

Are Local Government Information Systems in Indonesia Successfully Implemented?

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Abstract

This study aims to determine the effect of information quality, service quality, and service quality on the benefits of using SIPD with user satisfaction as a mediating variable. This research provides an integrated explanation of the IS Success Model theory. This research is a quantitative study using a purposive sampling method to determine a sample of 93 respondents. The data were analyzed using SPSS to obtain the results of the hypothesis given (path analysis testing). The results showed that information quality, service quality, and user satisfaction had a positive effect on user benefits but not system quality. In this study, user satisfaction mediates between the independent and dependent variables.

Keywords: E-government, IS Success Model, SIPD

Introduction

Currently, the government in Indonesia is actively implementing transparent and accountable aspects in preparing and reporting regional development and financial planning to realize good governance. One of the concrete manifestations of the implementation of good governance in Indonesia is by implementation and development of information technology in the administrative process of government, known as e-government which has been formulated in Presidential Instruction Number 3 of 2003. which has Presidential Regulation No. 95/2018 on Electronic-Based Government Systems (SPBE) also adds to the legal framework for governance that can optimize the use of ICT. The Presidential Regulation related to SPBE, among others, describes the level of ICT adoption that needs to be carried out by the government to achieve the level of integration, including integration between OPDs, between local governments, and between local governments and the central government.

The Local Government Information System (SIPD) is one of the support systems in the development of infrastructure in SPBE to support the achievement of good governance. In general, government information systems are defined as a collection of personnel who implement the system along with the technology and software they use to process data sequentially and support each other in producing the information needed (Nataniel & Hatta, 2009).

SIPD is understood as a tool for managing information based on workflows and the principles of effectiveness and efficiency to achieve organizational goals that offer high-quality services to the community. (Kaur, 2008). The concept of SIPD as shown in Figure 1 indicates that the development of SIPD is a continuous workflow starting from planning, and financial management that makes SIPD a system to produce information output.

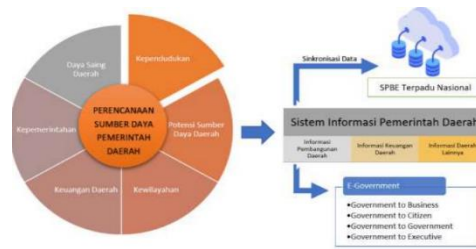


Figure 1. SIPD Concept

More fully, the SIPD application is contained in the policy of the Minister of Home Affairs Regulation Number 70 of 2019. Referring to one of the objectives of SPBE is to improve public services, the following are the results of the executive summary by OMBUDSMAN RI in the assessment of the level of compliance of public administrators in 2022 in Lampung Province as the 3rd best province for implementing SPBE according to the Ministry of Administrative Reform and Bureaucratic Reform.

Table 1. Public Service Obedience Score of Lampung Province

No.	District/City	Obedience Score	Category	Opinion
1	Kab. Lampung Barat	64, 22	C	Medium
2	Kab. Lampung Selatan	73, 49	C	Medium
3	Kab. Lampung Tengah	64, 22	C	Medium
4	Kab. Lampung Timur	64, 39	C	Medium
5	Kab. Lampung Utara	76,50	C	Medium
6	Kab. Mesuji	70, 42	C	Medium
7	Kab. Pesawaran	64, 52	C	Medium
8	Kab. Pringsewu	73, 02	C	Medium
9	Kab. Tanggamus	63, 94	C	Medium
10	Kab. Way Kanan	74, 35	C	Medium
11	Kota Bandar Lampung	73, 89	C	Medium
12	Kota Metro	61, 73	C	Medium

Based on Table 1, it is known that Metro City is the city that has the lowest compliance score with a score of 61.73. Referring to this phenomenon, has Metro City succeeded in implementing and implementing SIPD as SPBE infrastructure? From the survey results, it is known that in 2022 Metro City has started implementing the SIPD application in the development planning process as a trial application accompanied by the use of the SIMDA application. To assess the success or failure of the SIPD application implementation in Metro City, this research will be tested using the DeLone & McLean IS Success Model theory as an evaluation material for the integrity of the SIPD implementation in Metro City.

Literature Review

Information System

According to Davis (1999), information systems receive input or input data and instructions, process data by instructions, and produce results. Government information systems are generally defined as a set of systems consisting of hardware and software along with the actors in processing data to produce information in the form of products (Nataniel & Hatta, 2009). Meanwhile, the Local Government Information System is a performance-based information management system, by the principles of effectiveness and efficiency and effectiveness of local government teams in carrying out organizational goals in the effectiveness of the community's services (Kaur, 2008).

Local Government Information System (SIPD)

According to Nasution & Nurwani (2021), SIPD is an integrated application used by local governments to improve the implementation of various regulations related to regional development and financial management, this information system is developed into various information groups, including the following; (1) Regional development information, is a system that is utilized in collecting and processing data to produce information about regional development planning, as well as the regional profile itself; (2) Regional financial information, is a process that is applied to collect and process data to compile, monitor, and evaluate regional wealth management documents; (3) Other regional government information, is a process applied to manage data to obtain other regional information such as LPPD and EPPD.

IS Success Model

The DeLone & McLean IS Success Model theory is a theory for evaluating the level of success of an implemented information system. DeLone & McLean (1992) reveal that the Information System Success Model offers a thorough methodology that addresses every aspect of defining and assessing the performance of an information system.

Several studies have validated various models for evaluating the performance of existing and widely developed information systems, but most people agree that the IS Success Model is the greatest research model for determining an information system's success rate (Al-Okaily et al., 2023). According to a research literature review study on the IS Success Model in e-government by Stefanovic et al. (2021), they concluded that for a decade (2010-2020) the use of the IS Success Model was the most popular method for determining the success of e-government. According to DeLone & McLean (2003), the construct of the IS Success Model as an evaluation factor for the success of a system is as follows.

Information Quality

Information quality is the tangible information output that can be inferred from the information process by its users (DeLone & McLean, 2003). According to Seddon (1997), The degree to which information can meet the needs and expectations of everyone who needs information to support their activities or user activities is known as information quality. Therefore, the information system includes measures centered on the criteria for process-produced information and usability for users.

System Quality

The ability of the system to reserve information equivalent to user needs is called system quality (DeLone & McLean, 2003). The aspects of system performance include the level of the information system. In most cases, these methods concentrate on the perspective of usability and quality of performance of the system under investigation.

Service Quality

The quality of user support for what is provided to the information systems department and information systems support staff, such as helpdesk and training will determine the quality of information system services (DeLone & McLean, 2003).

User Satisfaction

User satisfaction is the result of replies and comments submitted by users after implementing the information system. According to DeLone & McLean (2003), user attitudes towards

information systems indicate the level of pleasure or level of user satisfaction with the system that is run to meet their needs.

System Usage

The success dimension of the intention to use shows how well the information system is used by users. There are many ways to assess the use of information processes. The actual use of information processes can be applied to review success in the context of voluntary use. The Technology Acceptance Model (TAM) is a more comprehensive method for explaining the functioning of information systems (Davis, 1989).

Net Benefits

According to Rai et al. (2002) and Seddon (1997), the perception of the benefit value of the information process is influential in supporting the information process. As explained by Seddon (1997), perceived usefulness is a person's perception that the application of a particular system has improved their performance or the performance of their group or organization.

Methods

Research Design

The first activity to be carried out in this research is problem conceptualization. The existing problem has been defined at this point. The subsequent phase is to conduct a literature review. This is the step where the literature review is conducted. The third stage is the instrument preparation stage. This stage includes the preparation of instruments that will be used. The fourth stage is data collection by distributing questionnaires that have been filled in by the research sample. Then, based on the information gathered, data testing is carried out using an analytical tool, namely SPSS version 26. The last stage is concluding. The following presents the flow of research management as a form of a series of research conducted.

Operational Definition of Variables

This study uses variables: information quality (X_1), service quality (X_2), system quality (X_3), achievement of usage benefits (Y), and user satisfaction (Z). These variables are operationally defined as follows:

Information Quality

According to DeLone & McLean (1992), the quality of information produced by information systems will affect user satisfaction and perceived benefits. The author will test the extent to which the information generated by the Local Government Information System (SIPD) in Metro City can be said to be of high quality. The measurement of information quality variables can be seen from accuracy, adequacy, trustworthiness, and according to user needs (Stefanovic et al., 2006).

System Quality

System quality is the ability or performance of the system to provide information by user needs (DeLone & McLean, 1992). The author will test the extent to which the Local Government Information System (SIDP) in Metro City is good for use in the process of managing regional development planning information data, regional financial information, and other regional information. The measurement of system quality variables can be seen from ease of use, reliability, flexibility, access speed, and system stability (Lia & Yang, 2009; Wu & Wang, 2006).

Service Quality

According to DeLone & McLean (1992), the quality of information system services is the service obtained by users from information system developers which has an impact on the satisfaction and benefits felt by users. The author will test the extent to which the services produced by the Local Government Information System (SIPD) in Metro City can be said to be of high quality. The measurement of service quality variables can be seen from the speed of service, solving a problem, being available when needed, meeting specific needs, and interest in problem-solving (Wei et al., 2011).

User Satisfaction

User attitudes towards information systems are subjective criteria for how much users like the system used in meeting their needs (DeLone & McLean 1992). The author will test the extent of user satisfaction in using the Local Government Information System (SIPD) in Metro City. The indicators of user satisfaction variables include finding knowledge and getting the information needed, effectively, and efficiently (Wu & Wang, 2006).

Usage Benefits

User benefits lead to how much an aspect affects the work or activities carried out (DeLone & McLean, 2003). The author will test how much benefit is felt by users of the Local Government Information System (SIPD) in Metro City. There are indicators of usage benefit variables, including being able to improve performance, increase productivity, work more effectively, and make work easier (Lai & Yang, 2009; Hsieh & Wang, 2007).

Sampling Technique

Researchers use Purposive Sampling as a sampling technique use purposeful sampling is a method of sampling that requires some thought (Sugiyono, 2017). The criteria or characteristics that are sampled in this study are; (1) Based on Law Number 23 of 2014 concerning Regional Government Article 209 paragraph 2 explains that the regional apparatus consists of: (1) Regional Secretariat, (2) DPRD Secretariat, (3) Inspectorate, (4) Department, (5) Agency, and (6) District; (2) Based on the Regulation of the Minister of Home Affairs Number 77 of 2020, Planning through regional financial accountability is the domain of regional financial managers, who are officials in charge of regional financial management. In this study, regional financial management officials consisted of the following parties: (1) SKPD Head, (2) SKPD Secretary, (3) SKPD Planning and Finance Functional Position.

Data Collection Method

In this study, questionnaires were utilized to gather data. To measure attitudes, closed statements with prepared or given answers were included in the Likert scale questionnaire utilized in this study.

Researchers used a Likert scale test with odd-choice categories in this study. As a result, researchers used a Likert scale with five alternative answer choices in this study, including (1) disagree, (2) disagree less, (3) doubt, (4) agree, and (5) strongly agree.

Data Analysis Methods

Path Analysis

In this study some variables function as intervening, therefore, the multiple regression method cannot solve this problem, so the regression used is the path analysis model which produces the following equation.

Equation 1:
$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_1$$

Equation 2: $Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_2$

Description:

Y: Beneficial Use of SIPD,

α : Constant,

β_i : Regression coefficient,

X_i : Independent variable,

X_1 : Information Quality,

X_2 : System Quality,

X_3 : Service Quality,

Z: User Satisfaction, and

e: Error.

Sobel Test

The Sobel test measures the degree to which the mediating variable (Z) has an indirect impact on the dependent variable (Y) as a result of the independent variable (X) (Ghozali, 2018). This study uses the Calculation for the Sobel Test test tool available on the web at www.danielsoper.com. The variable is stated to be capable of acting as a mediator between the independent and dependent variables if the Sobel test statistic is ≥ 1.96 with a significant 5% (Gozali, 2018).

Results and Discussion

Validity Test Results

The information quality, system quality, service quality, user happiness, and use benefits variables are employed in this study's validity test to determine the validity of the instrument.

Table 2. Summary of Validity Test Results

Validity	Sig (2-Tailed)	Description
Information Quality (X₁)		
Item 1	0,00	Valid
Item 2	0,00	Valid
Item 3	0,00	Valid
Item 4	0,00	Valid
Item 5	0,00	Valid
System Quality (X₂)		
Item 1	0,00	Valid
Item 2	0,00	Valid
Item 3	0,00	Valid
Item 4	0,00	Valid
Item 5	0,00	Valid
Service Quality (X₃)		
Item 1	0,00	Valid
Item 2	0,00	Valid
Item 3	0,00	Valid
Item 4	0,00	Valid
Item 5	0,00	Valid

Validity	Sig (2-Tailed)	Description
User Satisfaction (Z)		
Item 1	0,00	Valid
Item 2	0,00	Valid
Item 3	0,00	Valid
Item 4	0,00	Valid
Item 5	0, 00	Valid
Use Benefits (Y)		
Item 1	0,00	Valid
Item 2	0,00	Valid
Item 3	0,00	Valid
Item 4	0,00	Valid

A summary of the validity test results in Table 3 shows that all research instrument items on the variables of information quality, system quality, service quality, user satisfaction, and usage benefits have high validity as seen from the 2-tailed significance value. Since the 2-tailed significance value is less than 0.05, all of the research instrument's items can be considered valid.

Normality Test Results

The purpose of the normality test, according to Ghazali (2018), is to determine if the distribution of an independent variable, a variable, or both in a regression model is normal or abnormal. Normality testing in this study was carried out using the one-sample Kolmogorov - Smirnov test. Using the data from this investigation, the normality test yielded a Monte Carlo significance value of 0.92. Given that the Monte Carlo result is greater than 0.05, this indicates that the data is regularly distributed.

Path Analysis

Regression of Information Quality, System Quality, Service Quality, and User Satisfaction on the Benefits of Using SIPD

The following regression equation was used to determine the impact of user satisfaction, system quality, information quality, and user knowledge on the advantages of utilizing SIPD.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 Y + e_1$$

Description:

Y: Beneficial Use of SIPD,

α : Constant,

β_i : Regression coefficient,

X_i : Independent variable,

X1: Information Quality,

X2: System Quality,

X3: Service Quality,

e: Error.

The following regression equation illustrates the advantages of utilizing SIPD as the dependent variable, based on the findings of the SPSS output.

$$Y = 0,015 + 0,186 - 0,103 + 0,281 + 0,437 + e_1$$

$$\text{Value of } e1 = \sqrt{1 - R^2}$$

$$\text{Value of } e1 = \sqrt{1 - 0.789}$$

$$\text{Value of } e1 = 0,459.$$

Resulting in the following regression equation being obtained.

$$Y = 0,015 + 0,186 - 0,103 + 0,281 + 0,437 + 0,459$$

Regression of Information Quality, System Quality, and Service Quality on User Satisfaction

The following regression equation was used to determine the relationship between satisfaction with the usage of SIPD and knowledge of information quality, system quality, and service quality.

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 Y + e_1$$

Description:

Z: User Satisfaction,

α : Constant,

β_i : Regression coefficient,

X_i : Independent variable,

X_1 : Information Quality,

X_2 : System Quality,

X_3 : Service Quality,

e: Error.

The following regression equation illustrates the advantages of utilizing SIPD as the dependent variable, based on the findings of the SPSS output.

$$Y = 0,015 + 0,186 - 0,103 + 0,281 + 0,437 + e_1$$

$$\text{Value of } e1 = \sqrt{1 - R^2}$$

$$\text{Value of } e1 = \sqrt{1 - 0.789}$$

$$\text{Value of } e1 = 0,459$$

Resulting in the following regression equation being obtained.

$$Y = 0,015 + 0,186 - 0,103 + 0,281 + 0,437 + 0,459$$

Total Effect of Information Quality, System Quality, and Service Quality on Benefits of Using SIPD Through User Satisfaction

The effect of the indirect relationship of independent variables (information quality, system quality, service quality) on the dependent variable (benefits of using SIPD) through the user satisfaction variable can be obtained using the following formula.

Total effect of information quality relationship on the benefits of using SIPD through user satisfaction

$$= \beta_1 + (\beta_5 \times \beta_4)$$

$$= 0,186 + (0,176 \times 0,437)$$

$$= 0,186 + 0,077$$

$$= 0,263$$

Description:

β_1 : the impact of information quality on SIPD's advantages

β_5 : Information quality's impact on customer happiness

β_4 : the relationship between user happiness and the advantages of utilizing SIPD

The total effect of the relationship between system quality and the benefits of using SIPD through user satisfaction

$$= \beta_2 + (\beta_6 \times \beta_4)$$

$$= -0,103 + (0,317 \times 0,437)$$

$$= -0,103 + 0,139$$

$$= 0,036$$

Description:

β_2 : the impact of system quality on SIPD advantages

β_6 : the relationship between user happiness and system quality

β_4 : the relationship between user happiness and the advantages of utilizing SIPD

Total effect of service quality relationship on the benefits of using SIPD through user satisfaction

$$= \beta_3 + (\beta_7 \times \beta_4)$$

$$= 0,281 + (0,341 \times 0,437)$$

$$= 0,281 + 0,149$$

$$= 0,430$$

Description:

β_3 : the relationship between service quality and SIPD's advantages

β_7 : The relationship between user happiness and service quality

β_4 : the relationship between user happiness and the advantages of utilizing SIPD

Based on the results of the total effect, the following path analysis can be formed.

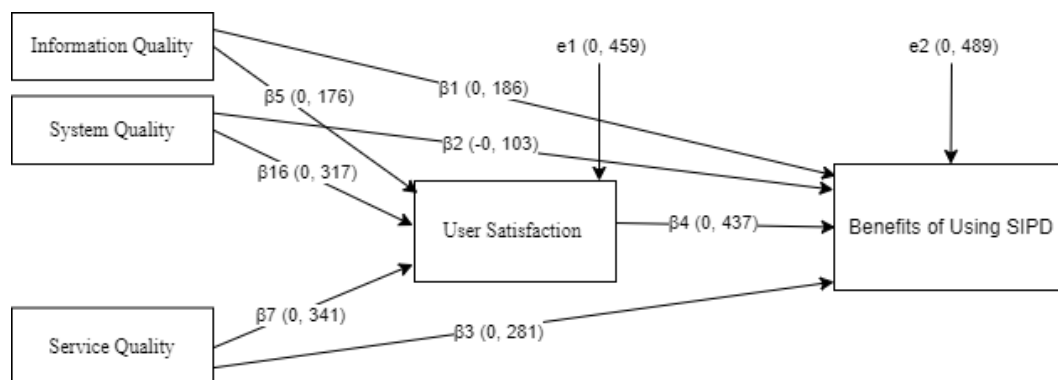


Figure 2. Research Model

Sobel test

The effect of information quality on the benefits of using SIPD through user satisfaction

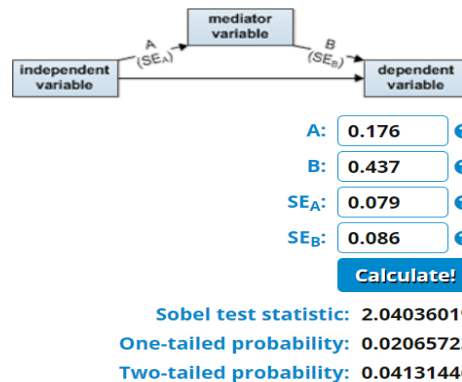


Figure 3. Sobel Test Results the Effect of Information Quality on Usage Benefits through User Satisfaction

Based on Figure 3. proves that the one-tailed probability value is 0, 020, and the Sobel test statistic value is ≥ 1.96 . This indicates that the probability value is less than 0.05, indicating that information quality significantly influences the advantages of utilizing SIPD when user satisfaction is high. One may argue that the benefits of using SIPD and the quality of the information it contains can be mediated by user satisfaction.

The effect of system quality on the benefits of using SIPD through user satisfaction

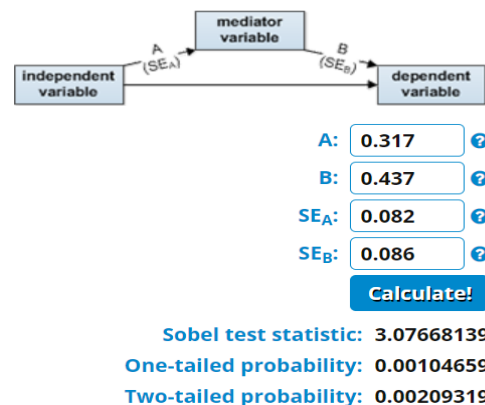


Figure 4. Sobel Test Results the Effect of System Quality on Usage Benefits through User Satisfaction

Based on Figure 4. shows that the one-tailed probability value is 0, 001, and the value of the Sobel test statistic is above 1.96. This indicates that the likelihood value is less than 0.05, indicating that system quality significantly influences the advantages of utilizing SIPD by increasing user happiness. One could argue that the advantages of adopting SIPD and system quality are mediated by user satisfaction.

The effect of service quality on the benefits of using SIPD through user satisfaction

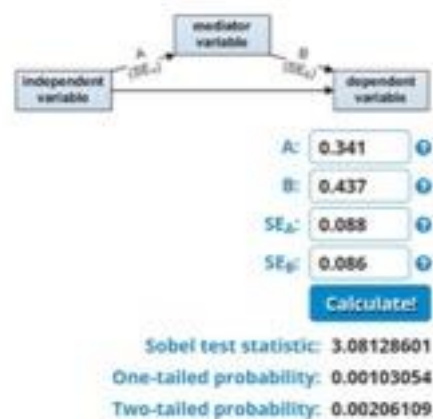


Figure 5. Sobel Test Results The Effect of System Quality on Usage Benefits through User Satisfaction

Based on Figure 5. shows that the one-tailed probability value is 0, 001, and the value of the Sobel test statistic is above 1.96. This indicates that the likelihood value is less than 0.05, indicating that the benefits of employing SIPD through customer satisfaction are significantly influenced by service quality. One may argue that the advantages of utilizing SIPD and service quality are mediated by user satisfaction.

In the path analysis with usage benefits as the dependent variable, it is known that the significance results for the variables of information quality, system quality, service quality, and user satisfaction are 0.06, 0.157, 0.00, and 0.00, respectively. This shows that information quality, service quality, and user satisfaction have a significant influence on the benefits of use because the p-value < 0.05, however, because the p-value is greater than 0.05, the system quality variable does not appear to have an impact on the advantages of use.

According to DeLone & McLean (2003), Perceived benefits will be influenced by the quality of information, services, and user happiness provided by information systems. The results showed that information quality, service quality, and user satisfaction have a positive influence on the benefits of using SIPD, this means that the information, services, and satisfaction generated by SIPD can help in providing information, services, and positive feedback to its users according to what they need and bring benefits to what they do. This is consistent with the study by Al-Okaily et al. (2023) that shows the advantages of utilizing a system are positively impacted by information quality, service quality, and user satisfaction.

When viewed from user satisfaction as the dependent variable, information quality, system quality, and service quality have a p-value of 0.00, 0.00, and 0.00 respectively. This indicates that the variables of information quality, system quality, and service quality have an impact on SIPD user satisfaction because the p-value is less than 0.05. According to DeLone & McLean (2003), the better the level of quality of information, systems, and services produced by information systems, the better the user satisfaction will be. This is consistent with the study by Mirkovski et al. (2023) that demonstrates the positive connection between user satisfaction and the factors of information quality, system quality, and service quality.

The research results that are in the spotlight are SIPD which is considered to have system quality that does not affect the benefits of use, which means that the SIPD system is not able to provide convenience for doing work in the form of processing regional development and financial data. This is possible due to system factors that are still unstable or system errors or human errors in using the system. This is supported by Seddon (1997) who says that someone

will not feel the benefits of the system used if the system has been used for a long time without any development.

Therefore, the Ministry of Home Affairs needs to focus on improving and developing the Local Government Information System (SIPD). Because SIPD is currently considered important and is considered to save the budget and prevent corruptive actions. In addition, the existence of SIPD can also control the quality of regional spending for the better. In the end, the government in Indonesia will be able to establish good governance through SIPD. Apart from the system that must be developed, the Ministry of Home Affairs must also focus on developing the quality of human resources so that human errors do not occur when implementing SIPD.

Conclusion

The results and discussion of the research indicate that information quality, service quality, and user satisfaction have a positive and significant impact on the benefits of using SIPD in Metro City; system quality does not affect these benefits, in addition this study found that user satisfaction is positively and significantly impacted by the quality of the information, system, and services. This research also shows that the user satisfaction can be used as a mediating variable. Future researchers should be able to explore or evaluate the implementation of SIPD using other research models such as UTAUT, and TAM Theory, or can use other independent variables such as HR competencies, or infrastructure that can affect the successful use of SIPD.

References

- Al-Okaily, M., Al-Kofahi, M., Shiyyab, F. S., & Al-Okaily, A. (2023). Determinants of user satisfaction with financial information systems in the digital transformation era: insights from emerging markets. *Global Knowledge, Memory and Communication*. <https://doi.org/10.1108/GKMC-12-2022-0285>.
- DeLone, W. H., & McLean, E. R. (2003). The Delone and Mclean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30.
- Ghozali, Imam. (2018). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 21*. Semarang. Badan Penerbit Universitas Diponegoro.
- Kaur, B. (2008). Teaching and learning of mathematics: What matters to teachers and students? *ZDM - International Journal on Mathematics Education*, 40(6), 951–962. <https://doi.org/10.1007/s11858-008-0128-6>.
- Lai, J.Y. & Yang, C.C. (2009). Effects of employees' perceived dependability on the success of enterprise applications in e-business. *Industrial Marketing Management*. 38(3), 263-274.
- Mirkovski, K., Rouibah, K., Lowry, P., Paliszkievicz, J., & Ganc, M. (2023). Cross-country determinants of citizens'e-government reuse intention: empirical evidence from Kuwait and Poland. *Information Technology & People*.
- Nataniel, & Hatta, H. R. (2009). Pembangunan Sistem Informasi Terpadu Pemerintah Daerah Kabupaten Paser. *Jurnal Informatika Mularwan*, 4(1), 47–54. <http://e-journals.unmul.ac.id/index.php/JIM/article/view/27>.
- Rai, A., Lang, S. S., & Welker, R. B. (2002). Assessing the validity of IS success models: An empirical test and theoretical analysis. *Information Systems Research*, 13(1), 50–69.
- Seddon, P. B. (1997). A respecification and extension of the Delone and Mclean model of IS success. *Information Systems Research*, 8(3), 240–253.

- Stefanovic, D., Marjanovic, U., Delic, M., Culibrk, D. & Lalic, B. (2016). Assessing the success of e-government systems: an employee perspective, *Information and Management*, 53(6), 717-726.
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung. Alfabeta.
- Veeramootoo, N., Nunkoo, R., & Dwivedi, Y. K. (2018). What determines the success of an e-government service? Validation of an integrative model of e-filing continuance usage. *Government Information Quarterly*, 35(2), 161–174. <https://doi.org/10.1016/j.giq.2018.03.004>
- Wang, Y. S. (2008). Assessing e-commerce systems success: A respecification and validation of the Delone and Mclean model of IS success. *Information Systems Journal*, 18, 529–557.