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SIAMIK Success Evaluation at Bali Tourism Polytechnic: DeLone-McLean Evidence and Development Recommendations

Ni Putu Kasih Sumariani[1], I Made Candiasa[2], Luh Joni Erawati Dewi[3]
[1,2,3] Postgraduate Programs, Computer Science Study Program, Universitas Pendidikan Ganesha, Bali, Indonesia
e-mail: kasih.sumariani@student.undiksha.ac.id[1], candiasaimade@undiksha.ac.id[2], joni.erawati@undiksha.ac.id[3]
**Correspondence:* kasih.sumariani@student.undiksha.ac.id

Abstract: *Academic information systems are essential for supporting integrated academic services in higher education. However, SIAMIK at Bali Tourism Polytechnic still faces issues related to system integration, interface interactivity, manual grade processing, and limited digital service integration. This study evaluates SIAMIK success using the DeLone and McLean Information System Success Model and formulates system development recommendations based on empirical findings. A quantitative survey was conducted involving 102 users consisting of management, lecturers, administrative staff, and students. Data were collected through questionnaires and analyzed using descriptive statistics and Partial Least Squares Structural Equation Modeling. The results show that system quality significantly affected user satisfaction ($\beta = 0.324$, $p < 0.001$), information quality had the strongest effect ($\beta = 0.433$, $p < 0.001$), and service quality also had a significant effect ($\beta = 0.170$, $p = 0.039$). User satisfaction significantly influenced net benefits ($\beta = 0.724$, $p < 0.001$). The model explained 67.2% of user satisfaction and 52.3% of net benefits, with strong predictive relevance ($Q^2 = 0.843$). Findings suggest that SIAMIK development should prioritize information completeness, responsive access, technical support assurance, and cross-system integration.*

Keywords: *SIAMIK, Academic Information System, DeLone and McLean Model, PLS-SEM, Development Recommendations.*

1. Introduction

Information technology has become an essential component in supporting organizational processes and public services, including in higher education institutions[1], [2]. In the academic context, information systems are used to manage data, support administrative processes, improve communication, and provide access to academic information for students, lecturers, and administrative staff[3]. One form of information system commonly implemented in higher education is an academic information system or academic portal, which functions as an integrated platform for managing academic activities and providing information to the academic community[4].

The Academic Information System, known as SIAMIK, at Bali Tourism Polytechnic is an important system used to support academic and administrative activities within the institution. This system is used by lecturers to manage lecture administration, attendance, student grades, and academic guidance. Administrative staff use SIAMIK to manage student data, tuition information, graduation documents, internship data, and final project administration. Meanwhile, students use the system to monitor academic progress, view grades, access schedules, and obtain other academic information related to their study activities. Therefore, SIAMIK plays an important role in ensuring that academic services can be delivered more efficiently and in an integrated manner[5].

Although SIAMIK has been implemented to support academic services, preliminary observations indicate that several problems still exist in its use. The system interface is

considered relatively simple and not fully interactive, which may affect user comfort when accessing available features. In addition, SIAMIK has not yet implemented Single Sign-On, so users still need to log in separately to access different campus services. The system is also not fully integrated with other institutional systems, such as the library system, financial system, and digital payment services. As a result, several academic and administrative processes are still performed manually, including examination eligibility validation, grade processing, and payment recording[6].

These conditions may reduce the effectiveness and efficiency of academic services. For example, students still need to process examination eligibility documents manually through administrative offices and library validation[7]. Lecturers also cannot directly input grades into the system because the grade submission process still requires administrative staff to re-enter the data into SIAMIK. This layered procedure may slow down academic administration and increase the possibility of data input errors. Similarly, student payment administration has not been fully integrated with a digital payment system, requiring staff to record payment data separately. These issues show that system improvement is necessary to increase service efficiency, data accuracy, and user experienc[8].

To identify the strengths and weaknesses of SIAMIK, a comprehensive and systematic evaluation is required. This study applies the DeLone and McLean Information System Success Model, which is widely used to evaluate information system success. The model evaluates information systems through several dimensions, including system quality, information quality, service quality, user satisfaction, and net benefits. In this study, the use dimension is not included because SIAMIK is a mandatory system for academic users. System quality refers to the technical performance of the system, such as reliability, ease of use, and response time. Information quality refers to the accuracy, completeness, relevance, and clarity of the information provided. Service quality reflects the quality of support provided to users, while user satisfaction and net benefits represent the outcomes of system implementation[9], [10].

Previous studies have applied the DeLone and McLean model to evaluate academic information systems in various higher education institutions[11]. These studies generally found that system quality, information quality, and service quality can influence user satisfaction and system benefits. However, the results vary across institutional contexts. Some studies show that system quality and information quality have significant effects on user satisfaction, while other studies found that service quality or other variables may not always have a significant influence[12]. In addition, most previous studies focused mainly on measuring system success and testing relationships among variables, while limited attention has been given to formulating practical system development recommendations based on empirical evaluation results.

The novelty of this study lies in its focus on SIAMIK at Bali Tourism Polytechnic, a tourism higher education institution with specific academic and administrative service characteristics. In addition, this study integrates PLS-SEM-based evaluation results with development recommendations derived from system quality, information quality, service quality, user satisfaction, and net benefits. Thus, this study contributes not only to the empirical evaluation of academic information system success but also to the formulation of practical improvement directions for a more integrated and user-oriented academic information system.

2. Literature Review

Studies and findings from various relevant previous research play an important role as supporting foundations and references in this stud can be summarized in the table 1. Therefore, this section briefly discusses several previous studies related to the research topic.

Table 1. Literature Review

No.	Researcher & Year	Research Title	Research Findings	Research Gap/Limitations
1	Putra et al. (2022)	Application of the DeLone and McLean Model to the Academic Information System Website of STIKES Sukabumi[13]	System quality, information quality, and service quality influenced user satisfaction and the net benefits of the system. The system was considered successful, although improvements were needed in service quality and access speed.	The study applied the six dimensions of the DeLone and McLean model, but the results focused more on system success and relationships among variables. System development recommendations were not explained specifically based on each evaluation dimension.
2	R. I. Nugraha et al. (2023)	Evaluation of the Success of SIAMIK at UPN "Veteran" East Java Using the DeLone and McLean Information System Success Model [14]	Of the seven hypotheses tested, five were accepted. SIAMIK was considered effective, efficient, and capable of providing user satisfaction, although improvements were still needed in system reliability and speed.	The study only assessed the success of SIAMIK in the context of UPN "Veteran" East Java. The development recommendations were still limited to general aspects such as system reliability and speed and had not been directed into a more operational system improvement design.
3	Pongoliu et al. (2024)	Evaluation of the Success of the Unisan Academic Information System (SIAKUN) Using the DeLone and McLean Model at Ichsan University Gorontalo	SIAKUN obtained an average score of 3.13 with a success rate of 72.13%, which was categorized as high. The system was successfully implemented and able to manage academic data properly, although development was still needed in service aspects and user experience.	The study measured the level of system success but did not explain technical and managerial recommendations in detail. Improvements in service aspects and user experience were still presented in general terms.
4	Devita et al. (2025)	Evaluation of the Success of the Academic Information System (SIAKAD) of Universitas Negeri Jakarta Using the DeLone and McLean Method [15]	Information quality had a significant effect on user satisfaction, while system quality, service quality, and trust did not show a significant effect. User satisfaction was proven to influence the net benefits of the system.	The study showed variations in the influence among variables, but it had not developed comprehensive system improvement recommendations. The focus of the study was still on measuring system success, rather than formulating system development strategies.

The reviewed studies show that information quality is frequently found to be a strong predictor of user satisfaction because academic users depend heavily on accurate, complete, relevant, and timely information. However, the influence of system quality and service quality varies across studies. In some contexts, system quality significantly affects satisfaction because users rely on system reliability, response time, and usability. In other contexts, service quality may have a weaker or insignificant effect, possibly because users focus more on direct system performance

than on support services [16]. These differences suggest that academic information system success cannot be generalized across institutions without considering system characteristics, user composition, and institutional service processes [17]. Based on this synthesis, the present study positions itself by evaluating SIAMIK in the specific context of Bali Tourism Polytechnic and by converting the empirical evaluation results into system development recommendations. This approach extends previous studies that mainly emphasized statistical relationships among constructs but did not explicitly connect the findings to operational recommendations for system improvement.

3.Methods

This research stage explains the research implementation process to achieve the stated objectives. Figure.1 shows the research stages involved in conducting evaluations and developing recommendations.

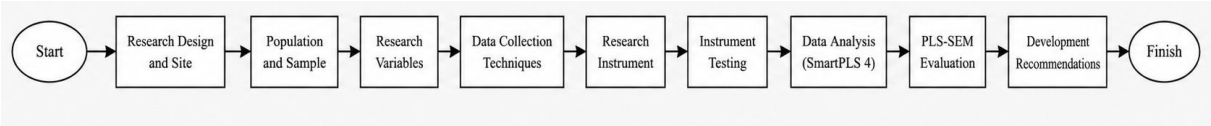

Figure 1. Reaserch Flow

3.1 Research Design and Site

This study used a quantitative survey approach to evaluate the implementation of the Academic Information System (SIAMIK) at Bali Tourism Polytechnic. The research was conducted at Bali Tourism Polytechnic, Badung Regency, Bali, Indonesia. The quantitative approach was selected because the study aimed to measure user perceptions and analyze the relationships among variables in the DeLone and McLean Information System Success Model.

3.2 Population and Sample

The population of this study consisted of SIAMIK users, including management, lecturers, administrative staff, and students. Based on institutional data for the 2023/2024 academic year, the total population was 2,605 users. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in 102 respondents. The respondents were selected using proportionate stratified random sampling to ensure representation from each user group. The respondents were selected using proportionate stratified random sampling based on user groups. The final sample consisted of 1 management respondent, 6 lecturers, 1 administrative staff member, and 94 students. The dominance of student respondents reflects the actual structure of SIAMIK users, as students represent the largest user group and interact with the system most frequently for academic activities.

3.3 Research Variables

This study adopted the DeLone and McLean Information System Success Model. The variables used were system quality, information quality, service quality, user satisfaction, and net benefits can be summarized in the table 2. [18].

Tabel 2. Variables

Variabel Endogenus (Y)	Variabel Exogenus (X)
User Satisfaction	System Quality (SQ)
Net Benefit	Information Quality (IQ), Service Quality (SVQ)

3.4 Data Collection Techniques

Data were collected through observation, questionnaires, and interviews. Observation was conducted to identify the initial condition and problems related to SIAMIK usage. The

questionnaire was distributed to internal SIAMIK users and measured using a five-point Likert scale. Interviews were conducted to obtain additional institutional information related to system management, development policies, and service improvement needs.

3.5 Research Instrument

The questionnaire was developed based on indicators from the DeLone and McLean model can be summarized in the table 3-7. The instrument measured five dimensions: system quality, information quality, service quality, user satisfaction, and net benefits[19]. Each item was measured using a five-point Likert scale ranging from strongly disagree to strongly agree [20].

Table 3. Measurement Instrument for System Quality

Variable	Indicator	Code	Statement
System Quality	Adaptability	SQ1	I feel that SIAMIK can be accessed on any device.
System Quality	Reliability	SQ2	SIAMIK operates stably and rarely experiences technical problems.
System Quality	Response Time	SQ3	SIAMIK can respond quickly to requests for the information needed.
System Quality	Usability	SQ4	SIAMIK is easy to use.

Table 4. Measurement Instrument for Information Quality

Variable	Indicator	Code	Statement
Information Quality	Completeness	IQ1	The information displayed in SIAMIK covers all necessary aspects.
Information Quality	Ease of Understanding	IQ2	The information in SIAMIK is easy for users to understand.
Information Quality	Format	IQ3	The information presented in SIAMIK is clearly and properly formatted.
Information Quality	Relevance	IQ4	SIAMIK displays information that users need.
Information Quality	Security	IQ5	SIAMIK has good security to protect user data.

Table 5. Measurement Instrument for Service Quality

Variable	Indicator	Code	Statement
Service Quality	Assurance	SVQ1	SIAMIK provides services supported by professional technicians in handling system problems.
Service Quality	Empathy	SVQ2	In my opinion, the SIAMIK support team is friendly and easy to contact when needed.
Service Quality	Responsiveness	SVQ3	In my opinion, SIAMIK technical support responds quickly when problems occur.

Table 6. Measurement Instrument for User Satisfaction

Variable	Indicator	Code	Statement
User Satisfaction	System Output	US1	I am satisfied with all the information displayed by SIAMIK.
User Satisfaction	Management Services	US2	I am satisfied with all services provided by SIAMIK.
User Satisfaction	System Precision	US3	I feel assisted in completing academic processes using SIAMIK.
User Satisfaction	User Expectations	US4	I feel that all available features and functions meet user expectations.

Table 7. Measurement Instrument for Net Benefits

Variable	Indicator	Code	Statement
Net Benefits	Time Savings	NB1	In my opinion, SIAMIK helps save time in academic administration processes.
Net Benefits	Effect on Work	NB2	I feel that all processes carried out to support academic activities become more efficient and effective by using SIAMIK.

3.6 Instrument Testing

The instrument was tested using validity and reliability tests before further analysis. Validity testing was conducted using Pearson product-moment correlation, while reliability testing was conducted using Cronbach's Alpha [21]. The results showed that all questionnaire items were valid and reliable, indicating that the instrument was appropriate for measuring the research variables.

3.7 Data Analysis

The collected data were analyzed using descriptive statistics and Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS 4[22]. Descriptive statistics were used to describe respondents' perceptions of each variable. PLS-SEM was used to analyze the relationships among latent variables and to test the proposed hypotheses [23].

3.8 PLS-SEM Evaluation

The PLS-SEM analysis consisted of measurement model evaluation, structural model evaluation, model fit assessment, and hypothesis testing. The measurement model was assessed using convergent validity, discriminant validity, Cronbach's Alpha, and composite reliability. The structural model was evaluated using path coefficients, R-square, Q-square, T-statistics, and P-values. Hypotheses were accepted when the path relationship was statistically significant, based on T-statistics and P-values [24].

3.9 Recommendation Development

The results of the data analysis were used as the basis for developing recommendations for SIAMIK improvement. The recommendations were formulated according to the findings on system quality, information quality, service quality, user satisfaction, and net benefits. This stage aimed to provide practical suggestions for improving SIAMIK in accordance with user needs and institutional conditions.

4. Results and Discussion

4.1 Respondent Characteristics

This study involved 102 respondents who were users of the Academic Information System (SIAMIK) at Bali Tourism Polytechnic. The respondents consisted of management, lecturers, administrative staff, and students. Respondent characteristics were analyzed based on user status, gender, and length of system use can be summarized in the table 8.

Table 8. Respondent Characteristics

Characteristic	Category	Frequency	Percentage
Status	Management	1	1%
	Lecturers	6	6%
	Administrative Staff	1	1%
	Students	94	92%
Gender	Male	57	56%
	Female	45	44%
Length of System Use	Less than 1 year	4	4%
	1–3 years	60	59%
	More than 3 years	38	37%

Most respondents were students, accounting for 92% of the total sample. This condition is relevant because students are the largest user group of SIAMIK in academic activities. In terms of gender, male respondents accounted for 56%, while female respondents accounted for 44%. Based on system usage experience, most respondents had used SIAMIK for 1–3 years, indicating that the respondents had sufficient experience to evaluate the system.

4.2 Descriptive Analysis of Respondents' Answers

Descriptive analysis was conducted using the Respondent Achievement Level to measure users' perceptions of SIAMIK based on five dimensions of the DeLone and McLean model can be summarized in the table 9.

Table 9. Summary of Respondent Achievement Level

Variable	Average Score	TCR (%)	Category	Highest Indicator	Lowest Indicator
System Quality	444.75	87.21	Good	Reliability and Usability	Adaptability
Information Quality	452.40	88.71	Good	Security	Completeness
Service Quality	433.30	84.97	Good	Empathy	Assurance
User Satisfaction	459.00	90.00	Very Good	System Precision	Management Services and User Expectations
Net Benefits	467.00	91.57	Very Good	Effect of Work	Time Savings

The descriptive results show that system quality, information quality, and service quality were categorized as good, while user satisfaction and net benefits were categorized as very good. These findings indicate that SIAMIK has generally supported academic activities effectively. However, several aspects still require improvement, particularly system adaptability, completeness of information, and assurance in technical support services.

4.3 Descriptive Results of Each Variable

4.3.1 System Quality

The system quality variable obtained an average TCR value of 87.21%, which is categorized as good. The highest indicators were reliability and usability, each with a TCR value of 87.6%. This indicates that users perceived SIAMIK as relatively stable, reliable, and easy to use. However, adaptability obtained the lowest TCR value of 86.1%, suggesting that the system still needs improvement in terms of device compatibility, flexibility of access, and responsiveness across different usage environments.

4.3.2 Information Quality

The information quality variable obtained an average TCR value of 88.71%, which is categorized as good. The highest indicator was security, with a TCR value of 90.4%, categorized as very good. This indicates that users perceived SIAMIK as having good data protection. Meanwhile, completeness had the lowest value at 87.6%, showing that the information provided by SIAMIK still needs to be improved in terms of coverage, detail, and relevance to users' academic needs.

4.3.3 Service Quality

The service quality variable obtained an average TCR value of 84.97%, which is categorized as good. The highest indicator was empathy, with a TCR value of 85.5%, indicating that users perceived the SIAMIK support team as friendly and accessible. However, assurance had the lowest TCR value of 84.1%, indicating that technical support services still need to be

strengthened, particularly in terms of professional assistance, problem handling, and service certainty [25].

4.3.4 User Satisfaction

The user satisfaction variable obtained an average TCR value of 90.00%, which is categorized as very good. The highest indicator was system precision, with a TCR value of 91.0%. This indicates that SIAMIK helps users complete academic processes effectively. However, management services and user expectations obtained lower values than the other indicators, indicating that some system features and services still need to be improved to better match user expectations.

4.3.5 Net Benefits

The net benefits variable obtained an average TCR value of 91.57%, which is categorized as very good can be summarized in the table 10 .

Table 10. Corrected Descriptive Results of Net Benefits

Indicator	Code	STS	TS	N	S	SS	Score	TCR (%)	Category
Time Savings	NB1	0	0	7	33	62	463	90.78	Very Good
Effect of Work	NB2	0	0	6	27	69	471	92.35	Very Good
Average							467.00	91.57	Very Good

The corrected calculation shows that both net benefit indicators remain in the very good category. This means that SIAMIK has provided positive contributions to users by helping reduce processing time and improving the effectiveness of academic activities.

4.4 Measurement Model Evaluation

The evaluation included convergent validity, Average Variance Extracted, discriminant validity, Cronbach's Alpha, and Composite Reliability can be summarized in the table 11 .

Table 11. Measurement Model Evaluation Results

Variable	Loading Factor Range	AVE	Cronbach's Alpha	Composite Reliability	Result
System Quality	0.882–0.918	0.813	0.923	0.946	Valid and Reliable
Information Quality	0.862–0.932	0.809	0.941	0.955	Valid and Reliable
Service Quality	0.922–0.937	0.860	0.919	0.949	Valid and Reliable
User Satisfaction	0.906–0.913	0.826	0.930	0.950	Valid and Reliable
Net Benefits	0.936–0.952	0.891	0.878	0.942	Valid and Reliable

All indicators had loading factor values above 0.70, indicating that each indicator strongly represented its construct. The AVE values were also above 0.50, confirming convergent validity. In addition, Cronbach's Alpha and Composite Reliability values exceeded 0.70, indicating that all constructs were reliable. Therefore, the measurement model was considered valid and reliable for further structural model analysis.

4.5 Structural Model Evaluation

The structural model was evaluated using R-square, Q-square, SRMR, and NFI values. This evaluation was conducted to determine the explanatory power, predictive relevance, and model fit of the proposed research model can be summarized in the table 12.

Table 12. Structural Model and Model Fit Results

Evaluation Criteria	Variable/Indicator	Value	Category
R-square	User Satisfaction	0.672	Moderate
R-square Adjusted	User Satisfaction	0.662	Moderate
R-square	Net Benefits	0.523	Moderate
R-square Adjusted	Net Benefits	0.519	Moderate
Q-square	Predictive relevance	0.843	Strong
SRMR	Estimated model	0.058	Good Fit
NFI	Estimated model	0.860	Marginal Fit

The R-square value for user satisfaction was 0.672, indicating that system quality, information quality, and service quality explained 67.2% of the variance in user satisfaction. Meanwhile, the R-square value for net benefits was 0.523, indicating that user satisfaction explained 52.3% of the variance in net benefits. The Q-square value of 0.843 shows that the model has strong predictive relevance. Furthermore, the SRMR value of 0.058 indicates good model fit, while the NFI value of 0.860 indicates marginal but acceptable model fit.

4.6 Hypothesis Testing

Before testing the structural relationships, the adequacy of the research model was evaluated using R-square, Q-square, SRMR, and NFI. The R-square values for user satisfaction and net benefits were 0.672 and 0.523, respectively, indicating moderate explanatory power. The Q-square value of 0.843 indicated strong predictive relevance. In addition, the SRMR value of 0.058 showed good model fit, while the NFI value of 0.860 indicated marginal but acceptable fit. These results indicate that the DeLone and McLean model is empirically adequate for evaluating SIAMIK implementation. The results show that all structural hypotheses were accepted. System quality, information quality, and service quality had positive and significant effects on user satisfaction. Information quality had the strongest influence on user satisfaction, as indicated by the highest path coefficient of 0.433. Furthermore, user satisfaction had a strong positive and significant effect on net benefits, with a path coefficient of 0.724. These findings confirm that improving user satisfaction is essential for increasing the perceived benefits of SIAMIK in this study can be summarized in the table 13.

Table 13. Hypothesis Testing Results

Hypothesis	Relationship	Path Coefficient	T-Statistic	P-Value	Result
H1	System Quality → User Satisfaction	0.324	3.682	0.000	Accepted
H2	Information Quality → User Satisfaction	0.433	4.451	0.000	Accepted
H3	Service Quality → User Satisfaction	0.170	1.766	0.039	Accepted
H4	User Satisfaction → Net Benefits	0.724	12.058	0.000	Accepted

4.7 Discussion

The results indicate that the DeLone and McLean model is suitable for evaluating SIAMIK at Bali Tourism Polytechnic. The model demonstrated acceptable explanatory power, strong predictive relevance, and adequate model fit. This confirms that system quality, information quality, service quality, user satisfaction, and net benefits are relevant dimensions for assessing the success of SIAMIK implementation. System quality had a positive and significant effect on user satisfaction. This finding indicates that users are more satisfied when SIAMIK is reliable, easy to use, responsive, and accessible across different devices. However, adaptability had the

lowest score among system quality indicators, suggesting that future development should prioritize responsive design, multi-device accessibility, and more flexible access.

Information quality had the strongest effect on user satisfaction. This finding shows that users' satisfaction is highly influenced by the completeness, clarity, relevance, format, and security of information provided by SIAMIK. Although the security indicator received the highest score, completeness received the lowest score. Therefore, SIAMIK should improve the coverage and completeness of academic information to better support user needs.

Service quality also had a positive and significant effect on user satisfaction, although its influence was weaker than system quality and information quality. The assurance indicator received the lowest score, indicating that users require more reliable, professional, and structured technical support. This finding implies that SIAMIK management should strengthen helpdesk mechanisms, service standards, and problem-handling procedures. User satisfaction had a strong positive effect on net benefits. This indicates that when users are satisfied with SIAMIK, they are more likely to perceive the system as useful for saving time, improving work efficiency, and supporting academic administration. Therefore, user satisfaction should be treated as a key factor in maximizing the institutional and operational benefits of SIAMIK.

4.8 Development Recommendations

Based on the descriptive analysis and hypothesis testing results, several development recommendations are proposed to improve SIAMIK can be summarized in the table 14.

Table 14. Development Recommendations for SIAMIK

Evaluation Aspect	Main Finding	Development Recommendation
System Quality	Adaptability had the lowest score among system quality indicators.	Improve responsive design, mobile accessibility, browser compatibility, and system performance across different devices.
Information Quality	Completeness had the lowest score among information quality indicators.	Improve the completeness of academic information, integrate academic data sources, and ensure that information is updated in real time.
Service Quality	Assurance had the lowest score among service quality indicators.	Establish a structured helpdesk system, define technical support procedures, provide clear service standards, and improve response mechanisms.
User Satisfaction	Management services and user expectations still need improvement.	Improve the consistency, usability, and completeness of academic service features, including grade management, academic forms, and administrative services.
Net Benefits	SIAMIK has provided strong benefits, but integration can still be improved.	Integrate SIAMIK with library services, financial systems, digital payment systems, and Single Sign-On to improve efficiency and user experience.

5. Conclusions

This study evaluated the implementation success of SIAMIK at Bali Tourism Polytechnic using the DeLone and McLean Information System Success Model. The results show that system quality, information quality, and service quality had positive and significant effects on user satisfaction, while user satisfaction had a positive and significant effect on net benefits. Information quality was the most dominant factor influencing user satisfaction, with a path coefficient of 0.433. The model also showed adequate explanatory and predictive ability, with R-square values of 0.672 for user satisfaction and 0.523 for net benefits, as well as a Q-square value of 0.843.

The main contribution of this study is the integration of empirical evaluation results with system development recommendations. Based on the findings, SIAMIK development should prioritize improving information completeness, responsive access across devices, technical support assurance, and integration with other institutional systems such as library services, financial systems, digital payment platforms, and Single Sign-On.

This study has limitations in respondent composition, as the sample was dominated by students. Therefore, future research should involve a larger and more balanced sample across user groups, including lecturers, administrative staff, and management. Further studies may also include additional variables such as user experience, system integration maturity, organizational support, and digital service readiness to provide a broader understanding of academic information system success.

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