key to enhancing customer satisfaction in the digital health ecosystem.

5.2 Suggestions

5.2.1 For the Company: PT Good Doctor Technology Indonesia

1. Optimize Artificial Intelligence (AI) features so they do not just automate, but also speed up service duration, enhance responses, and provide better personalized experiences for users.
2. Focus on improving customer experience quality through effective communication, easy access to services, and clear, targeted customer education.
3. Strengthen the pharmacy network and delivery systems to ensure faster and more efficient service in both major cities and suburban areas.
4. Conduct regular evaluations of user needs across demographics to create relevant service innovations that can increase customer loyalty and advocacy.
5. Enhance integration between technology and human touch in every service interaction to ensure users still feel warmth and comfort.

5.2.2 For the Government and Stakeholders

1. Develop and implement comprehensive regulations specifically governing operational standards, data protection, and telemedicine service practices in Indonesia to protect both patients and service providers.
2. Strengthen oversight of telemedicine implementation, especially regarding patient data security, prescription handling, and ensuring doctors have clear registration and practice permits.
3. Encourage equal access to the internet and digital infrastructure across Indonesia so that people, including those in remote areas, can fully benefit from telemedicine services.
4. Develop a national integrated telemedicine platform to simplify monitoring, regulatory compliance, and increase public trust in digital health services.
5. Support ongoing training and education for healthcare providers on telemedicine technology, effective communication, and ethics in digital services.
6. Regularly evaluate and research the effectiveness of telemedicine services in improving the quality, efficiency, and accessibility of healthcare in various facilities.
7. Foster collaboration between the government, service providers, and stakeholders to accelerate the use of telemedicine in the national health insurance system and support ongoing innovations in healthcare.

5.2.3 For Future Researchers

1. Expand the scope of research by involving respondents from more diverse educational backgrounds, professions, and locations to make the findings more representative.
2. Use a combination of research methods or data triangulation to gain deeper insights into satisfaction, loyalty, and technology adoption patterns in telemedicine services.
3. Explore the impact of psychological variables and emotional customer experiences on perceptions of digital health services.
4. Conduct further research on data security, doctor-patient communication quality, and the potential integration of AI with electronic health records and wearable health devices in the digital age.
5. Consider developing new models and measurement tools that align with advancements in technology and digital health industry trends in Indonesia.

References

Adeogun, A., & Faezipour, M. (2025). *Assessing the impact of telemedicine on patient satisfaction before and during the COVID-19 pandemic.* Paper presented at the Healthcare.

Alarcon-Ruiz, C. A., Heredia, P., & Taype-Rondan, A. (2019). Association of waiting and consultation time with patient satisfaction: secondary-data analysis of a national survey in Peruvian ambulatory care facilities. *BMC health services research, 19*(1), 439. doi: https://doi.org/10.1186/s12913-019-4288-6

Alrasheedi, K. F., Al-Mohaithef, M., Edrees, H. H., & Chandramohan, S. (2019). The association between wait times and patient satisfaction: findings from primary health centers in the Kingdom of Saudi Arabia. *Health services research and managerial epidemiology, 6*, 1-7. doi:https://doi.org/10.1177/2333392819861246

Andriani, R., & Nisaa, A. (2023). Adopsi Teknologi Telemedicine pada Tenaga Kesehatan. *Indonesian of Health Information Management Journal (INOHIM), 11*(2), 114-123. doi:https://doi.org/10.47007/inohim.v11i2.518

Ardoni, A. (2022). Analisis Waiting Time, Kualitas Pelayanan dan Kepercayaan terhadap Loyalitas dengan Kepuasan sebagai Pemediasi. *Journal of Business and Economics (JBE) UPI YPTK, 7*(3), 308-315. doi:https://doi.org/10.35134/jbeupiyptk.v7i3.178

Awadh, A. A. A., Dhafar, Y. O., Elzohri, M. H., El Desouky, E. D., Motaweh, M., Alkattan, A., & Aldossary, M. (2025). Understanding Telemedicine: Measuring Beneficiaries' Satisfaction and Key Call Metrics in the Kingdom of Saudi Arabia. *Journal of Patient Experience, 12*, 1-10. doi:https://doi.org/10.1177/23743735251361199

Barahama, T., Wijiastuti, R. D., Rawi, R. D. P., & Lewenussa, R. (2022). Citra Perusahaan, Customer Experience Dan Fasilitas: Pengaruhnya Terhadap Kepuasan Pelanggan PT. Pelni Cabang Sorong. *Lensa Ilmiah: Jurnal Manajemen Dan Sumberdaya, 1*(2), 142-149. doi:https://doi.org/10.54371/jms.v1i2.196

Becker, L., & Jaakkola, E. (2020). Customer experience: fundamental premises and implications for research. *Journal of the Academy of Marketing science, 48*(4), 630-648. doi:https://doi.org/10.1007/s11747-019-00718-x

Brahmana, R. P., & Karo, R. K. (2022). Penerapan Telemidisin Di Indonesia Berbasis Nilai Teori Keadilan Bermartabat: Pengaturan dan Peran Dokter. *Jurnal Lemhannas RI, 10*(4), 224-235. doi:https://doi.org/10.55960/jlri.v10i4.365

Cantika, C. C., TJ, H. W., & Tecoalu, M. (2023). The influence of administrative services, medical services, and drug availability on the level of outpatient satisfaction moderated by waiting time. *Journal of Management Science (JMAS), 6*(2), 254-262. doi:https://doi.org/10.35335/jmas.v6i2.218

Chen, X., Liu, C., Yan, P., Wang, H., Xu, J., & Yao, K. (2025). The impact of doctor-patient communication on patient satisfaction in outpatient settings: implications for medical training and practice. *BMC Medical Education, 25*(1), 830. doi:https://doi.org/10.1186/s12909-025-07433-y

Febrianti, K. R., Azizah, N., & Rusadi, F. (2025). Pemanfaatan Kecerdasan Buatan Artificial Intelligence (Ai) Dalam Membantu Kinerja Pembelajaran. *Jurnal Inovasi Pendidikan dan Teknologi Informasi (JIPTI), 6*(1), 210-226. doi:https://doi.org/10.52060/jipti.v6i1.2883

Ferdian, B. B. (2024). The Significance of Brand Positioning to UX Design Business Growth. *Jurnal Bisnis dan Pemasaran Digital, 3*(2), 125-135. doi:https://doi.org/10.35912/jbpd.v3i2.4513

Hassan, N., Abdelraouf, M., & El-Shihy, D. (2025). The moderating role of personalized recommendations in the trust–satisfaction–loyalty relationship: an empirical study of AI-driven e-commerce. *Future Business Journal, 11*(1), 66. doi:https://doi.org/10.1186/s43093-025-00476-z

Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., . . . Wang, Y. (2017). Artificial intelligence in healthcare: past, present and future. *Stroke and vascular neurology, 2*(4), 230-243. doi:https://doi.org/10.1136/svn-2017-000101

Josephine, O., Tj, H. W., & Fushen, F. (2023). The effect of E-Digital services and the competence of health workers on the patient's interest in repeat visits mediated by the level of trust. *Enrichment: Journal of Management, 13*(3), 2269-2280. doi:https://doi.org/10.35335/enrichment.v13i3.1591

Katarina, A., Sukamto, E., & Kadir, A. (2023). The Correlation between Waiting Time and Patient Satisfaction in the Outpatient Unit at the Gateway Sehat Hospital, Mahulu Ujoh Says. *Formosa J Sci Technol, 2*(8), 2019-2034. doi:https://doi.org/10.55927/fjst.v2i8.5539

Keni, K., & Sandra, K. K. (2021). Prediksi customer experience dan service quality terhadap customer loyalty: Customer satisfaction sebagai variabel mediasi. *Jurnal Muara Ilmu Ekonomi dan Bisnis, 5*(1), 191-204. doi:https://doi.org/10.24912/jmieb.v5i1.11196

Khatun, F., Das, N. C., Hoque, M. R., Saqeeb, K. N., Rahman, M., Park, K. R., . . . Reidpath, D. D. (2024). Users' Perceived Service Quality of National Telemedicine Services During the COVID-19 Pandemic in Bangladesh: Cross-Sectional Study. *JMIR Human Factors, 11*(1). doi:https://doi.org/10.2196/46566

Kruse, C. S., Krowski, N., Rodriguez, B., Tran, L., Vela, J., & Brooks, M. (2017). Telehealth and patient satisfaction: a systematic review and narrative analysis. *BMJ open, 7*(8). doi:https://doi.org/10.1136/bmjopen-2017-016242

Kuntardjo, C. (2020). Dimensions of ethics and telemedicine in Indonesia: Enough of Permenkes Number 20 year 2019 as a frame of telemedicine practices in Indonesia? *SOEPRA Jurnal Hukum Kesehatan, 6*(1), 1-14. doi:https://doi.org/10.24167/shk.v6i1.2606

Megawati, S., Machmud, A., & Alfarizi, M. (2024). Telemedicine and transformative health access for millennials-Gen Z: PLS-SEM based behavioral exploration. *Technology in Society, 79*. doi:https://doi.org/10.1016/j.techsoc.2024.102714

Mufti, M. W., Ikhsan, M. H., Sani, R., & Fauzan, M. (2024). Urgensi Pembentukan Peraturan Perundang-Undangan Teknologi Berbasis Artificial Intelligence. *Socius: Jurnal Penelitian Ilmu-Ilmu Sosial, 1*(11), 137-141. doi:https://doi.org/10.5281/zenodo.11422903

Novianti, A. H. (2023). Pengaruh e-Service Quality, Reputation, e-Trust, e-Satisfaction terhadap e-Customer Loyalty. *Jurnal ISIP: Jurnal Ilmu Sosial dan Ilmu Politik, 20*(2).

Pemayun, C. T. D., & Dewi, P. E. T. (2025). Keabsahan Tanda Tangan Digital dalam Transaksi Bisnis. *Jurnal Ilmiah Hukum dan Hak Asasi Manusia, 4*(2), 91-101. doi:https://doi.org/10.35912/jihham.v4i2.3798

Pramana, P., Utari, P., Alkhajar, E. N. S., & Widianti, M. A. (2025). Masa Depan Komunikasi: Menjelajah Peran Artificial Intelligence Dalam Interaksi Manusia. *Samvada: Jurnal Riset Komunikasi, Media, dan Public Relations, 4*(1), 39-71. doi:https://doi.org/10.53977/jsv.v4i1.2500

Pratiwi, K. S. A. L., Luh Putu Agustini Karta, N., Ramanita, N. W. S., Aprilia, N. P. N., & Wardani, R. K. (2023). Penerapan Digital Marketing sebagai Media Pemasaran Global Guna Meningkatkan Penjualan Kain Tenun Gringsing Desa Tenganan Pegringsingan Bali. *Jurnal Bisnis dan Pemasaran Digital, 2*(2), 105-113. doi:https://doi.org/10.35912/jbpd.v2i2.2566

Primasatya, S. (2024). Perlindungan Terhadap Perkembangan Layanan Kesehatan Berbasis Kecerdasan Buatan (Artificial Intelligence) Di Indonesia: Protection Regarding The Development Of Artificial Intelligence-Based Health Service Technology In Indonesia. *Jurnal Globalisasi Hukum, 1*(1), 78-93. doi:https://doi.org/10.25105/jgh.v1i1.19833

Rachmawati, I., & Al Amin, I. F. (2025). Generation Y and the Shift to Electric Vehicles in Indonesia: Exploring Key Drivers and Barriers. *Jurnal Bisnis dan Pemasaran Digital, 4*(2), 133-145. doi:https://doi.org/10.35912/jbpd.v4i2.4531

Reddy, S., Fox, J., & Purohit, M. P. (2019). Artificial intelligence-enabled healthcare delivery. *Journal of the Royal Society of Medicine, 112*(1), 22-28. doi:https://doi.org/10.1177/0141076818815510

Ricard, A. O., Winoto, H., & Tecoalu, M. (2025). Pengaruh E-Trust dan E-Service Quality terhadap E-Loyalty dengan E-Satisfaction sebagai Variabel Intervening (Studi pada Pengguna Klikdokter). *Innovative: Journal Of Social Science Research, 5*(1), 5601-5622. doi:https://doi.org/10.31004/innovative.v5i1.18072

Risdiawati, R., Merlina, N., & Mayangky, N. A. (2022). Pemilihan Dokter Umum Terbaik Di Aplikasi Good Doctor Menggunakan Metode Weight Product. *Indonesian Journal on Software Engineering (IJSE), 8*(1), 26-35. doi:https://doi.org/10.31294/ijse.v8i1.11437

Rosady, D. S., Lazuardi, L., & Sastrowijoto, S. (2022). Telekonsultasi Klinis: Etika, Disiplin, dan Hukum Kedokteran. *Jurnal Hukum Kesehatan Indonesia, 2*(01), 1-23. doi:https://doi.org/10.53337/jhki.v2i01.17

Rozet, S. J., Yusriani, S., Sitompul, R., Supriyanto, E., Jasmine, K., & Utomo, K. W. (2024). *The The Influence of Perceived Waiting Time, AI Utilization, and Medication Information Delivery on Word of Mouth: A Qualitative Preliminary Study at Hospital Balikpapan.* Paper presented at the International Student Conference on Business, Education, Economics, Accounting, and Management (ISC-BEAM).

Taufik, R., Muhaqiqin, M., Ilman, I. S., & Sholehurrohman, R. (2023). Analisis Informasi Jaringan Homogen dan Heterogen pada Liga Champions UEFA. *Jurnal Ilmu Siber dan Teknologi Digital, 1*(2), 91-110. doi:https://doi.org/10.35912/jisted.v1i2.1928

Van Nguyen, S., Duong, H. N. V., Nguyen, H. B., Doan, M. A. T., Nguyen, D. T., Tran, A. T., . . . Tran, T. H. T. (2023). Telemedicine in home-based care for COVID-19 patients. *BMC Primary Care, 24*(1). doi:https://doi.org/10.1186/s12875-023-02199-y

Victorya, J., Tj, H. W., Tecoalu, M., & Wahyoedi, S. (2024). Kualitas Layanan Memediasi Pengaruh Kepercayaan Terhadap Kepuasan Pasien Pada Aplikasi Telemedicine. *Journal of Syntax Literate, 9*(5). doi:https://doi/org.10.36418/syntax-literate.v9i5.15286