

Factors Effecting the Effectiveness of AIS “SAKTI” Based on Delone and Mclean (2003) Modified Models

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ABSTRACT

The aim of this research is to empirically test the impact of system quality, information quality, management support on the perceived usefulness, user satisfaction and the effectiveness of accounting information systems (AIS). The sample was used by 143 respondents from SAKTI users in the Sidoarjo Mud Control Center, the Brantas River Region Hall, and the East Java National Road Implementation Hall-Bali Ministry of PUPR. This research uses primary data obtained from the questionnaire. Data collection techniques using convenience sampling and data analysis techniques using SEM-PLS. Results of system quality analysis do not affect user satisfaction, information quality does not affect usefulness, system quality affects usefulness, quality of information affects user satisfactions, management support affects customer satisfaction and usefulness, usefulness affects user satisfactions and the effectiveness of AIS, user satisfactions affects the effectiveness of AIS. Implications of this research are the development of models to measure the effectiveness of AIS and also as a reference for improvements in SAKTI applications later on.

Keywords: Effectiveness of AIS, SAKTI, ISSM Delone and Mclean, Management Support, Mandatory

Faktor Yang Mempengaruhi Efektivitas Sistem Informasi Akuntansi “SAKTI” Berdasarkan Model Delone dan Mclean (2003) Yang Dimodifikasi

ABSTRAK

Tujuan penelitian ini untuk menguji secara empiris pengaruh kualitas sistem, kualitas informasi, dukungan manajemen pada persepsi manfaat, kepuasan pengguna dan efektivitas sistem informasi akuntansi (SIA). Sampel yang digunakan sebanyak 143 responden dari pengguna SAKTI di Pusat Pengendalian Lumpur Sidoarjo, Balai Besar Wilayah Sungai Brantas, dan Balai Besar Pelaksanaan Jalan Nasional Jawa Timur-Bali Kementerian PUPR. Penelitian ini menggunakan data primer yang diperoleh dari kuesioner. Teknik pengumpulan data menggunakan convenience sampling dan teknik analisis data menggunakan SEM-PLS. Hasil analisis kualitas sistem tidak berpengaruh terhadap kepuasan pengguna, kualitas informasi tidak berpengaruh terhadap persepsi manfaat, kualitas sistem berpengaruh terhadap persepsi manfaat, kualitas informasi berpengaruh terhadap kepuasan pengguna, dukungan manajemen berpengaruh terhadap kepuasan pengguna dan persepsi manfaat, persepsi manfaat berpengaruh terhadap kepuasan pengguna dan efektivitas SIA,



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kepuasan pengguna berpengaruh terhadap efektivitas SIA. Implikasi dari penelitian ini adanya pengembangan model untuk mengukur efektivitas sistem informasi akuntansi dan juga sebagai referensi untuk perbaikan pada aplikasi SAKTI dikemudian hari

Kata Kunci: Efektivitas SIA, SAKTI, ISSM Delone and Mclean,
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INTRODUCTION

SAKTI is a product of the 2015 Minister of Finance No. 223/PMK.05/2015 and No. 131/PMK.06/2016, which mandates the use of various system elements to function as a coherent and efficient entity. The implementation of SAKTI consists of three phases: piloting I, II, and III. At the beginning of 2022, Kementerian Pekerjaan Umum dan Perumahan Rakyat employed SAKTI, integrating various pre-existing system applications, including the Work Plan and Budget Application for Ministries/Agencies (RKA-KL), SIMAK-BMN, aplikasi persediaan, SPP, dan Sistem Informasi Akuntansi Berbasis Akrua (SAIBA).

This study examines how effective the SAKTI system works when it is used as mandatory by the Ministry of Finance in budget execution utilizing the State Budget (APBN). In a mandatory context, users are required to use the accounting information system (AIS) in accordance with directives or regulations, regardless of their intention to use it (Koh et al., 2010).

P. B. Seddon et al. (2002) stated that information system effectiveness is a value judgment made from the stakeholders' perspective regarding the net benefits derived from using an information system. DeLone & McLean (2016) asserted that information system success research evaluates the effective use of information through technology. Widowati & Achjari (2004) noted that systems can be evaluated and analyzed based on two primary measurements: effectiveness and efficiency. The purpose of information system use is to facilitate users' tasks, thereby saving time, cost, and resources in decision-making. Hence, evaluating the effectiveness of the information system is necessary. A successful accounting information system will contribute to the organization's success in achieving its objectives, whereas an unsuccessful system can lead to organizational failure, indicating an inability to grow and sustain (Beg, 2018); (Sajady et al., 2008).

Shagari et al (2017) evaluate effectiveness of AIS in banking sector in Nigeria using variables such as, service quality, information quality, system quality and AIS effectiveness. The conclusion from this research was that system quality and information quality positively influence AIS effectiveness, whereas service quality does not impact AIS effectiveness.

Amriani & Iskandar (2019) looked at the use of SAKTI at the Education and Training Agency using ISSM Delone and Mclean (2023). This study employed five success measurement variables: information quality, system quality, service quality, user satisfaction, and net benefits. The results indicated that system quality affects user satisfaction, and user satisfaction influences net benefits, while information quality and service quality do not impact integrated user satisfaction of SAKTI.

Al-Okaily et al (2020) studied AIS from organizational perspective in Jordan using the ISSM Delone and Mclean (2023), modified without the variables intention to use/use and user satisfaction. In this study researcher add training quality as independent variabel besides original independent variabel from the original model. The study found all of the variables used in the research are significantly influenced organizational benefits.

The purpose of this study is to filling in the gaps in the elements employed in earlier studies and utilizing research models to gauge the effectiveness of AIS, this study seeks to increase the factors impacting the SAKTI AIS effectiveness. The

model to be used in this study refers to the research model developed by Al-Okaily et al (2023) who modified the original ISSM Delone and Mclean (2003). In this model, Al-Okaily et al (2023) use the variable usefulness to replace the variable intention to use/use based on the model developed by Seddon (1997), as the usefulness variable is more logically used in mandatory or voluntary systems.

The primary difference from the research conducted by Al-Okaily et al. (2023) lies in the use of the variable "management support" to replace "service quality." This change references Al-Hattami et al (2022), who identified management support as a critical factor in the utilization and effectiveness of SAKTI. Management support refers to the extent to which individuals believe management is committed to the successful implementation and use of a system (Venkatesh & Bala, 2008). Management support, including considerations, policies, and facilities, is invaluable in fostering application acceptance. It demonstrates managerial commitment and assurance of the system's benefits, thereby strengthening employees' willingness to use the information system (Purnomo & Nastiti, 2019).

Furthermore, the current study does not include "service quality" as a variable, drawing from Mahmud et al (2023), who argued that satisfaction with e-government use is typically associated with the quality of public services provided by employees. Seddon, P, & Kiew (1996) posited that service quality is better suited for evaluating IT departments rather than IT implementation. DeLone & McLean (2002) asserted that for system measurement, "system quality" and "information quality" are the best indicators.

The six dimensions initiated by DeLone & McLean (1992) are System Quality, Information Quality, Use, User Satisfaction, Individual Impact and Organizational Impact. The model explains that system quality will affect system usage and user satisfaction. Information quality will also affect user usage as well as user content. Usage and customer satisfaction will ultimately affect Individual Impact, and groups of such Individual Impact will eventually affect Organizational impact. The six variables are not independent variables but interdependent variables that if one of the 6 variables fails, then the entire success of a system will be disrupted.

Later in 2003, DeLone and McLean updated the model in their research based on the study conducted by Seddon (1997), which suggested that Use (in this context, referring to usage) should be distinguished from Usefulness (utility). Based on the research evaluation results, they modified the construction, use, because they suspected that the underlying construction of success being utilized by the researchers is usefulness, not use (Petter et al., 2008). There are differences among researchers regarding the necessity of adding the service quality variable. Eventually, DeLone & McLean (2003) added the variable of service quality and transformed the individual and organizational impact variables into net benefits. They also introduced the dimension of intention to use as an alternative to the usage dimension.

Al-Okaily dkk (2023) modified the DeLone and McLean research model (2003) by not utilizing the desire to use variable and using the usefulness variable contained in the Seddon model. (1997). According to Al-Okaily dkk (2023) in his research, using the variable usefulness rather than system usage because users

have no alternative in carrying out their duties, this is in line with the opinion (Seddon, 1997) by replacing system use with usefulness as a good measure of the use of information systems that are either voluntary or mandatory.

System quality refers to the functional quality and dimensions of an information system, including adaptability, effectiveness, flexibility, usability, and usefulness. When an information system provides high-quality and relevant functions for users to achieve their goals, users will perceive the system as capable of meeting their needs, enhancing their satisfaction and interest in using the system (Daihan & Akkoyunlu, 2016; Roca et al., 2006; Tam & Oliveira, 2016). Research by Mangun Buana & Wirawati (2018), Alfiani et al (2022), and Apsari et al (2023) has shown that system quality in accounting information significantly and positively influences user satisfaction with AIS.

H1a. System quality has a positive effect on user satisfaction.

Information quality refers to the desired quality and characteristics of the content and form of reports generated by the information system, measured by dimensions such as accuracy, completeness, currency, efficiency, personalization, relevance, scope, and timeliness of information (DeLone & McLean, 1992, 2003; Roca et al., 2006; Tam & Oliveira, 2016; Tseng & Lee, 2018). A system's quality is also assessed by the quality of the information it generates, particularly in producing reports required by users (Harnowo et al. 2021). Studies by Mangun Buana and Wirawati (2018), Alfiani et al. (2022) found that information quality positively and significantly affects user satisfaction with information systems. Based on the above, the assumption is that better information quality increases user satisfaction. Conversely, poor information quality can lead to user dissatisfaction due to the extra effort required to obtain information.

H1b. Information quality has a positive effect on user satisfaction.

DeLone & McLean (2016) traditionally associated system quality with system output features such as accuracy, comparability, reliability, completeness, conciseness, currency, relevance, timeliness, format, and other criteria. Additionally, if users believe that the information system provides appropriate system functionality, accessibility, availability, reliability, stability, and timely responses to enhance productivity or efficiency, they may find the information system/technology useful (Abugabah et al., 2015; Tseng & Lee, 2018). Therefore, system quality is considered a significant motivational factor for users to adopt the system and derive substantial benefits for the organization to achieve a return on investment (Ohanu et al., 2022). Therefore, the researcher formulates the second hypothesis as follows: :

H_{2a}: System quality has a positive effect on usefulness.

DeLone & McLean (1992) stated that information quality refers to the output of an information system concerning the value, benefits, relevance, and urgency of the information produced. Users will consider an information system to be helpful when they believe it can offer rich content that is regularly updated and adaptable to match their specific needs (Abugabah et al. 2015; Tseng & Lee, 2018). Thus, the better the output generated by information quality, the more satisfied users will feel, as the information produced will impact the performance of AIS users.

H_{2b}: Information quality positively influences user satisfaction.

Management refers to the upper-level management in a company, including leaders and direct supervisors (Purnomo & Nastiti, 2019). Management support is necessary to obtain top management encouragement, resource allocation, and instructional development assistance (Igbaria & Iivari, 1995). Purnomo & Nastiti (2019) stated that the support perceived by users is a significant predictor of technology acceptance, including perceived benefits, which is also corroborated by Al Haderi et al (2018), Huang et al (2011), Rouibah et al (2009), who found a positive relationship between management support and the usefulness of new technology systems. It is highly likely that better management support will not only result in usefulness but also foster a better organizational climate (Huang et al., 2011).

H₃: Management support positively influences usefulness.

Management support involves executive behaviors related to information system planning, development, and implementation, focusing on leadership, commitment, and resource provision (Nurhayati et al., 2020). Management support can take various forms, such as encouraging employees, providing more user-friendly software options, and offering diverse educational programs (Igbaria et al. 1997). It also includes ensuring richer and better resources, facilitating inter-departmental communication, and superior decision-making (Naujokaitiene et al., 2015). Without management support, ideas, inputs, or suggestions from employees will go unheard, resulting in no changes (Sitompul, 2019). This is supported by Rouibah et al. (2009), who found that management support affects user satisfaction (Al-Adaileh, 2009; Iskandar Fadhel, 2015; Ong et al., 2009; Rouibah et al., 2009)

H₄: Management support positively influences user satisfaction.

Perceived usefulness reflects users' perceptions that using a system will enhance their tasks and job performance (Seddon, 1997). Users will evaluate the use of an information system concerning its usefulness after using it to complete specific tasks. Al-Okaily et al (2023) claimed that perceived usefulness increases organizational impact and plays a crucial role in conjunction with other success variables. Satisfaction is a subjective measure or perception of system success (DeLone & McLean, 2016). User satisfaction refers to the extent to which users feel the system helps them meet their needs (Al-Jabri, 2015). Perceived usefulness is considered favorable when users feel the system makes their work easier, provides benefits, increases productivity, enhances effectiveness, and improves performance (Alfiani et al., 2022; Apsari et al., 2023). Al-Okaily et al (2023), Mangun Buana & Wirawati (2018), Seddon (1997) demonstrated the relationship between usefulness and user satisfaction, finding that usefulness positively affects user satisfaction.

H₅: Usefulness positively influences user satisfaction.

When interacting with a new accounting information system, if users perceive the system as difficult, they may be reluctant to adopt it (Alamin et al. 2015). This is supported by Sausi et al. (2021), who argued that if a system does not help users achieve their goals, they are unlikely to find it useful, regardless of how well-designed it is. Information system users who believe the system is beneficial will use it (Rukmiyati & Budiarta, 2016). Sajady et al. (2008) also posited that the effectiveness of AIS depends on decision-makers' perceptions of the

usefulness of the information produced to meet operational, managerial reporting, budgeting, and control needs. study conducted by Apsari et al. (2023) and Meiryani et al. (2021) found that the better the perceived usefulness, the more effective the accounting information system. Al-Okaily et al. (2023) also found a positive relationship between usefulness and organizational impact in enhancing efficiency, decision-making, productivity, and competitiveness while reducing operational costs, thereby improving business performance.

H₆: Usefulness positively influences the effectiveness of the accounting information system.

AIS is considered a critical organizational mechanism essential for the effectiveness of decision-making and control within an organization (Hla & Teru, 2015; Sajady et al., 2008). This system comprises several subsystems related to data collection, transactions, processing, validation, analysis, and information storage in a database (Al-Dalaien & Dalayeen, 2018). A successful AIS will lead to the organization's success in achieving its goals, while an unsuccessful system can result in organizational failure, signifying an inability to grow and sustain (Beg, 2018); (Sajady et al., 2008). When users are satisfied with the AIS's outcomes in achieving organizational goals, the AIS's effectiveness will increase.

H₇: User satisfaction positively influences the effectiveness of the accounting information system.

Considering the outlined model and hypotheses, The framework of the research model can be explained as follows:

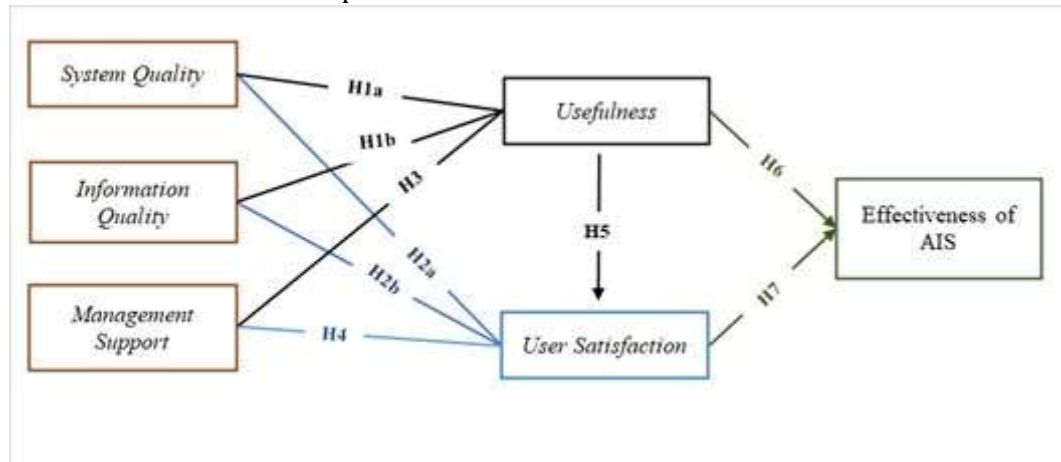


Figure 1. Research Model

Source : Data processed by researchers in 2024

METHODS

Based on the characteristics of the problem, this research falls into the causal explanatory category with a quantitative approach, because it tests hypotheses to explain the correlations between independent and dependent variables. The variables used in this research include exogenous (independent) variables consisting of system quality, information quality, and management support, and endogenous (dependent) variables consisting of usefulness, user satisfaction, and accounting information system effectiveness. The variables will be measured using a 5-point Likert scale.

System quality indicates how well the system processes the required data to obtain outputs. System quality information also demonstrates the interaction between the system and users. In this context, when system quality is perceived as easier to use and beneficial to users, the system is considered to be of higher quality (Petter et al., 2008). The indicators used to measure system quality are adopted from Al-Hattami (2021) and include ease of use, reliability, flexibility, and accessibility.

DeLone & McLean (1992) stated that information quality refers to the output of an information system concerning the value, benefits, relevance, and urgency of the information produced. When measuring end-user satisfaction, information quality is often used as a key variable (Petter et al., 2008). Information quality refers to the system's ability to provide accurate, timely, and complete information that can be used to make appropriate decisions. Quality information minimizes errors during transaction processes, allowing for accurate and valuable information for decision-making (Lutfi et al., 2022). The indicators used to measure information quality are adopted from Al-Okaily et al (2023) and Urbach et al (2010), which include accuracy, timeliness, usefulness, and completeness.

Management support is the process by which management provides the necessary resources and attention for employees to improve their performance (Habtoor, 2018). Management support can take various forms, such as encouraging employees, providing more user-friendly software options, and offering various educational programs (Naujokaitiene et al. 2015). The indicators used to measure management support are adopted from Urbach et al. (2010) and include encouragement and support.

Perceived usefulness is a condition where an individual believes that their performance will improve by using an information system (Seddon, 1997). Perceived usefulness is considered favorable when users feel that the system they use can make their work easier, increase productivity, enhance effectiveness, and improve performance (Alfiani et al., 2022; Apsari et al., 2023). When accounting information system users recognize the benefits offered by the system, they can operate it optimally, thus achieving the desired effectiveness of the accounting information system (Meiryani et al., 2021). The indicators for perceived usefulness used in this research are based on Al-Okaily et al (2023) dan Akbar (2019) , including making work easier, increasing productivity, enhancing effectiveness, and improving performance.

User satisfaction, as defined by Ives et al. (1983) , is the degree to which users feel their information requirements and expectations are met by the information system that is available to them., reflecting their overall satisfaction with the system (Hu, 2003). DeLone & McLean (1992) stated that user satisfaction in the integrated information system model is one of the most critical steps in determining an organization's success. The indicators used for user satisfaction in this research are based on Al-Hattami et al. (2022) and include support, meeting expectations, and overall satisfaction.

The effectiveness of AIS is a measure that illustrates the extent to which planned targets can be achieved from a set of resources arranged to collect, process, and store electronic data, subsequently converting it into useful information and providing high-quality formal reports promptly to users (Zalukhu et al., 2023).

Decision-makers perceive that the information output available to them through transaction processing, managerial reporting, and budgeting systems meets their needs for organizational coordination and control (Dehghanzade et al., 2011). The individual and organizational impacts of using information systems include individual and organizational effectiveness, productivity, and performance (DeLone & McLean, 2003). These impacts are directly felt by system users. The effectiveness of the AIS will be measured using indicators from Shagari et al. (2017), Widiastuti (2019), Akbar (2019), and (Al-Hattami et al., 2022), which include decision-making, organizational performance, data integration, individual performance, and time and cost savings.

The population used in this research consists of users of the SAKTI Accounting Information System at the Pusat Pengendalian Lumpur Sidoarjo, Balai Besar Wilayah Sungai Brantas, and the Balai Pelaksanaan Jalan Nasional Jawa Timur-Bali of the Kementerian Pekerjaan Umum dan Perumahan Rakyat located in East Java Province. The sample used in this research comprises 143 SAKTI users with roles as operators, validators, and approvers. The respondents include operators (expenditure treasurers, budgeting officers, inventory officers, state property officers, financial reporting officers, payment officers, and PPK staff), validators (PPK), and approvers (KPA and PPSPM).

The technique used for sample collection in this research is convenience sampling. This method is used due to the dispersed location of the samples and the limited time for the research. To avoid sample bias and selection bias during the data collection process, the researcher sought permission from the Heads of Administrative Departments in each institution to obtain copies of assignment decrees as SAKTI users, which were then compared with the respondents' identities on the Google form. The next step for distributing the questionnaires will be conducted directly to each user or through direct supervisors and team leaders of each institution. To test the hypotheses, this research uses the PLS-SEM approach in a desktop application. Hypothesis testing is conducted by examining the bootstrapping output in the SmartPLS program by comparing the probability value (p-value) with the significance level (α) of 5%. If the probability value (p-value) is less than 5%, the hypothesis is accepted. Conversely, if the probability value (p-value) is greater than 5%, the hypothesis is rejected.

RESULTS AND DISCUSSION

Descriptive statistics are categorized based on each research variable. The study's variables consist of system quality (SQ), information quality (IQ), management support (MS), usefulness (UF), user satisfaction (US), and the effectiveness of the accounting information system (ESIA). Descriptive statistical analysis was conducted by identifying the highest value, lowest value, mean, and standard deviation. This descriptive statistical analysis's goal is to comprehend the distribution of responses from all participants regarding the measurements of each construct, which will allow us to assess how well users evaluate the SAKTI accounting information system.

Table 1. Descriptive Statistics Value

Indicator	Mean	Median	Min	Max	Standard Deviation
SQ1	4.112	4.000	1.000	5.000	0.758
SQ2	3.538	4.000	1.000	5.000	0.834
SQ3	3.804	4.000	1.000	5.000	0.879
SQ4	3.979	4.000	1.000	5.000	0.857
IQ1	4.287	4.000	3.000	5.000	0.575
IQ2	4.091	4.000	2.000	5.000	0.709
IQ3	4.322	4.000	3.000	5.000	0.621
IQ4	4.245	4.000	3.000	5.000	0.639
MS1	4.336	4.000	3.000	5.000	0.541
MS2	4.252	4.000	2.000	5.000	0.642
MS3	4.294	4.000	3.000	5.000	0.589
UF1	4.217	4.000	2.000	5.000	0.638
UF2	4.231	4.000	2.000	5.000	0.611
UF3	4.280	4.000	1.000	5.000	0.652
UF4	4.273	4.000	2.000	5.000	0.628
US1	4.301	4.000	3.000	5.000	0.580
US2	3.958	4.000	2.000	5.000	0.728
US3	4.056	4.000	2.000	5.000	0.736
ESIA1	4.175	4.000	3.000	5.000	0.546
ESIA2	4.315	4.000	3.000	5.000	0.547
ESIA3	4.224	4.000	3.000	5.000	0.619
ESIA4	4.287	4.000	3.000	5.000	0.537
ESIA5	4.287	4.000	1.000	5.000	0.665

Source : Data processed by researchers in 2024

For the system quality variable, it is evident that the highest average value is found in indicator SQ1 at 4.112, compared to the responses for other indicators which have values close to 4. This indicates that respondents agree that SAKTI is easy to use. However, for indicators of reliability, flexibility, and accessibility, respondents' answers vary widely. This variability in responses for indicators other than SQ1 suggests that some respondents are still dissatisfied with the quality of the SAKTI system, which can be used as feedback for improving the system.

For the information quality variable, the average value of each indicator (IQ1-IQ4) is closer to the maximum value than the minimum, indicating that the majority of respondents chose the "agree" response (greater than 4) for these indicators. This result signifies that respondents believe the information in the SAKTI system is accurate, produces reports containing all necessary information, generates user-appropriate reports, presents current information in accordance with financial regulations, and provides clear and easily understood report formats that can be used for decision-making related to financial monitoring and evaluation.

For the management support variable, it is observed that the average value of each indicator (MS1-MS3) is closer to the maximum value than the minimum, indicating that the majority of respondents chose the "agree" response (greater than 4) for these indicators. This finding suggests that respondents receive active support and encouragement from management, and management understands the benefits of utilizing SAKTI.

For the usefulness variable, the average value of each indicator (UF1-UF4) is closer to the maximum value than the minimum, indicating that the majority of respondents chose the "agree" response (greater than 4) for these indicators. This implies that respondents agree that using SAKTI facilitates their work, increases their work productivity, enhances job effectiveness, and ultimately improves their overall performance.

Regarding the variable of user satisfaction, as can be seen, the average value of each indicator (US1 and US3) is closer to the maximum value than the minimum, indicating that the majority of respondents chose the "agree" response (greater than 4) for these indicators. For the indicator US2, the average value is close to 4, suggesting that some respondents still feel that using SAKTI does not fully meet their expectations. This result indicates that SAKTI supports job performance and overall user satisfaction with SAKTI's performance. However, management should further optimize SAKTI to better meet user expectations.

For the effectiveness of the AIS variable, as can be seen the average value of each indicator (ESIA1-ESIA5) is closer to the maximum value than the minimum, indicating that the majority of respondents chose the "agree" response (greater than 4) for these indicators. For the indicator ESIA5, the minimum response of 1 is lower than the minimum response for other indicators, suggesting that users still feel that using SAKTI has not yet reduced or saved time and costs.

The table also shows that the standard deviation values for each indicator are low (less than 1), indicating that the data tends to cluster around the mean. This means that the data can be processed and used to provide the expected results, and all indicators used in the variables are comprehensible and understandable to the respondents.

The evaluation of the research hypothesis model was conducted by putting the outer model and inner model using the SmartPLS 3 application. The outer model test was performed to determine how latent variables or constructs are measured. This test also explains the relationship between constructs and indicator variables (Hair et al., 2017). The outer model, convergent validity, discriminant validity, and reliability tests are the parameters used for outer model measurement. Convergent validity measurement can be conducted with Average Variance Extracted (AVE), where an AVE value ≥ 0.50 shows that the variance of its indicators is more than half explained by the construct (Hair et al., 2022, p. 120).

Table 2. Average Variance Extraxted (AVE) Value

Variable	Indicator	Outer Loading Value	AVE
System Quality	SQ1	0.867	0.612
	SQ2	0.743	
	SQ3	0.644	
	SQ4	0.855	
Information Quality	IQ1	0.876	0.730
	IQ2	0.813	
	IQ3	0.858	
	IQ4	0.868	
Management Support	MS1	0.930	0.852
	MS2	0.938	
	MS3	0.900	
Usefulness	UF1	0.893	0.796
	UF2	0.899	
	UF3	0.900	
	UF4	0.876	
User Satisfaction	US1	0.881	0.783
	US2	0.903	
	US3	0.869	
Efektivitas SIA	ESIA1	0.806	0.713
	ESIA2	0.908	
	ESIA3	0.832	
	ESIA4	0.911	
	ESIA5	0.755	

Source : Data processed by researchers in 2024

According to the outcomes of the convergent validity test in table 2 demonstrates that the AVE values of all variables used are above 0.50, meeting the criteria for convergent validity.

Discriminant validity measures the extent to which a construct is truly distinct from other constructs based on empirical standards (Hair et al., 2022, p. 120). Testing discriminatory validity will be used HTMT test which is an estimate of the actual correlation between two constructions, if both constructions are measured perfectly. Hair et al. (2022, p. 126) suggest a threshold value of 0.90 for conceptually similar constructs and 0.85 for conceptually different constructs.

Table 3. HTMT Criterion Table

	ESIA	IQ	MS	SQ	UF	US
Efektivitas SIA						
Information Quality	0.752					
Management Support	0.741	0.776				
System Quality	0.648	0.618	0.565			
Usefulness	0.776	0.682	0.707	0.831		
User Satisfaction	0.829	0.768	0.714	0.574	0.703	

Source : Data processed by researchers in 2024

According to the outcomes in table 5.10, it can be concluded that HTMT values are < 0.85, indicating that the variables used in this study are valid.

Hair et al. (2022, p. 126) state that outer loading value > 0.70. Outer loading value between 0.40 and 0.70 only need to be considered to be deleted if a value is generated an increase in composite reliability or AVE above the recommended threshold.

Tabel 4. Outer Loading

Variabel	Indikator	Nilai outer loading
System Quality	SQ1	0,867
	SQ2	0,743
	SQ3	0,644
	SQ4	0,855
Information Quality	IQ1	0,876
	IQ2	0,813
	IQ3	0,858
	IQ4	0,868
Management Support	MS1	0,93
	MS2	0,938
	MS3	0,9
Usefulness	UF1	0,893
	UF2	0,899
	UF3	0,9
	UF4	0,876
User Satisfaction	US1	0,881
	US2	0,903
	US3	0,869
Efektivitas SIA	ESIA1	0,806
	ESIA2	0,908
	ESIA3	0,832

ESIA4	0,911
ESIA5	0,755

Source : Data processed by researchers in 2024

Based on Table 4 the loading factor values of variables and their indicators show that all indicator loading factor values are > 0.70 except for the lowest loading factor on the SQ3 indicator for the system quality variable, which is 0.644. For the SQ3 indicator, the AVE value is already above the threshold at 0.612, and the composite reliability value is 0.862, which is below the threshold, so the SQ3 indicator is retained in the model.

The internal consistency reliability test was conducted by examining the Cronbach's alpha and composite reliability values. According to Hair et al (2022, p. 126), the internal consistency reliability upper bound is composite reliability, while the lower bound is Cronbach's alpha. The reliability coefficient (ρ_A) is a useful measure of the internal consistency dependability of a construct and usually falls between these boundaries. In general, reliability need to be more than 0.70. In preliminary studies, values in the range of 0.60 to 0.70 are deemed appropriate. Values of reliability greater than 0.95 are not preferred.

Table 6. Cronbach's Alpha and Composite Reliability

	Cronbach's Alpha	ρ_A	Composite Reliability
System Quality	0.788	0.829	0.862
Information Quality	0.876	0.880	0.915
Management Support	0.913	0.916	0.945
Usefulness	0.914	0.916	0.940
User Satisfaction	0.862	0.872	0.915
Efektivitas SIA	0.898	0.906	0.925

Source : Data processed by researchers in 2024

Based on Table 6, overall variables used in this research have acceptable reliability, indicating that each indicator used to measure the variables is reliable.

When predicting causal linkages between latent variables—or variables that cannot be directly measured—the inner model test is utilized. The structural model (inner model) test was conducted using the bootstrapping process in SmartPLS. Before evaluation, a multicollinearity test will be performed (Hair et al., 2022, p. 210). The R-Square (R^2) value and hypothesis testing by looking at the p-value of the path coefficients are two parameters utilized in the structural test.

When two or more independent variables in a multiple regression model exhibit extremely high correlations, it is known statistically as multicollinearity (Bougie & Sekaran, 2020, p. 293). A common threshold value is a tolerance value of 0.10, equivalent to a VIF of 10.

Table 7. VIF Value

	ESIA	IQ	MS	SQ	UF	US
Efektivitas SIA						
Information Quality					2.140	2.195
Management Support					2.065	2.315
System Quality					1.455	2.150
Usefulness	1.663					2.793
User Satisfaction	1.663					

Source : Data processed by researchers in 2024

Based on table 7, All of the variables' VIF values are less than 10, which suggests that the variables employed in this study do not exhibit multicollinearity.

R-SQUARE (R^2) is a statistical measure that indicates how much of the variation in a dependent variable can be explained by independent variables in a regression model.

TABLE 8. R-SQUARE VALUE

Variable	R-Square
Effectiveness of AIS	0.652
Usefulness	0.642
User Satisfaction	0.553

Source : Data processed by researchers in 2024

Based on table 8, according to the R-square values derived from the research variables, user satisfaction and usefulness factors account for 65.2% of the effectiveness of the SIA variable, with other variables outside the research model accounting for the remaining 34.8%. The system quality, information quality, and management support variables may account for 64.2% of the usefulness variable's explanation, with additional variables outside the study model accounting for the remaining 35.8%. The system quality, information quality, and management support variables account for 55.3% of the variance in the user satisfaction variable, additional variables not included in the study model account for 44.7% of the variance.

The test of the hypothesis in this study is done by looking at the level of significance in each construction by seeing the bootstrapping results on the SmartPLS application. Bootstrapping is done using one tailed hypotheses with a significance of 5%. A variable can be said to have a significant relationship when it has a p-values value smaller than a significant level or a critical value (α) 5% or a t-statistics value greater than the t-table value. (1,64).

Table 9. Path Coefficient Value

Hypothesis	Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic	P-Value	Result
1	System Quality > User Satisfaction	0.001	0.025	0.159	0.005	0.498	Rejected
2	Information Quality > User Satisfaction	0.354	0.345	0.092	3.846	0.000	Accepted
3	System Quality -> Usefulness	0.499	0.489	0.091	5.461	0.000	Accepted
4	Information Quality -> Usefulness	0.141	0.148	0.098	1.442	0.075	Rejected
5	Management Support -> Usefulness	0.299	0.303	0.095	3.150	0.001	Accepted
6	Management Support -> User Satisfaction	0.223	0.210	0.105	2.131	0.017	Accepted
7	Usefulness -> User Satisfaction	0.268	0.272	0.124	2.166	0.015	Accepted
8	Usefulness -> Efektivitas SIA	0.402	0.406	0.100	4.024	0.000	Accepted
9	User Satisfaction -> Efektivitas SIA	0.491	0.487	0.085	5.808	0.000	Accepted

Source : Data processed by researchers in 2024)

Based on the statistical test in table 9 for hypothesis 1, the system quality variable has a positive effect on user satisfaction by 0.001. The test findings indicate that the T statistic < T table ($0.005 < 1.64$) and the P-value ($0.498 > 0.05$), so hypothesis 1 in this research is rejected. This result indicates that any changes in system quality won't affect user satisfaction. This outcome implies contradicts results studies by Al-Okaily et al (2023), Rahayuningtyas (2022), Mangun Buana & Wirawati (2018), Apsari et al (2023), Alfiani et al (2022), Widiastuti (2019) which

state that user satisfaction is positively impacted by system quality. The results of this study corroborate earlier studies by Chen et al (2015) on the online tax filing system in the Philippines, which found that system quality does not affect user satisfaction. Research by Sani & Putri (2023) also found similar results in their study on the use of BRI mobile, stating that system quality has no effect on user satisfaction.

Hypothesis 2 posits that the information quality variable has a positive effect on user satisfaction by 0.354. The test findings indicate that the T statistic $> T$ table ($3.846 > 1.64$) and P-value ($0.000 < 0.05$), so hypothesis 2 in this study is accepted. This outcome indicates improving the quality of the information will increase user satisfaction. This conclusion is corroborated by research from Urbach et al. (2010), Widiastuti (2019), Al-Okaily et al. (2023), which state that information quality has a positive effect on user satisfaction. Harnowo et al. (2021) in their study on SAKTI, stated that a quality system is also assessed based on the quality of information produced, especially in generating reports needed by users.

Hypothesis 3 posits that system quality positively affects usefulness by 0.499. The test findings indicate that the T Statistic $>$ the T value ($5.461 > 1.64$) and the P-value ($0.000 < 0.05$), indicating that Hypothesis 3 is accepted. This result suggests that any change in system quality has a positive impact on increasing usefulness. This conclusion is corroborated by Seddon (1997), who stated that system quality is a crucial determinant of user satisfaction and usefulness. Similar results were found in studies by Al-Okaily et al. (2021) and Al-Okaily et al. (2023), which concluded that system quality positively influences perceived usefulness.

Hypothesis 4 posits that information quality affect usefulness, with a value of 0.141. The test findings indicate that the T Statistic $<$ than the T value ($1.442 < 1.64$) and the P-value is ($0.075 > 0.05$), indicating that hypothesis 4 is rejected. Research findings indicate that improvements in the quality of the information may not necessarily translate into increased usefulness. This conclusion runs counter to research by Chen et al. (2015) and Al-Okaily et al. (2023), which found that perceived usefulness is favorably impacted by system quality.

Hypothesis 5 posits that management support positively affects usefulness by 0.299. The test findings indicate that the T Statistic $>$ The T value ($3.150 > 1.64$) and the P-value ($0.001 < 0.05$), indicating that hypothesis 5 is accepted. This outcome implies that any change in management support has a positive impact on increasing usefulness. Management support, in terms of consideration, policy, and facilities, is valuable in developing application acceptance and demonstrates managers' commitment and assurance toward system benefits, thereby enhancing employees' willingness to use information systems (Purnomo & Nastiti, 2019). This conclusion is corroborated by Purnomo & Nastiti (2019), Huang et al. (2011), Al Haderi et al. (2018), Rouibah et al. (2009), which stated that management support positively affects usefulness.

Hypothesis 6 posits that management support positively affects user satisfaction by 0.223. The test findings indicate that the T Statistic $>$ T value ($2.131 > 1.64$) and the P-value ($0.017 < 0.05$), indicating that Hypothesis 6 is accepted. This outcome implies that any change in management support has a positive impact on increasing user satisfaction. This conclusion is corroborated by Al-Adaileh (2009), Iskandar Fadhel (2015), Nurhayati et al. (2020), which concluded that

management support positively affects user satisfaction. Rouibah et al. (2009) also found that management support has an indirect effect on user satisfaction. Iskandar Fadhel (2015) found that management support plays a significant role in measuring system success. This is supported by Al-Hattami et al. (2022), who concluded that although management support is not included in the theoretical arguments of the ISSM Model regarding information system success, it is regarded as an important element in promoting the use and satisfaction of accounting information systems.

Hypothesis 7 posits that usefulness positively affects user satisfaction by 0.268. The test results show that the T Statistic > the T value ($2.166 > 1.64$) and the P-value ($0.015 < 0.005$). The test findings show that hypothesis 7 is accepted. This outcome implies that any change in usefulness has a positive impact on increasing user satisfaction. This conclusion is corroborated by Al-Okaily et al. (2023), Cheng (2019), Mangun Buana & Wirawati (2018), which stated that usefulness positively affects user satisfaction. Al-Okaily et al. (2023) stated that perceived usefulness plays a key role alongside other success factors and enhances organizational impact. The use of perceived usefulness is a more meaningful dimension when system use is mandatory.

Hypothesis 8 posits that usefulness positively affects the effectiveness of SIA by 0.402. The test findings indicate that the T Statistic > the T value ($4.024 > 1.64$) and the P-value ($0.000 < 0.05$). The test findings indicate that hypothesis 8 is accepted. This outcome implies that any change in usefulness has a positive impact on increasing the effectiveness of SIA. This conclusion is corroborated by Apsari et al. (2023) and Meiryani et al. (2021), who found that higher usefulness increases the effectiveness of accounting information systems. Al-Okaily et al. (2023) also found a positive relationship between usefulness and organizational impact, enhancing efficiency, decision-making, productivity, competitiveness, and reducing operational costs, thereby improving business performance.

Hypothesis 9 posits that user satisfaction positively affects the effectiveness of SIA by 0.491. Test findings indicate that the T Statistic > the T value ($5.808 > 1.64$) and the P-value ($0.000 < 0.05$), indicating that Hypothesis 9 is accepted. This conclusion is corroborated by studies by (Al-Okaily et al., 2023), which found that user satisfaction positively affects organizational impact by enhancing decision-making, productivity, competitiveness, and reducing operational costs, thereby improving business performance.

CONCLUSION

The research resulted in seven positive and significant findings of influence: system quality construction on perceived usefulness, information quality on user satisfaction, management support on users satisfaction and perceived usefulness, Perceived usefulness on user satisfaction and effectiveness of AIS, user satisfaction on the effectiveness of AIS. In addition, there are two hypotheses that were rejected. Besides, there are two hypotheses that are rejected: the construction of system quality on user satisfaction and the quality of information on perceived usefulness.

The limitation of this research is the technique of sampling using convenience samplings which result in the results of this study cannot be

generalized. Then the time limit of the research resulted in the researchers not being able to enlarge the number of samples or increase the research population. The advice that can be given to future researchers is to use other sampling techniques so that the results of the research can be generalized and then research time management so that researchers can maximize further research especially to collaborating classmates UB and PUPR who have not too long research time.

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