
THE EFFECTS OF SERVICE QUALITY, SYSTEM QUALITY, AND E-TICKETING INFORMATION ON CUSTOMER LOYALTY BY MEDIATING USER SATISFACTION AT PT. ASDP (PERSERO) MERAK BRANCH: A CONCEPTUAL MODEL

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ABSTRACT

Since introducing digital technology a decade ago, the ferry transportation sector has significantly transformed from traditional ticket sales to digital ticketing systems. This change has resulted in more efficient ticketing processes using digital platforms such as mobile ticketing and barcode scanning. The benefits of digital ticketing include fewer physical ticket handling, improved customer preference tracking, and significant cost savings. However, issues persist, especially in providing a consistent user experience with the e-ticketing system. This study focuses on PT. ASDP (Persero) Merak Branch, studying the impact of service quality, system quality, and information quality on customer loyalty, with user satisfaction as a moderator. This study will use a quantitative method to improve the e-ticketing system, nurture customer satisfaction and loyalty, and secure a competitive position in the ferry transportation sector.

KeyWords

Conceptual Model, Customer Loyalty, Service Quality, System Quality, Information Quality, User Satisfaction, E-ticketing Information.

INTRODUCTION

The ferry transportation sector has witnessed a considerable shift from traditional ticket sales to digital ticketing systems during the last decade, owing to the introduction of digital technology that has altered the industry's operations. Digitalization has improved the ticketing process by providing clients access to ticketing services via multiple digital platforms, such as mobile ticketing, bar-code scanning, and internet ticketing (Grossman, D., 2017).

The advantages of digital ticketing include eliminating physical tickets, which reduces the danger of loss or theft. This development has allowed ferry firms to follow client movements more efficiently and discover preferred routes and travel times. Furthermore, digital ticketing has resulted in significant cost savings by eliminating the need for ticket sales employees, ticket vending machines, and printing expenditures (Grossman, D., 2017).

The ferry transportation sector has been considerably altered by digitalization, which has improved data management, user experiences, reduced queuing times, and increased customer loyalty. Ferry operators can optimize services, improve operational efficiency, and optimize pricing strategies by collecting essential data on service utilization (Frey et al.; Rusik et al.; & Hjelmstad, J., 2019).

To boost consumer satisfaction, PT. ASDP (Persero) has embraced digitalization in ferry services, particularly online ticket booking and sales. However, issues remain in the deployment of the e-ticketing system at PT. ASDP, such as consumer confusion, the complexity of the e-ticketing system, and a need for more openness in delivering information to customers (CNN Indonesia, 2022). As a result, customer satisfaction has dropped, resulting in a drop in customer loyalty.

PT. ASDP (Persero) may improve its e-ticketing system and ensure a great customer experience by recognizing the relationship between service quality, system quality, information quality, user satisfaction, and customer loyalty. This would result in enhanced customer loyalty and the opportunity for new customers, securing a solid position in the competitive ferry transportation sector.

At PT. ASDP (Persero) Merak Branch, the study intends to explore the impact of service quality, system quality, and e-ticketing information on customer loyalty, with user satisfaction acting as a mediator. The study looks at how the quality of services, systems, and information affects user satisfaction and, as a result, customer loyalty.

LITERATURE REVIEW

A. Service Quality

In business, service quality is vital in determining a company's success. It refers to how well a company's services meet or surpass the expectations of its customers. The notion of quality of service has developed over time and has been influenced by various elements, such as customer demands, expectations, and perceptions. Quality of service is defined by Parasuraman et al. (2005) as "a type of attitude resulting from a comparison of expectations with perceived performance" (p. 6). Increasing customer satisfaction and loyalty is also linked to improving service quality. Quality of service is defined by Zeithaml et al. (2013) as "the extent to which services meet or exceed customer expectations" (p. 107), emphasizing the importance of meeting customer expectations as a critical factor of service quality. Companies can provide high-quality services by concentrating on client wants and expectations, resulting in greater customer satisfaction and loyalty.

One of the popular instruments for measuring service quality in information systems is SERVQUAL which was adapted from the field of marketing (DeLone & McLean, 2003, p. 18). SERVQUAL consists of several components:

- 1) tangibles (the most recent hardware and software)
- 2) reliability (system reliability)
- 3) responsiveness (appropriate service from information system personnel)
- 4) assurance (information system personnel's knowledge in performing their tasks),
- 5) empathy (user trust in the information system) (DeLone & McLean, 2003, p. 18).

According to research by DeLone and McLean (2003:18), attentiveness, assurance, and empathy have good validity and dependability. As a result, DeLone and McLean (2003:26) advocate measuring service quality in the context of information systems using assurance, empathy, and responsiveness. Furthermore, as technology advances, the E-S-QUAL 2.0 scale, which focuses on measuring electronic service quality, has developed as an alternative tool. E-S-QUAL 2.0 measures the quality of electronic service delivery against four key dimensions: functionality, convenience, reliability, and responsiveness (Peng & Wu, 2018). These factors are critical to the success of online businesses since they contribute to consumer happiness and loyalty.

B. System Quality

System quality refers to the technical quality of the information processing system, including software and data components (Gorla et al., 2010). When defining system quality, Seddon (1997) emphasizes functionality, which includes bug-free systems, consistent user interfaces, simplicity of use, quality documentation, and code maintenance. Evaluating system quality entails determining how effectively the system meets users' functional and non-functional needs, such as dependability, security, usability, and performance. System quality can be assessed from various viewpoints, including internal technical quality, external quality, and usability. Internal quality evaluates system technical elements such as code structure, maintainability, and dependability. External quality refers to how well the system performs in its environment, including ease of use, comprehension, and performance in various scenarios. The system's usability measures how well it supports user tasks.

Various approaches define system quality, with some emphasizing technical performance and others emphasizing user experience and pleasure. ISO/IEC 9126 is a popular quality model that considers six factors: functionality, reliability, usability, efficiency, maintainability, and portability. Depending on the type and purpose of the information system, these features are examined using various metrics and indicators (Wang & Strong, 2018). The ITIL (Information Technology Infrastructure Library) framework is another strategy that promotes system alignment with business goals and needs. According to ITIL, system quality should be evaluated based on its capacity to produce desired outcomes such as increased productivity, cost savings, or customer satisfaction. ITIL recommends continuous improvement techniques involving system monitoring, measurement, analysis, and adaptation to achieve these aims. Furthermore, system quality involves ethical, legal, and social aspects such as data privacy protection, compliance with appropriate laws and regulations, and avoiding harmful environmental or societal repercussions.

C. Information Quality

Information quality is critical in a system since it refers to the features that make information system output desirable (Al-Mamary et al., 2014). According to Jogiyanto (2007), information quality measures the quality of information system output. As a result, high-quality information has characteristics such as relevance, timeliness, correctness, completeness, and usability, making it beneficial for the demands of consumers (Mahmood et al., 2001). The importance of information quality has grown in the digital business landscape as firms increasingly rely on data-driven decision-making. Accuracy, completeness, relevance, timeliness, and data consistency can all be used to assess it (Wang & Strong, 2018). Information quality is complex, with several fundamental dimensions influencing its use and usefulness.

DeLone and McLean (2003) quantify information quality using various factors, including completeness, ease of understanding, personalization, relevance, and security. As a result, the information's completeness, ease of understanding, customizing choices,

relevance to user demands, and data security can all be used to measure the quality of information in an e-ticketing system. The DeLone and McLean (2003) tool can assess the quality of information in an e-ticketing system. As a result, e-ticketing system owners should prioritize information quality to meet users' expectations and satisfaction efficiently.

D. User Satisfaction

The alignment between the information system requested by users and the information delivered is referred to as user satisfaction (Ives, 1983). Measuring user satisfaction is an essential indication in assessing the quality of information systems since it encompasses the complete user experience when using the information system (DeLone & McLean, 2003). Customer satisfaction is an important component of a business. A company's performance is primarily reliant on the amount of client happiness. As a result, to satisfy users, businesses must understand their changing requirements and preferences. On the other hand, customer satisfaction levels differ from person to person.

Philip Kotler (Sunyoto, 2013) classifies user happiness into three categories: dissatisfaction when product performance falls short of expectations, contentment when product performance meets expectations, and pleasure when product performance exceeds expectations. Satisfaction is derived from the Latin words "satis," which means "good enough" or "adequate," and "facio," which means "to make or do." User satisfaction is an evaluation of how well expectations are met. As a result, if a product or service matches the user's expectations, they are pleased. If it falls short of expectations, people are unsatisfied.

The End-User Computing Satisfaction (EUCS) model is a popular tool for measuring user satisfaction, and it comprises aspects such as content, accuracy, format, simplicity of use, and timeliness (Doll and Torkzadeh in Aggelidis & Chatzoglou, 2012). DeLone and McLean (2003) employ repeat visits, repeat transactions, and user surveys to quantify consumer satisfaction in e-commerce. Thus, with an e-ticketing system, customer satisfaction can be measured using DeLone and McLean's (2003) tools, which include repeat visits, repeat purchases, and user surveys. This provides a clear picture of the quality of the e-ticketing service and assists the organization in improving customer satisfaction and retention.

Assessing user satisfaction entails comparing perceived advantages to predicted benefits. According to Irawan (2008), several indicators of user satisfaction include feeling satisfied with the company's products and services, desire to repurchase if expectations are met, recommending the product or service to others, and fulfilling user expectations after the purchase.

E. User Loyalty

Customer loyalty is critical in business and marketing. According to Kotler and Keller (2009), customer loyalty is a strong desire to buy or support favored items or services. It entails regular and continual repurchasing behavior over a long period due to the user's affinity for the product or brand. According to Ishak and Luthfi (2011), devoted customers tend to advocate the product or brand to others, which benefits brand image and company success.

According to Gramer and Brown in Utomo (2006), service loyalty is the degree to which a user demonstrates repeat purchasing behavior from a single service provider, has a favorable attitude toward the service provider, and considers utilizing this service provider again when needed. Loyal customers not only make repeat purchases, but they also have a favorable attitude toward the service provider. Brand and store loyalty are two types of user loyalty (Sutisna, 2001). Brand loyalty refers to a user's continued use of a specific product or brand and readiness to repurchase it. On the other hand, store loyalty refers to people's devotion to a particular store or firm due to great shopping experiences or environmental effects.

Measuring user loyalty is evaluating a person's views and actions toward a product or brand. Attitudes include preferences and proclivity to use specific products or brands, whereas action includes acquiring and using the product or brand. As a result, evaluating user loyalty should incorporate both dimensions to provide an actual estimate of loyalty. This study employs Deng, Lu, Wei, and Zhang (2010)'s user loyalty indicators, which include continued use of a specific service provider, promoting the service provider to others, and demonstrating loyalty to a specific service provider.

User loyalty is influenced by various factors, such as customer satisfaction, service quality, brand image, pricing, the convenience of acquiring the brand, and the service and warranties provided by the brand. An individual's thoughts of liking or hating a product after comparing its performance to their expectations influence customer satisfaction (Tjiptono, 2007). The impact of contentment or discontent grows in tandem with perceptions of product quality (Boulding et al., 1993 in Mardalis, 2005). Service quality is another essential aspect influencing consumer satisfaction (Shellyana and Basu, 2002 in Mardalis, 2005). Manufacturers must improve service quality to generate customer loyalty since low-quality products risk losing customers (Boulding et al., 1993 in Mardalis, 2005). User loyalty is also influenced by brand image and company reputation because a product with a positive image can encourage user loyalty (Anderassen, 1999 in Mardalis, 2005). Other elements influencing user loyalty include affordability, the ease of getting the brand, and the service and warranties provided by the brand.

According to a study by Mangisi Hasugian (2015), five aspects influence user loyalty:

- 1) Value (price and quality).
- 2) Image, ease of purchasing the brand.
- 3) Contentment.
- 4) Company's service and warranties.

The elements influencing user loyalty include customer happiness, service quality, brand image, pricing, ease of purchasing

the brand, and the company's service and warranties. Manufacturers must consider these characteristics to foster strong and long-lasting user loyalty.

CONCEPTUAL MODEL

Based on the literature study and prior studies, it is hypothesized that variables such as service quality, system quality, information quality and user satisfaction have direct effect on user loyalty. It is also suspected that the user service quality, system quality, and information quality have an indirect effect on user loyalty which mediated by user satisfaction. Hence, this conceptual model formulated as in Figure 1.

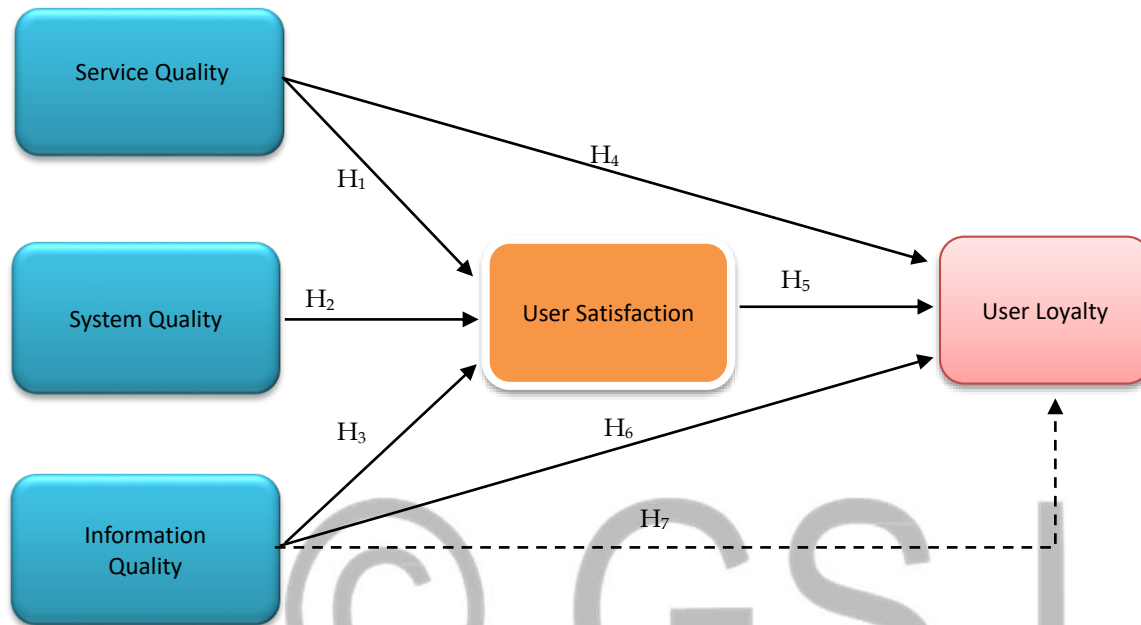


Figure 1. The Conceptual Model

Description:

—————▶ : Direct Effect

- - - - -▶ : Indirect Effect (Mediated)

HYPOTHESES

This research develop conceptual model based by analyzing the relationship between the variables and produce hypotheses. There have been known that variable user service quality, system quality, and information quality have a relationship on user loyalty which mediated by user satisfaction. As drawn in Figure 1, there are seven hypotheses were developed:

- H1: Service Quality has a direct positive and significant effect on User Satisfaction.
- H2: System Quality has a direct positive and significant effect on User Satisfaction.
- H3: Information Quality has a direct positive and significant effect on User Satisfaction.
- H4: Service Quality has a direct positive and significant effect on User Loyalty.
- H5: System Quality has a direct and significant positive effect on User Loyalty.
- H6: Information Quality directly has a positive and significant effect on User Loyalty.
- H7: User satisfaction has a direct positive and significant effect on User Loyalty.

METHODOLOGY

In order to achieve the research objectives, the method used is explanatory research with a quantitative approach to issues in the deployment of the e-ticketing system at PT. ASDP (Persero) Merak Branch. The population studied is service users of PT. ASDP (Persero) Merak Branch, which has made ticket reservations through the e-ticketing system. The sample size was determined using the Lemeshow formula. A total sample of 384 people was obtained. The sampling period is two weeks, starting July 9, 2023.

Data was collected using research questionnaires with 5 Likert scale scores. Research data will be tested using validity and reliability tests using SPSS software. The results will then be analyzed using Path Analysis.

CONCLUSION

This study explores the relationship between the variables of service quality, system quality, and information quality on user loyalty, with user satisfaction as a mediating variable. This research consists of research background, literature review, conceptual model, hypotheses, and research methodology of issues in the deployment of the e-ticketing system at PT. ASDP (Persero) Merak Branch. The purpose of this research is to provide information about the relationship between variables of service quality, system quality, and information quality on user loyalty, with user satisfaction as the mediator.

REFERENCES

- [1] Aggelidis, V. P. & Chatzoglou, P. D. (2012). Hospital information systems: Measuring end user computing satisfaction (EUCS). , 45(3), -. doi:10.1016/j.jbi.2012.02.009
- [2] Al-Mamary, Y. H., Shamsuddin, A., & Aziati, N. (2014). The relationship between system quality, information quality, and organizational performance. *International Journal of Knowledge and Research in Management & E-Commerce* 4, no. 3: 7-10.
- [3] CNN Indonesia. (2022). Netizen Keluhkan Layanan beli Tiket Kapal ferizy Tidak Bisa Diakses. CNN Indonesia. <https://www.cnnindonesia.com/teknologi/20220428101121-192-790821/netizen-keluhkan-layanan-beli-tiket-kapal-ferizy-tidak-bisa-diakses>
- [4] Delone, W.H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems*, 19(4) 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
- [5] Deng, Z.Lu, Y., Wei, K.K., & Zhang, J. (2010). Understanding Customer Satisfaction and Loyalty : An Empirical Study Of Mobile Instant 122 Messages in China. *International Journal of Information Management*, 30,289-300.
- [6] Frey, A. V., Rusik, J. A., & Hjelmstad, J. (2019). The Role of Mobile Ticketing Services in Public Transit. *Journal of Public Transportation*, 22(3), 16-32.
- [7] Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. In *The Journal of Strategic Information Systems* (Vol. 19, Issue 3, pp. 207–228). Elsevier BV. <https://doi.org/10.1016/j.jsis.2010.05.001>
- [8] Grossman, D. (2017). MaaS and Mobility in the Digital Age. *Public Transport International*, 66(5), 29-30.
- [9] Hasugian, J. T. M. (2015). Pengaruh Brand Image dan Brand Trust Terhadap Brand Loyalty Telkomsel (Survey Terhadap Pelanggan Telkomsel Grapari Samarinda). *Jurnal Administrasi Bisnis (JAB)*.
- [10] Irawan, (2008). *Manajemen Pemasaran Modern*, Liberty, Yogyakarta.
- [11] Irawan, 2008. *Manajemen Pemasaran Modern*, Liberty, Yogyakarta.
- [12] Ishak, A. & Luthfi, Z. (2011). Pengaruh Kepuasan dan Kepercayaan Pelanggan Terhadap Loyalitas: Studi Tentang Peran Media Switching Cost. *Jogjakarta : Universitas Islam Indonesia Bandung: Alfabeta*
- [13] ISO/IEC. (2011). ISO/IEC 9126-1: Software engineering - Product quality - Part 1: Quality model. Geneva, Switzerland: ISO/IEC.
- [14] ITIL. (2011). *ITIL service transition*. London, UK: TSO.
- [15] Ives, B., Olson, M. H., & Baroudi, J. J. (1983). The measurement of user information satisfaction. In *Communications of the ACM* (Vol. 26, Issue 10, pp. 785–793). Association for Computing Machinery (ACM). <https://doi.org/10.1145/358413.358430>
- [16] Jogiyanto. (2007). *Sistem Informasi Keperilakuan*. Yogyakarta : ANDI. ISBN 978-. 979-29-0029-3.
- [17] Kotler, P. and Keller, K.L. 2009. *Marketing Management: 13th Edition*. New Jersey: Upper Saddle River
- [18] Mahmood, M. A., Hall, L. & Swanberg, D.L. (2001). Factors affecting information technology usage: a meta-analysis of the empirical literature. *Journal of Organizational Computing and Electronic Commerce*. 11(2): 107–130. https://doi.org/10.1207/S15327744JOCE1102_02
- [19] Mardalis, Ahmad. (2005). *Meraih Loyalitas Pelanggan*. Jakarta : Balai Pustaka
- [20] Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213-233. <http://dx.doi.org/10.1177/1094670504271156>
- [21] Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213-233. <http://dx.doi.org/10.1177/1094670504271156>
- [22] Peng, Y., & Wu, T. (2018). Examining the impacts of unique features of e-tourism adoption on customer satisfaction and loyalty. *Journal of Hospitality & Tourism Research*, 42(7), 1163-1183.
- [23] Seddon, P.B., (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research* 240, 240–253
- [24] Sunyoto, D. (2013). *Dasar-Dasar Manajemen Pemasaran*. Yogyakarta: CAPS.
- [25] Sutisna. (2001). *Perilaku pengguna dan Komunikasi Pemasaran*. PT. Remaja
- [26] Tjiptono, Fandy. 2007. *Strategi Pemasaran*. Edisi Pertama. Yogyakarta: Andi Offset
- [27] Utomo, Priyanto Doyo. 2006. "Analisis Terhadap FaktorFaktor Yang Mempengaruhi Loyalitas pengguna pada operator Telepon Seluler. Thesis: Universitas Gadjah Mada
- [28] Wang, R. Y., & Strong, D. M. (2018). Beyond accuracy: What data quality means to data consumers. *Journal of Management Information Systems*, 12(4), 5-33.