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## Enhancing digital academic services through Academic Information System quality: Insights from Universitas Methodist Indonesia

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Submission: 20 June 2026

Revision: 6 July 2026

Accepted: 13 July 2026

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### Abstract

Digital transformation has increased the strategic role of Academic Information Systems (AIS) in supporting academic services in higher education. However, empirical evidence regarding which quality dimensions most strongly influence User Satisfaction in digital academic services remains inconclusive. This study aims to examine the effects of System Quality, Information Quality, and Service Quality on User Satisfaction with the Academic Information System at Universitas Methodist Indonesia. A quantitative survey was conducted involving 100 undergraduate students selected through purposive sampling. Data were collected using a five-point Likert-scale questionnaire and analyzed using multiple linear regression with IBM SPSS Statistics. The findings reveal that Information Quality and Service Quality have positive and significant effects on User Satisfaction, whereas System Quality has no significant effect. The proposed model explains 67.9% of the variance in User Satisfaction ( $R^2 = 0.679$ ). These findings suggest that improving digital academic services in higher education should prioritize high-quality academic information and responsive support services to enhance user experience and satisfaction.

**Keywords:** Academic information system; Digital academic services; User satisfaction; Information quality; Service quality.

### Abstrak

Transformasi digital telah mendorong perguruan tinggi untuk mengoptimalkan Sistem Informasi Akademik (SIMAK) sebagai pendukung layanan akademik. Namun, bukti empiris mengenai dimensi kualitas yang paling berpengaruh terhadap kepuasan pengguna dalam mendukung layanan akademik digital masih menunjukkan hasil yang beragam. Penelitian ini bertujuan menganalisis pengaruh *System Quality*, *Information Quality*, dan *Service Quality* terhadap *User Satisfaction* pada penggunaan SIMAK di Universitas Methodist Indonesia. Penelitian menggunakan pendekatan kuantitatif dengan metode survei terhadap 100 mahasiswa yang dipilih melalui *purposive sampling*. Data dikumpulkan menggunakan kuesioner skala Likert dan dianalisis menggunakan regresi linear berganda dengan IBM SPSS Statistics. Hasil penelitian menunjukkan bahwa *Information Quality* dan *Service Quality* berpengaruh positif dan signifikan terhadap kepuasan pengguna, sedangkan *System Quality* tidak berpengaruh signifikan. Model penelitian mampu menjelaskan 67,9% variasi kepuasan pengguna ( $R^2 = 0,679$ ). Temuan ini menegaskan bahwa peningkatan layanan akademik digital di perguruan tinggi perlu diprioritaskan pada penyediaan informasi akademik yang berkualitas dan layanan yang responsif sehingga mampu meningkatkan pengalaman belajar dan kepuasan pengguna.

**Kata Kunci:** Sistem informasi akademik; Layanan akademik digital; Kepuasan pengguna; Kualitas informasi; Kualitas layanan.

### Introduction

Digital transformation has fundamentally reshaped how higher education institutions deliver academic services, shifting many administrative processes that were once performed manually toward information technology-based systems (Mohamed Hashim et al., 2022). One of the most significant implementations of this transformation is the Academic Information System (AIS), which serves as the central platform for managing academic activities, including course registration (*Kartu Rencana Studi* [KRS]), class scheduling, grade access, and the dissemination of academic information to students (Thuraya et al., 2025). As higher education institutions become increasingly dependent on AIS, system quality has evolved beyond its traditional role as an administrative support tool to become a critical infrastructure that ensures the continuity and effectiveness of academic services (Ulfa et al., 2019). Consequently, the success of digital transformation in higher education depends not only on the adoption of technology but also on the ability of AIS to deliver effective, efficient, and user-centered academic services.

Despite its widespread implementation, the quality of services provided by AIS has not consistently met users' expectations. In practice, students continue to encounter various challenges, including slow system performance during course registration periods, delayed updates of academic information, and inadequate support services that fail to respond promptly to user concerns (R et al., 2024). These issues reduce the efficiency of academic processes, increase the likelihood of administrative errors, and diminish students' overall experience when using digital academic services. Such conditions suggest that the success of AIS should not be assessed solely by the availability of technology-based systems but also by the quality of information delivered and the quality of services provided to users (Baharsyah et al., 2022). Therefore, evaluating the quality of AIS is essential to ensure that digital transformation genuinely contributes to improving the quality of academic services in higher education institutions.

Among the various approaches for evaluating information system success, the DeLone and McLean Information Systems Success Model (2008) has been widely adopted. The model identifies System Quality, Information Quality, and Service Quality as the primary dimensions influencing User Satisfaction. These dimensions represent the technical performance of the system, the quality of the information generated, and the quality of support services experienced by users throughout their interaction with the system. Within the context of AIS, these dimensions are particularly relevant because they directly influence students' experiences in accessing digital academic services. By examining the relationships between these quality dimensions and user satisfaction, higher education institutions can identify priority areas for improvement to enhance the effectiveness and sustainability of digitally enabled academic services.

Studies investigating the quality of Academic Information Systems have been conducted extensively across higher education institutions, yet their findings remain inconclusive. A study by Nilashi et al. (2023) reported that System Quality was the primary determinant of user satisfaction through ease of use, system stability, and security. However, Fu et al. (2024) found that Information Quality exerted a stronger influence because of its accuracy, relevance, completeness, and timeliness. Similarly, Uppal et al. (2018) demonstrated that Service Quality played the most significant role by emphasizing responsive management and effective technical support. These inconsistent findings indicate that no consensus has yet been reached regarding which quality dimension most strongly influences AIS user satisfaction. Moreover, previous studies have predominantly focused on evaluating information system success, while the implications of AIS quality for strengthening digital academic services have received relatively limited attention. This gap highlights the need for further investigation into how AIS quality influences user satisfaction in supporting digital academic services within higher education.

Based on these considerations, this study aims to examine the effects of System Quality, Information Quality, and Service Quality on User Satisfaction with the Academic Information System (AIS) at Universitas Methodist Indonesia by adopting the quality dimensions of the DeLone and McLean Information Systems Success Model. This study not only identifies the quality dimension that most strongly influences user satisfaction but also explains the implications of the findings for the development of digital academic services in higher education. From a theoretical perspective, this study enriches the empirical evidence regarding the application of information system quality dimensions in evaluating higher education information systems. From a practical perspective, the findings are expected to assist higher education administrators in establishing priorities for AIS development, ensuring that digital transformation extends beyond technological advancement to emphasize information quality, service quality, and user experience as fundamental components of sustainable and effective digital academic services.

## **Method**

This study employed a quantitative research approach using a survey method to examine the effects of Academic Information System (AIS) quality on user satisfaction at Universitas Methodist Indonesia (Creswell, 2014). The study population comprised active undergraduate students who regularly used the AIS for various academic activities, including course registration (*Kartu Rencana Studi* [KRS]), class schedule access, and academic information management. A total of 100 students were selected using purposive sampling, targeting respondents with active experience in using the AIS (Etikan, 2016). Data were collected through an online questionnaire administered via Google Forms. The research instrument was developed based on the quality

dimensions of the DeLone and McLean Information Systems Success Model and analyzed using IBM SPSS Statistics to investigate the effects of System Quality, Information Quality, and Service Quality on User Satisfaction.

The research instrument employed a five-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The study consisted of three independent variables – System Quality, Information Quality, and Service Quality – and one dependent variable, User Satisfaction. Each variable was operationalized through a set of measurement indicators derived from the literature and adapted to the characteristics of AIS implementation in higher education. A summary of the research variables and their corresponding measurement indicators is presented in Table 1.

Table 1. Research variables and measurement indicators

| Variable            | Measurement Indicators                                                                                      | Items |
|---------------------|-------------------------------------------------------------------------------------------------------------|-------|
| System Quality      | Ease of use, accessibility, response time, security, reliability, privacy                                   | 6     |
| Information Quality | Accuracy, relevance, timeliness, completeness, up-to-date information, presentation format                  | 6     |
| Service Quality     | Responsiveness, user support, service reliability, problem handling, academic assistance                    | 5     |
| User Satisfaction   | Expectation fulfillment, overall satisfaction, feature adequacy, information satisfaction, academic support | 5     |

Source: Developed by the Authors (2026).

The data were analyzed sequentially using IBM SPSS Statistics (Hidayat, 2021). The analysis began with instrument evaluation through validity and reliability testing to ensure that each indicator measured its intended construct accurately and consistently. Subsequently, classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, were conducted as prerequisites for regression analysis. After all assumptions had been satisfied, multiple linear regression analysis was performed to examine the effects of System Quality, Information Quality, and Service Quality on User Satisfaction. The significance of each independent variable was assessed using the *t*-test, whereas the overall model significance was evaluated using the *F*-test. Furthermore, the explanatory power of the proposed model was assessed using the coefficient of determination ( $R^2$ ), providing an estimate of the model's ability to explain the variance in user satisfaction.

## Results and Discussion

### *Instrument evaluation and model adequacy*

Before conducting multiple linear regression analysis, the research instrument was evaluated to ensure that all indicators measured the intended constructs accurately and consistently. This stage constituted an essential prerequisite for ensuring the reliability and validity of the subsequent statistical analysis. The instrument evaluation

consisted of validity and reliability testing, while the adequacy of the regression model was assessed through classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests. All analyses were performed using IBM SPSS Statistics based on data collected from 100 active students at Universitas Methodist Indonesia. The results of each evaluation are presented sequentially to provide a comprehensive overview of the instrument quality and the suitability of the dataset before proceeding to hypothesis testing.

The first stage involved validity testing to determine the ability of each indicator to represent its corresponding research construct. With a sample size of 100 respondents at a 5% significance level, the critical  $r$ -value was 0.196 and served as the criterion for determining item validity. An indicator was considered valid when its Corrected Item–Total Correlation exceeded this threshold. A summary of the validity test results for all research variables is presented in Table 2, which illustrates the range of correlation coefficients obtained for each construct. Presenting the results in tabular form provides a comprehensive overview of the validity of all questionnaire items used in this study.

Table 2. Validity test results

| Variable                 | Number of Items | Corrected Correlation | Item–Total | Critical Value | $r$ - | Result |
|--------------------------|-----------------|-----------------------|------------|----------------|-------|--------|
| System Quality (SQ)      | 6               | 0.552–0.749           |            | 0.196          |       | Valid  |
| Information Quality (IQ) | 6               | 0.566–0.737           |            | 0.196          |       | Valid  |
| Service Quality (SV)     | 5               | 0.545–0.688           |            | 0.196          |       | Valid  |
| User Satisfaction (US)   | 5               | 0.708–0.787           |            | 0.196          |       | Valid  |

Source: Authors' elaboration based on IBM SPSS Statistics output (2026).

As presented in Table 2, all indicators for System Quality, Information Quality, Service Quality, and User Satisfaction exceeded the critical  $r$ -value of 0.196. The obtained correlation coefficients ranged from 0.545 to 0.787, indicating that no measurement item required elimination. These findings demonstrate that all questionnaire items satisfied the validity criterion and adequately represented their respective constructs. Consequently, the research instrument was considered appropriate for subsequent statistical analyses. Following the confirmation of validity, reliability testing was conducted to evaluate the internal consistency of each research variable.

Instrument reliability was evaluated using Cronbach's Alpha coefficient. An instrument was considered reliable when its Cronbach's Alpha value exceeded the minimum threshold of 0.60, indicating consistent measurement across all indicators. The reliability test results for all research variables are presented in Table 3, which summarizes the internal consistency of each construct. This evaluation provides

evidence that the measurement instrument was sufficiently reliable before proceeding with regression analysis. Examining the Cronbach's Alpha values also confirms whether the indicators within each construct consistently measured respondents' perceptions of the Academic Information System (AIS).

Table 3. Reliability test results

| Variable                 | Cronbach's Alpha | Result   |
|--------------------------|------------------|----------|
| System Quality (SQ)      | 0.868            | Reliable |
| Information Quality (IQ) | 0.871            | Reliable |
| Service Quality (SV)     | 0.841            | Reliable |
| User Satisfaction (US)   | 0.897            | Reliable |

Source: Authors' elaboration based on IBM SPSS Statistics output (2026).

As shown in Table 3, all research variables achieved Cronbach's Alpha values well above the minimum acceptable threshold of 0.60, with every construct exceeding 0.80. User Satisfaction demonstrated the highest reliability coefficient (0.897), followed by Information Quality (0.871), System Quality (0.868), and Service Quality (0.841). These results indicate excellent internal consistency across all constructs, confirming that the instrument generated stable and reliable measurements. After establishing the quality of the research instrument, the next stage involved evaluating the adequacy of the regression model through a series of classical assumption tests to ensure compliance with statistical requirements.

Classical assumption testing was conducted to verify that the regression model satisfied the assumptions required for hypothesis testing. This stage included normality, multicollinearity, and heteroscedasticity tests. Normality was evaluated using the histogram and Normal P-P Plot of standardized residuals, whereas multicollinearity was assessed using Tolerance and Variance Inflation Factor (VIF) values. Heteroscedasticity was examined by observing the distribution of residuals in the Scatterplot. A summary of these diagnostic tests is presented in Table 4, allowing the adequacy of the regression model to be assessed comprehensively without presenting each statistical output separately.

Table 4. Summary of classical assumption test results

| Test               | Result Indicator                                                                                      | Conclusion                     |
|--------------------|-------------------------------------------------------------------------------------------------------|--------------------------------|
| Normality          | Histogram shows a bell-shaped distribution and points in the Normal P-P Plot follow the diagonal line | Normality assumption satisfied |
| Multicollinearity  | Tolerance = 0.345–0.496; VIF = 2.015–2.902                                                            | No multicollinearity           |
| Heteroscedasticity | Scatterplot displays randomly dispersed points without a discernible pattern                          | No heteroscedasticity          |

Source: Authors' elaboration based on IBM SPSS Statistics output (2026).

Referring to Table 4, all regression assumptions were satisfactorily fulfilled. The residuals exhibited an approximately normal distribution based on both the histogram and the Normal P-P Plot. Furthermore, Tolerance values exceeding 0.10 and VIF values below 10 indicate the absence of strong linear relationships among the independent variables. In addition, the random distribution of points in the Scatterplot confirms that the regression model is free from heteroscedasticity. Since all instrument evaluations and classical assumption tests met the required statistical criteria, the dataset was considered suitable for multiple linear regression analysis. The subsequent stage focuses on evaluating the proposed research model to examine the relationships among System Quality, Information Quality, Service Quality, and User Satisfaction within the Academic Information System.

### *Research model evaluation*

Following the confirmation that the research instrument was valid and reliable and that the regression model satisfied all classical assumptions, the next stage involved evaluating the proposed research model. This evaluation aimed to examine the relationships between System Quality, Information Quality, Service Quality, and User Satisfaction within the Academic Information System (AIS). Multiple linear regression analysis was performed using IBM SPSS Statistics. The model evaluation included the regression equation, the coefficient of determination, simultaneous significance testing using the *F*-test, and partial significance testing using the *t*-test. Collectively, these results provided the empirical basis for determining whether the proposed research hypotheses should be accepted or rejected.

Multiple linear regression analysis was employed to examine the contribution of each independent variable to AIS user satisfaction. The estimated regression coefficients indicate both the direction and magnitude of the relationship between the independent variables and the dependent variable. The results of the multiple linear regression analysis are presented in Table 5, which includes the regression coefficients, standard errors, *t*-statistics, and significance values for each research variable. Presenting these statistical results provides a mathematical representation of the proposed regression model before evaluating its explanatory power and testing the research hypotheses.

Table 5. Multiple linear regression analysis results

| Variable                 | B     | Std. Error | Beta  | <i>t</i> | Sig.  |
|--------------------------|-------|------------|-------|----------|-------|
| Constant                 | 0.707 | 1.269      | –     | 0.557    | 0.579 |
| System Quality (SQ)      | 0.152 | 0.087      | 0.173 | 1.751    | 0.083 |
| Information Quality (IQ) | 0.455 | 0.089      | 0.500 | 5.118    | 0.000 |
| Service Quality (SV)     | 0.243 | 0.085      | 0.234 | 2.846    | 0.005 |

Source: Authors' elaboration based on IBM SPSS Statistics output (2026).

Based on Table 5, the estimated multiple linear regression equation is expressed as  $Y = 0.707 + 0.152SQ + 0.455IQ + 0.243SV$ . The constant value of 0.707 represents the predicted level of User Satisfaction when all independent variables are assumed to remain constant. Furthermore, the regression coefficients indicate positive relationships between each independent variable and AIS user satisfaction. Information Quality produced the largest regression coefficient (0.455), followed by Service Quality (0.243), whereas System Quality showed the smallest coefficient (0.152). The explanatory power and overall significance of the regression model were subsequently evaluated and are summarized in Table 6.

Table 6. Regression model evaluation results

| Parameter           | Value  |
|---------------------|--------|
| R Square ( $R^2$ )  | 0.679  |
| Adjusted R Square   | 0.669  |
| F-Statistic         | 67.616 |
| F-Test Significance | 0.000  |

Source: Authors' elaboration based on IBM SPSS Statistics output (2026).

As shown in Table 6, the regression model achieved an  $R^2$  value of 0.679, indicating that 67.9% of the variance in User Satisfaction can be explained jointly by System Quality, Information Quality, and Service Quality, while the remaining 32.1% is attributable to factors outside the proposed model. Furthermore, the  $F$ -test yielded a value of 67.616 with a significance level of 0.000, confirming that the regression model is statistically significant and appropriate for explaining the simultaneous relationships between the independent and dependent variables. Having established the adequacy of the regression model, the next stage involved evaluating each research hypothesis through partial significance testing using the  $t$ -test, as summarized in Table 7.

Table 7. Hypothesis testing results

| Hypothesis | Relationship                            | $t$   | Sig.  | Decision |
|------------|-----------------------------------------|-------|-------|----------|
| H1         | System Quality → User Satisfaction      | 1.751 | 0.083 | Rejected |
| H2         | Information Quality → User Satisfaction | 5.118 | 0.000 | Accepted |
| H3         | Service Quality → User Satisfaction     | 2.846 | 0.005 | Accepted |

Source: Authors' elaboration based on IBM SPSS Statistics output (2026).

As presented in Table 7, the partial significance test indicates that System Quality has a significance value of 0.083, exceeding the 5% significance threshold and therefore failing to demonstrate a statistically significant effect on User Satisfaction. In contrast, Information Quality and Service Quality obtained significance values of 0.000 and 0.005, respectively, both of which are below the 0.05 significance level. Accordingly,

the first hypothesis was rejected, whereas the second and third hypotheses were accepted. Overall, the model evaluation confirms that the proposed regression model satisfies the required statistical criteria and provides a sound empirical foundation for examining the relationships among the research variables in the subsequent discussion section.

*The influence of Academic Information System quality on user satisfaction in supporting digital academic services*

Improving the quality of an Academic Information System (AIS) is often assumed to depend primarily on technological enhancements, such as increasing system speed, expanding system functionality, or strengthening security features (Juansyah & Dwi Rosa Indah, 2023; Nababan et al., 2025). However, the findings of this study suggest that this assumption does not entirely hold. The effectiveness of AIS in fostering user satisfaction is determined not only by the technical quality of the system but also by the quality of information and services experienced by students during system use. The proposed model explains 67.9% of the variance in User Satisfaction ( $R^2 = 0.679$ ), with a statistically significant simultaneous effect ( $F = 67.616; p = 0.000$ ). These findings indicate that AIS quality should be viewed as a multidimensional construct rather than being interpreted solely from a technological perspective. Accordingly, Figure 1 was developed to illustrate the conceptual relationships among AIS quality dimensions, User Satisfaction, and their contribution to strengthening digital academic services in higher education.

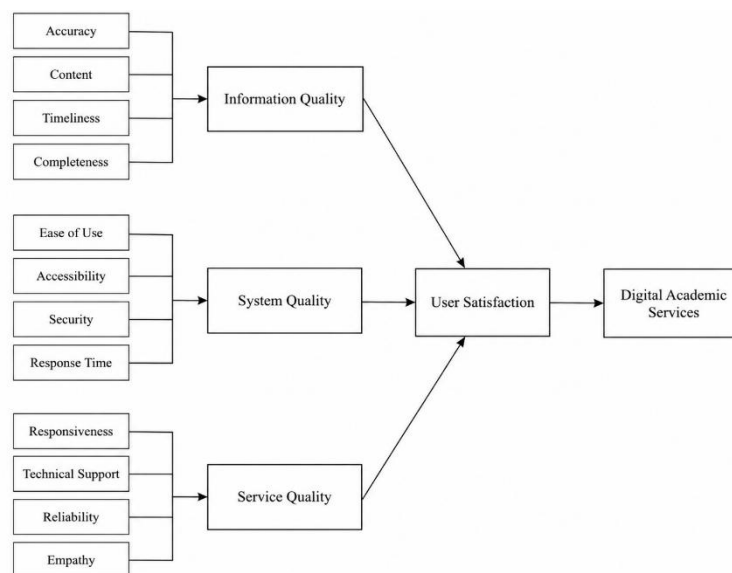


Figure 1. Conceptual framework of Academic Information System quality in supporting digital academic services

Source: Developed by the Authors (2026).

As illustrated in Figure 1, System Quality, Information Quality, and Service Quality are positioned as three interrelated dimensions that collectively shape User

Satisfaction, which subsequently contributes to strengthening digital academic services. This conceptual framework was developed based on the regression analysis, which demonstrates that each quality dimension contributes differently to User Satisfaction. Consequently, the relationships among the variables should not be interpreted merely as statistical associations but as a conceptual representation derived from the empirical findings of this study. The framework further suggests that improving digital academic services requires not only a technically reliable system but also high-quality academic information and responsive support services. Therefore, Figure 1 serves as a synthesis of the empirical findings while highlighting their practical implications for the continuous development of technology-enabled academic services.

The findings reveal that Information Quality is the most influential determinant of User Satisfaction, with a standardized regression coefficient of  $\beta = 0.500$  and a significance level of 0.000. The prominence of this variable suggests that students primarily utilize the AIS as a source of academic information, making accuracy, completeness, relevance, and timeliness fundamental elements in shaping their user experience. In other words, students evaluate the quality of AIS not solely based on technological sophistication but rather on its ability to provide reliable academic information whenever it is needed. These findings are consistent with the study by Alzahrani et al. (2019), which identified Information Quality as the primary determinant of User Satisfaction in academic information systems. Similarly, Almaiah et al. (2019) demonstrated that accurate and timely information enhances users' trust in digital academic services. The present findings further reinforce the results reported by Al-Samarraie et al. (2018), who emphasized Information Quality as a core determinant of successful information system implementation. Nevertheless, these findings differ from those of Melgis et al. (2024), who concluded that System Quality represents the dominant determinant of User Satisfaction. This discrepancy suggests that users' priorities may vary depending on institutional characteristics and the maturity of technology implementation. Within the context of this study, Information Quality emerges as the core value underlying the successful delivery of digital academic services.

In contrast to Information Quality, System Quality did not exhibit a statistically significant effect on User Satisfaction ( $\beta = 0.173$ ;  $p = 0.083$ ). This finding provides an important perspective by indicating that ease of use, accessibility, security, and technical performance alone are insufficient to enhance User Satisfaction directly. One possible explanation is that students have come to regard the technical performance of AIS as a basic requirement that should naturally be provided by every digital academic service. Consequently, improvements in technical system features may no longer generate meaningful changes in users' satisfaction. These findings differ from those reported by Aziz et al. (2024), who identified System Quality as the dominant

determinant of information system success. Likewise, the present results do not fully support the findings of Riady et al. (2025), who emphasized ease of use as the primary driver of User Satisfaction. Instead, this study aligns more closely with Dontre (2021), who argued that once an information system becomes routinely integrated into academic activities, users tend to shift their attention from technological characteristics toward the quality of information and services they receive. These findings suggest that AIS development should move beyond a technology-oriented perspective toward a more user-oriented approach that prioritizes academic service quality.

Meanwhile, Service Quality demonstrated a positive and statistically significant effect on User Satisfaction, with a standardized coefficient of  $\beta = 0.234$  and a significance level of 0.005. This finding indicates that the success of AIS depends not only on system performance and information quality but also on the institution's ability to provide responsive, reliable, and effective support services. High-quality services foster trust while enhancing students' overall experience when interacting with the academic information system. These findings are consistent with the study by Kalankesh et al. (2020), which highlighted Service Quality as a critical determinant of User Satisfaction in information systems. Likewise, Sajja et al. (2024) reported that responsive technical support substantially improves users' experiences with digital academic services. The present findings further reinforce the conclusions of Espinosa-Velez et al. (2022), who emphasized that digital transformation in higher education depends not only on technological innovation but also on the quality of interactions between service providers and users. Therefore, enhancing Service Quality should be regarded as an integral component of AIS development strategies to ensure more sustainable and user-centered digital academic services.

Overall, the findings demonstrate that the success of AIS cannot be evaluated solely based on its technical performance but should instead be assessed according to its ability to provide high-quality academic information supported by responsive services that address users' needs. As illustrated in Figure 1, User Satisfaction functions as the connecting mechanism between AIS quality and the enhancement of digital academic services. Consequently, this study not only confirms the continued relevance of the DeLone and McLean Information Systems Success Model within the context of higher education but also extends its application by emphasizing a digital academic service perspective. From a practical standpoint, the findings suggest that higher education institutions should prioritize improvements in Information Quality, accelerate the updating of academic data, strengthen user support services, and establish more responsive digital assistance mechanisms. Such initiatives are expected to enhance students' learning experiences while reinforcing the long-term digital transformation of academic services in higher education.

## **Conclusion**

This study demonstrates that the quality of the Academic Information System (AIS) plays a crucial role in shaping User Satisfaction, although each quality dimension contributes differently. The findings reveal that Information Quality and Service Quality exert positive and statistically significant effects on User Satisfaction, whereas System Quality does not have a significant influence. These results indicate that students place greater emphasis on accurate, relevant, complete, and timely academic information, as well as responsive support services, than on the technical characteristics of the system itself. Therefore, the success of AIS in supporting digital academic services depends not only on the quality of the underlying technology but also on the system's ability to deliver valuable academic information and user-centered services. Furthermore, the findings suggest that User Satisfaction serves as a key mechanism linking AIS quality to the effectiveness of digital academic services in higher education.

This study contributes theoretically by extending the empirical evidence on the application of the quality dimensions of the DeLone and McLean Information Systems Success Model in evaluating Academic Information Systems within higher education. From a practical perspective, the findings provide higher education institutions with empirical guidance for prioritizing improvements in Information Quality and Service Quality as key strategies for developing more user-centered Academic Information Systems. Nevertheless, this study is limited by its focus on respondents from a single higher education institution and by its adoption of only selected dimensions of the DeLone and McLean model, which does not capture the complete relationships among all constructs within the framework. Future research is therefore encouraged to involve multiple higher education institutions, incorporate additional dimensions such as *System Use*, *Intention to Use*, and *Net Benefits*, and employ more comprehensive analytical approaches, including *Structural Equation Modeling* (SEM) or *Partial Least Squares Structural Equation Modeling* (PLS-SEM), to provide a deeper understanding of the factors that support the sustainable development of digital academic services.

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