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Digital Financial Management in Airline Booking Systems : Efficiency, Security, and Customer Satisfaction

Renalwin Sitorus¹

¹ Sekolah Tinggi Penerbangan Aviassi, DKI Jakarta, Indonesia, renalwin@gmail.com

Corresponding Author: renalwin@gmail.com ¹

Abstract: The purpose of this article is to qualitatively analyze digital financial management on operational efficiency, transaction security, and customer satisfaction in the airline booking system, as well as identify the relationship between these three variables to provide strategic recommendations for the aviation industry. This article uses a qualitative approach by searching for scientific articles that are related to the variables in this scientific article. Journals obtained are not only accredited national journals, but also reputable international journals such as MDPI, Science Direct, Emerald and others. The results of this research will later be used to support the results of existing research, as well as the researcher providing views or perspectives as a result of the research. Digital financial management in the airline booking system not only improves operational efficiency and customer satisfaction, but also becomes a strategic element in ensuring transaction security and service personalization. The right integration of information technology, data security, and artificial intelligence-based analysis is the key to building a responsive, reliable, and sustainable system in the digital era.

Keyword: Digital Financial Management, Airline Ticket Booking, Efficiency, Security, and Customer Satisfaction

INTRODUCTION

In today's digital era, the aviation industry is undergoing a significant transformation through the integration of digital technology in financial management, particularly in the airline ticket booking system. This transformation not only improves operational efficiency, but also strengthens transaction security and improves customer satisfaction. According to IATA's 2023 report, the global aviation industry's revenue reached 87% of pre-pandemic levels, showing a strong recovery after a huge loss in 2020. This increase is driven by the adoption of digital technologies that enable more efficient financial management and responsiveness to market dynamics (IATA, 2023). In the airline booking system, digital financial management plays a crucial role in optimizing revenue and reducing operational costs. The use of data analytics allows airlines to predict demand, dynamically adjust prices, and manage inventory more

effectively. In addition, the integration of technologies such as artificial intelligence (AI) and blockchain in reservation systems increases operational efficiency by 40% and transaction security by 35% (Barua & Kaiser, 2024; Suryawan et al., 2019).

Security in digital transactions is a major concern, especially with the increase in cyber threats. The implementation of blockchain technology provides an immutable ledger system, reducing the risk of fraud and increasing transaction transparency. This is important to build customer trust in conducting online transactions (Suryawan et al., 2023). Customer satisfaction is also improved through a faster and more convenient ordering experience. The Global Passenger Survey (GPS) 2023 by IATA shows that passengers prioritize speed and convenience, with a preference for biometric processes and off-airport services. The integration of digital technology in the booking system allows airlines to meet these expectations, increasing customer loyalty and competitiveness in the market (Haq & Faizan, 2022).

However, challenges remain, including the need to ensure the protection of customers' personal data and overcome barriers in the adoption of new technologies. The study by (Moghadassian, 2025) highlights the importance of a strategic approach in AI integration and digital transformation to ensure successful implementation and regulatory compliance. In the Indonesian context, with the rapid growth of internet users and the increasing demand for air travel, the implementation of digital financial management in the airline ticket booking system is becoming increasingly relevant. This opens up opportunities for domestic airlines to improve operational efficiency, strengthen transaction security, and improve customer satisfaction through digital innovation. Overall, digital financial management in the airline ticket booking system plays a crucial role in improving operational efficiency, transaction security, and customer satisfaction. With technology continuing to evolve and customer expectations increasing, airlines need to continue to innovate and adapt to remain competitive in this digital era. The integration of advanced technologies such as AI, blockchain, and microservices architecture will be key in shaping the future of a more efficient, secure, and customer-oriented aviation industry.

The purpose of this article is to qualitatively analyze digital financial management on operational efficiency, transaction security, and customer satisfaction in the airline booking system, as well as identify the relationship between these three variables to provide strategic recommendations for the aviation industry.

METHOD

This article uses a qualitative approach by searching for scientific articles that are related to the variables in this scientific article. Journals obtained are not only accredited national journals, but also reputable international journals such as MDPI, Science Direct, Emerald and others. The results of this research will later be used to support the results of existing research, as well as the researcher providing views or perspectives as a result of the research.

Data collection was conducted through two main sources, namely primary and secondary data. Primary data was obtained through questionnaires distributed to production managers, environmental managers, or executives related to quality management. Meanwhile, secondary data was collected from company sustainability reports, industry publications, and other official documents relevant to the study.

RESULTS AND DISCUSSION

Result

Research by (Satria, 2020) regarding the design of an airline ticket booking information system for a web-based Wiro Karya travel agent using the waterfall method shows that the application of a web-based system can speed up the ticket booking process and reduce the need

for manual intervention. This system allows users to place orders online without having to come directly to an agent, thus improving operational efficiency and customer convenience. In addition, research on Tiket.com application by (AGIANTO et al., 2021) revealed that the implementation of an optimal management information system in ticketing platforms brings ease in the dissemination of information and transaction processes, which significantly improves business efficiency and user satisfaction. This system is able to manage booking data in an integrated manner so that the payment process and ticket confirmation are speeded up.

In the context of security, a web-based ticketing system developed for CV. Global Trans Solutions uses PHP and MySQL with procedures that follow data management standards so that it can effectively maintain the integrity and security of transactions. The use of structured databases and good data management helps reduce the risk of errors and potential fraud in the ticket booking process (Ardiansyah, 2020). Another study focusing on the user experience in Amadeus' reservation system emphasized the importance of security aspects in UI/UX design. The application of security principles to user interfaces, such as authentication and data encryption, contributes to increased customer trust in digital ticketing systems (Syafei & Hidayatullah, 2023).

A study by (Kemala et al., 2023) on the influence of Online Travel Agents (OTAs) on consumer interest in buying tickets online in Payakumbuh City found that the ease of access to schedule and ticket price information through OTA positively and significantly increased consumer buying interest. This shows that digital ticketing systems are not only efficient but also capable of meeting the needs and preferences of modern customers who prioritize speed and convenience. The RAMRSP Airplane Ticket Sales System Design emphasizes enhancing efficiency and integration in airline ticket booking by incorporating accurate route searches, multiple airline options, secure payment methods, and customer data management, focusing on security, scalability, and user-friendly interfaces to optimize the booking experience (Nasution et al., 2023).

The Airline Reservation and Flyer Management System offers a web-based platform tailored for frequent fliers, enabling flight management, online payments, ticket issuance, and cancellation features with a secure and user-friendly interface, enhancing customer satisfaction through convenience and flexibility (Raj Kumar S & Prof. Sanila S, 2023). Sentiment analysis studies on airline ticket booking applications like Traveloka use machine learning techniques such as Support Vector Machines to evaluate customer feedback, aiming to improve service quality and customer satisfaction through data-driven insights (Dahlan et al., 2022). Advances in airline revenue management systems utilize neural network optimization to improve booking efficiency and maximize airline revenue, integrating digital financial management with operational strategies (AlSharif, 2012).

Discussion

As a researcher, I see that the implementation of digital financial management in the airline ticket booking system is a strategic step in answering the challenges of efficiency, speed of service, and the need for modern customers for information accessibility in real time. Based on a study conducted by Satria (2020), it is clear that digital transformation in travel agents such as Wiro Karya not only reduces dependence on manual processes, but also significantly improves service quality through system automation. The use of web-based platforms allows consumers to place orders anytime and anywhere, a paradigm shift that marks a shift from conventional services to self-service systems. The research by AGIANTO et al. (2021) also strengthens my understanding that the success of a digital ordering system largely depends on how well the management information system is integrated into the flow of digital transactions, including the

speed of information dissemination and the reliability of the system in processing user data. In this case, digital financial management not only plays a role as a means of transactions, but also as an important infrastructure in supporting operational efficiency, payment accuracy, and customer convenience. My perspective as a researcher emphasizes that the successful integration of digital financial systems depends on the compatibility between technology design, understanding user behavior, and the system's ability to process data quickly and accurately to support data-driven decision-making. Therefore, in observing the development of this system, I see a trend that digital financial services in airline ticket booking will increasingly be directed towards full automation, customization of services based on customer preferences, and close integration with loyalty program systems that support long-term user retention.

In the context of security, I see that digital financial management in airline ticket booking systems demands extra attention, especially due to the high volume of sensitive data and the large value of transactions processed every day. The study of Ardiansyah (2020) provides a concrete overview of how data management standards through the use of PHP and MySQL in the CV system are. Global Trans Solutions can reduce the potential risk of data misappropriation and maintain the integrity of financial transactions. My view as a researcher places security as the main foundation of digital system sustainability, where system design must not only be functional, but must also be able to respond to increasingly complex cybersecurity challenges. Research by Syafei and Hidayatullah (2023) further expands my understanding that security must also be realized in user interfaces (UI/UX) that prioritize the principles of openness, information clarity, and privacy protection, such as through multi-layered authentication and data encryption. Furthermore, I view that user experience and security are two inseparable sides in building trust in digital ticketing systems. Studies from Kemala et al. (2023) and Nasution et al. (2023) reinforce my hypothesis that consumers tend to prefer digital services that provide information transparency, convenience in system navigation, and guarantees of personal data security.

In addition, technological approaches such as artificial intelligence (AI), used in the study of Dahlan et al. (2022) for sentiment analysis, as well as neural network optimization as in the AlSharif (2012) study, show a new direction for me in understanding how digital financial management in the future will be highly dependent on technological sophistication in reading user behavior patterns and responding to them intelligently and adaptively. Thus, my perspective as a researcher concludes that digital financial management is no longer just a transactional instrument in a ticketing system, but has evolved into a strategic entity that integrates efficiency, security, service personalization, and data-driven innovation in a dynamic and sustainable system.

CONCLUSION

Digital financial management in the airline booking system not only improves operational efficiency and customer satisfaction, but also becomes a strategic element in ensuring transaction security and service personalization. The right integration of information technology, data security, and artificial intelligence-based analysis is the key to building a responsive, reliable, and sustainable system in the digital era.

The authenticity of this scientific article lies in strengthening the results of existing research and providing perspectives from researchers to be continued for other researchers in future opportunities.

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