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# Analysis of the Success of the Grab Application from the Perspective of Palembang City Users Using the DeLone and McLean Approach

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## Abstract

Information systems play a crucial role in facilitating business operations across various sectors, including transportation. Grab, a Singapore-based digital transportation platform, offers multiple services such as ride-hailing, courier delivery, and food delivery. This study aims to analyze the success of the Grab application from the perspective of community users in Palembang City using the DeLone and McLean Information System Success Model. The study evaluates six variables Information Quality, System Quality, Service Quality, Use, User Satisfaction, and Net Benefits to identify key factors influencing the application's success and propose strategic recommendations to enhance performance. The study employed a quantitative descriptive approach using a structured questionnaire distributed to 120 Grab users in Palembang. Data were analyzed using the Statistical Product and Service Solutions (SPSS) software through t-tests and F-tests. The findings indicate that Service Quality, Intention to Use, and Actual Use significantly affect user satisfaction. These factors are crucial in determining the overall success of the Grab application.

## Keywords

DeLone and McLean, Grab application, information system success, SPSS, transportation

## Article History

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## Introduction

Technological advancement plays an increasingly pivotal role in shaping the evolution of human civilization, particularly in the way societies access, process, and utilize information. As Kurniawan (2012) emphasizes, the integration of information technology (IT) into daily life has redefined communication patterns, business operations, and public services, leading to greater efficiency and productivity. The digital era has transformed information into a key strategic resource that drives innovation, connectivity, and competitiveness. As individuals and organizations become more reliant on IT-based systems, the quality and effectiveness of these technologies directly influence the pace of societal development and modernization.

The continuous expansion of the digital economy has stimulated rapid innovation in information systems, giving rise to platforms that facilitate transportation, commerce, and logistics through mobile applications. Among the most transformative of these innovations is Grab, a Singapore-based technology company offering integrated on-demand services such as ride-hailing, courier delivery, and online food ordering. The Grab application operates as a multi-service digital ecosystem that connects drivers, merchants, and customers through real-time data exchange and geolocation technology. According to statistics from the Google Play Store, the Grab app has been downloaded over 100 million times, reflecting its significant market penetration and widespread acceptance across Southeast Asia ("Grab - Transport, Food Delivery, Payments," n.d.).

In Indonesia, Grab has become one of the leading players in the on-demand service industry, contributing to the digitalization of urban mobility and micro-entrepreneurship. The platform has provided economic opportunities for drivers and small food businesses while offering convenience for millions of users who rely on its services daily. However, despite its technological sophistication and market dominance, the application still faces operational challenges. Users frequently report problems such as inaccurate pickup point detection, location mismatch, and errors in destination mapping (Permana, Aknuranda, & Rokhmawati, n.d.). These limitations can disrupt service delivery and negatively impact the overall user experience—highlighting that technological advancement alone does not guarantee system success without consistent attention to usability, reliability, and service quality.

Given these challenges, evaluating the effectiveness and user satisfaction of the Grab application becomes essential. As an information system, Grab functions through complex interactions between software design, service operations, and user engagement. Its success therefore depends not only on technological performance but also on how effectively it meets user expectations and delivers perceived benefits. Understanding user perspectives is critical in identifying system strengths and weaknesses, which in turn can guide improvements in functionality, reliability, and service responsiveness.

To systematically analyze these factors, this study employs the DeLone and McLean Information System Success Model, one of the most widely recognized theoretical frameworks for assessing the success of information systems. The model evaluates six interrelated dimensions: Information Quality, System Quality, Service Quality, Use, User Satisfaction, and Net Benefits. By applying these dimensions, researchers can capture both the technical and behavioral aspects of system success, offering a comprehensive view of user interaction and perceived value. In this context, the Grab application serves as a case study to examine how information system success factors manifest within a mobile-based service ecosystem.

Accordingly, this research aims to evaluate Grab's system success and user satisfaction among users in Palembang City, Indonesia. The study focuses on identifying which dimensions most strongly influence user perceptions and behavioral intentions, providing actionable insights for improving system quality and customer experience. The findings are expected to contribute to the broader discourse on information system evaluation in the digital service industry, demonstrating how user-centered assessment models can inform continuous innovation and service optimization. Moreover, this study aligns with Indonesia's digital transformation goals, emphasizing the importance of robust, reliable, and user-responsive information systems in supporting sustainable digital ecosystems.

## Methodology

### *Research Design*

This study adopts a causal associative research design, examining relationships between independent and dependent variables. The independent variables are System Quality ($X_1$), Information Quality ($X_2$), Service Quality ($X_3$), Intention to Use ($X_4$), and Net Benefits ($X_5$). The dependent variable is User Satisfaction (Y).

### *Research Method*

The research uses a quantitative descriptive approach. Data were collected through a questionnaire based on the six DeLone and McLean model dimensions. Each question was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).The variables measured were:Information Quality: accuracy, completeness, and relevance of data provided by the Grab application.System Quality: system reliability, ease of use, and response speed.Service Quality: service responsiveness, empathy, and assurance.Use: frequency and manner of application utilization.User Satisfaction: overall satisfaction and intention to continue using the application.Net Benefits: perceived advantages and contributions of the system to users' daily activities.

### *Data Analysis Method*

Data were analyzed using SPSS to perform descriptive statistics, t-tests, and F-tests. The analytical framework follows the sequence shown below.

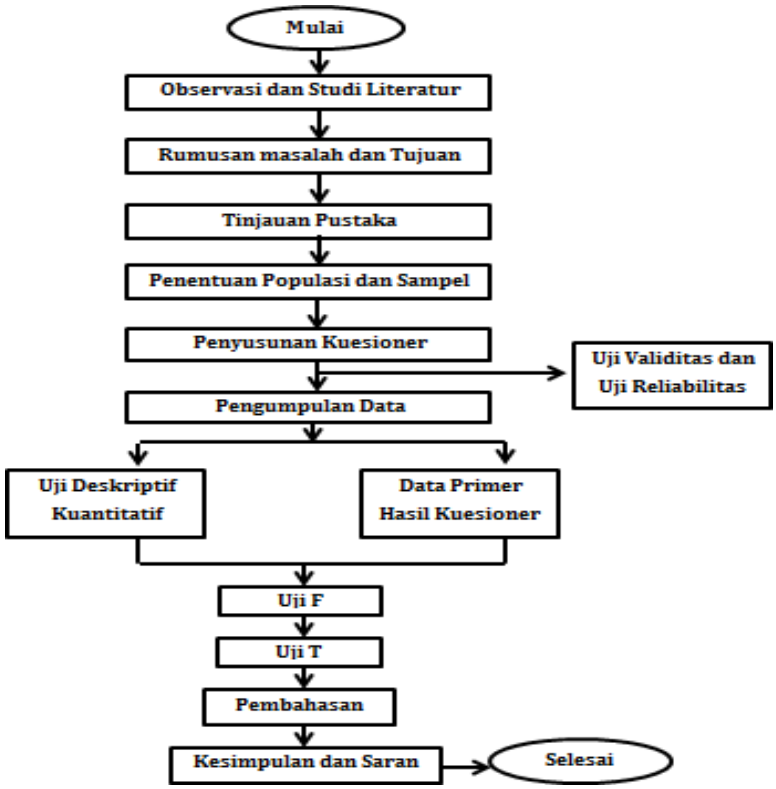
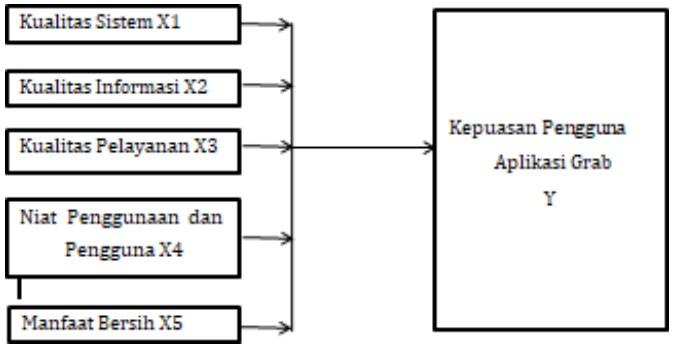



Figure 1. Research Stages

**Conceptual Framework**

The conceptual framework demonstrates the relationships among the six variables based on the DeLone and McLean (2003) model.




**Population and Sample**

The study population consists of Grab application users residing in Palembang City. A total of 120 respondents were selected as the sample using a purposive sampling method, targeting active Grab users.

## Results

### Respondent Characteristics

Respondents were categorized by gender, age, and occupation. Of the 120 respondents, 65 were male (54.2%) and 55 female (45.8%). The dominant age group ranged from 21–25 years (48.3%), followed by under 20 years (21.7%), 26–30 years (19.2%), 31–35 years (5.0%), and 36–40 years (5.8%). Occupationally, students made up the largest group (34.2%), followed by civil servants (9.2%), entrepreneurs and freelancers (8.3%), private employees (6.7%), and teachers (5.8%). Smaller proportions represented other categories such as housewives, traders, and professionals.

### Statistical Analysis

#### System Quality

The t-test value for System Quality is 0.705, indicating that System Quality does not significantly influence user satisfaction. However, the F-test value of 32.327 confirms that the independent variables collectively have a significant simultaneous effect on user satisfaction.

#### Information Quality

The t-test value for Information Quality is 0.406, demonstrating that this variable has no significant individual effect on user satisfaction. However, its inclusion in the overall model contributes to the significant collective result (F = 32.327).

#### Service Quality

The t-test value for Service Quality is 2.853, indicating a significant positive influence on user satisfaction. This confirms that the quality of service directly affects how users perceive the application's reliability and usefulness.

#### Intention to Use and Actual Use

The F-test result of 32.327 demonstrates that Intention to Use and Use together significantly affect user satisfaction. These variables are strong indicators of continued engagement and loyalty among users.

#### Net Benefits

The Net Benefits variable also contributes significantly to user satisfaction as part of the model, with the overall F-test value (32.327) validating the joint impact of all variables.

## Discussion

The research findings reaffirm the applicability of the DeLone and McLean Information System Success Model in evaluating the performance of digital service platforms such as Grab. Among the six key dimensions—Information Quality, System Quality, Service Quality, Use, User Satisfaction, and Net Benefits—three variables were found to exert the most significant influence on User Satisfaction, namely Service Quality, Intention to Use, and Actual Use. This indicates that user satisfaction is not solely determined by system reliability or interface design, but by the overall experience of interaction and service responsiveness that users perceive throughout their engagement with the application. The results underscore that technology-driven services must align not only with functional expectations but also with emotional and experiential dimensions of user behavior.

The prominence of Service Quality as a determinant of satisfaction aligns with previous studies conducted by Saputro, Budiyanto, and Santoso (2016), who emphasized that responsive, reliable, and empathetic services are core contributors to system success. In the context of Grab, service quality reflects several factors—such as driver punctuality, app reliability, accuracy of fare estimation, and speed of problem resolution—that directly shape user trust and loyalty. As Kurniawan (2012) notes, technology serves as a means to facilitate human activity, but its success ultimately depends on the values of convenience, reliability, and fairness perceived by users. The Grab platform's capability to consistently deliver responsive and user-oriented services therefore plays a decisive role in fostering satisfaction and sustaining long-term engagement.

Similarly, the significant impact of Intention to Use and Actual Use demonstrates the behavioral continuity between users' perceptions and their real actions. When users find the application intuitive, secure, and valuable for daily mobility, their behavioral intentions are likely to translate into repeated use. This relationship reflects the cognitive-affective process within the DeLone and McLean model, where positive user experiences enhance satisfaction, which in turn reinforces continued use and advocacy. Consistent with Permana, Aknuranda, and Rokhmawati (n.d.), user intention serves as a mediating variable that connects perceived system quality and satisfaction, implying that continuous engagement depends on users' perceived usefulness and trust in the system's reliability.

The study's findings also reveal that Grab's digital success in Palembang is shaped by both technical and non-technical factors. On the technical side, users expect high standards of data accuracy, fast response times, and seamless location mapping. Errors in GPS detection or payment processing, for example, can significantly diminish satisfaction despite the system's overall sophistication. On the non-technical side, customer experience—encompassing communication clarity, promotional transparency, and problem-solving efficiency—has a profound impact on how users evaluate service quality. This highlights that maintaining user satisfaction requires an integrated approach that balances technological excellence with human-centered service delivery.

Based on these insights, several strategies are proposed to enhance Grab's service success and strengthen user satisfaction among customers in Palembang City:

1. Establish a 24-hour customer service system to provide immediate support and technical troubleshooting, thereby minimizing user frustration and ensuring service continuity.
2. Enhance promotional and loyalty programs by ensuring that voucher redemptions, discounts, and reward systems operate seamlessly without system errors, thereby maintaining user confidence in promotional integrity.
3. Improve interface usability and data accuracy, particularly in location-based services, to ensure more precise pickup and drop-off detection. Implementing machine learning-based location correction could reduce GPS-related discrepancies.
4. Reinforce data security protocols—including two-step verification, access control, and CAPTCHA authentication during login—to safeguard user privacy and prevent unauthorized account access.

These strategies align with the DeLone and McLean model's emphasis on continuous feedback and system improvement. Sustaining Grab's success depends on the company's ability to combine technical innovation with user-centric service management. A well-maintained balance between system quality (performance and security) and service quality

(responsiveness and empathy) will not only enhance user satisfaction but also increase net benefits, including customer retention, brand reputation, and operational efficiency.

In a broader perspective, the findings contribute to understanding how digital service ecosystems in Indonesia—particularly in cities like Palembang—can leverage information system evaluation frameworks to support sustainable innovation. As competition among ride-hailing and delivery applications intensifies, maintaining user satisfaction through continuous service enhancement becomes a strategic imperative. Ultimately, Grab's success is a reflection of its capacity to integrate technological reliability, ethical data management, and human-centered interaction, ensuring that digital transformation remains both efficient and socially inclusive.

## Conclusion and Recommendations

The study concludes the following:Service Quality, Intention to Use, and Actual Use are primary determinants of the Grab application's success, directly influencing user satisfaction.All independent variables Information Quality, System Quality, Service Quality, Intention to Use, and Net Benefits collectively exert a significant effect on User Satisfaction (F = 32.327). The most influential factor is Intention to Use and Actual Use, with a t-value of 3.446, underscoring the importance of maintaining active engagement. Enhancing service responsiveness, information accuracy, and system reliability is crucial to sustaining user satisfaction and long-term application success.

## Disclosure Statement

The authors declare no conflict of interest regarding this study. This research was conducted independently for academic purposes under the Faculty of Computer Science, Universitas Bina Darma.

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