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EVALUATING SISDM EFFECTIVENESS USING THE EUCS METHOD: A CASE STUDY AT SSDM POLRI

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Abstract*—The Human Resource Information System (SiSDM) application of the Indonesian National Police (Polri) serves as a digital tool to support personnel management. The success of its implementation strongly depends on user satisfaction. This study aims to analyze the effectiveness of the SiSDM system using the End-User Computing Satisfaction (EUCS) method, which consists of five key dimensions: content, accuracy, format, ease of use, and timeliness. A quantitative research method was applied by distributing questionnaires to 100 personnel at SSDM Polri who actively use the SiSDM application. The collected data were analyzed using the Partial Least Square-Structural Equation Modeling (PLS-SEM) technique with the help of SmartPLS software. The results indicate that format, accuracy, and timeliness have a significant influence on user satisfaction, while content and ease of use do not show a significant effect. The R^2 value of 0.810 reveals that 81% of the variance in user satisfaction can be explained by the five EUCS dimensions, with f^2 values indicating that most dimensions contribute substantially to user satisfaction. This research confirms that the EUCS method is effective for evaluating information system quality in government institutions such as Polri. In practical terms, these insights provide input for the Indonesian National Police to prioritize improvements in format, accuracy, and timeliness, as well as to improve content and ease of use so that the system better meets the needs of personnel. As a result, the ongoing development of SiSDM can support organizational performance improvement, information transparency, and HR management efficiency within the Indonesian National Police.*

Keywords: *end user computing satisfaction, SiSDM, PLS-SEM, Polri, information system.*

Abstrak*—Aplikasi Sistem Informasi Sumber Daya Manusia (SiSDM) Polri merupakan sarana digital yang digunakan untuk mendukung manajemen kepegawaian dalam organisasi Polri. Keberhasilan implementasi sistem ini sangat bergantung pada tingkat kepuasan penggunanya. Penelitian ini bertujuan untuk menganalisis efektivitas SiSDM menggunakan pendekatan End-User Computing Satisfaction (EUCS), yang mencakup lima dimensi: isi, ketepatan, format, kemudahan penggunaan, dan ketepatan waktu. Metode kuantitatif digunakan dalam penelitian ini, dengan pengumpulan data melalui kuesioner kepada 100 personel SSDM Polri pengguna aplikasi SiSDM. Data dianalisis menggunakan pendekatan Partial Least Square – Structural Equation Modeling (PLS-SEM) melalui aplikasi SmartPLS. Hasil penelitian menunjukkan bahwa dimensi format, accuracy, dan timeliness memiliki pengaruh signifikan terhadap kepuasan pengguna, sedangkan content dan ease of use tidak memberikan pengaruh yang signifikan. Nilai R^2 sebesar 0,810 menunjukkan bahwa 81% variabilitas kepuasan pengguna terhadap aplikasi SiSDM dapat dijelaskan oleh lima dimensi EUCS, dengan nilai f^2 menunjukkan kontribusi besar dari sebagian besar dimensi terhadap kepuasan pengguna. Penelitian ini menegaskan bahwa metode EUCS efektif digunakan untuk mengevaluasi kualitas sistem informasi di lingkungan institusi pemerintahan seperti Polri. Secara praktis, temuan ini memberikan masukan bagi Polri untuk memprioritaskan peningkatan pada aspek format, ketepatan, dan ketepatan waktu, serta memperbaiki konten dan kemudahan penggunaan agar sistem lebih sesuai dengan kebutuhan personel. Dengan demikian, pengembangan berkelanjutan SiSDM dapat mendukung peningkatan kinerja organisasi, transparansi informasi, dan efisiensi manajemen SDM di lingkungan Polri.*

Kata Kunci*: end user computing satisfaction, SiSDM, PLS-SEM, Polri, sistem informasi.*

INTRODUCTION

Information technology utilization is an important part of supporting the performance of government institutions such as the Indonesian National Police (Polri), particularly in supporting the effectiveness and efficiency of e-government-based work (Rohmansyah et al., 2023). In human resource management, technology is expected to simplify work processes and accelerate the distribution of official information (Darmawan et al., 2023).

As part of the digitalization efforts within the Indonesian National Police, SSDM has developed the Human Resources Information System (SiSDM) application. This application serves as a means of digitally and centrally disseminating internal information, such as telegrams, selection announcements, and personnel transfers (Harto, 2023). The ability to provide information quickly, accurately, and easily accessible is a crucial factor in supporting strategic and operational decision-making (Mirza et al., 2023). Technology becomes a tool for obtaining open and extensive information, so the effectiveness of information delivery needs to be analyzed from the user's point of view (Baqi et al., 2022). It is important to assess the effectiveness of SiSDM from the perspective of system users or Polri personnel who actively use this application in their official activities.

The success of an information system depends heavily on user satisfaction. In the context of human resource management systems, user satisfaction is a key indicator in assessing how well the system meets official information needs. A reliable system must be able to provide an experience that aligns with users' daily needs (Agustina & Abdillah, 2022). Therefore, evaluating the effectiveness of the HRIS requires an approach that directly assesses user perceptions.

To analyze this, the End-User Computing Satisfaction (EUCS) approach is relevant because it measures five main aspects of user satisfaction, namely content, accuracy, format, ease of use, and timeliness (Kamal et al., 2020). By measuring these five aspects, institutions can determine the extent to which the system meets user expectations.

Most previous studies using the EUCS method have generally been conducted in the education and corporate sectors. For example, a study (Budi Pratomo et al., 2023) analyzed user satisfaction with the MyPertamina application as an example of EUCS application in the business and financial services sector. Meanwhile, (Sumagita & Dirgahayu, 2024) used the EUCS method to evaluate user satisfaction with a university academic portal, which represents the education sector. These studies focused more on administrative services and consumer or student satisfaction.

On the other side, information systems in police institutions have different characteristics because they not only support human resource administration but also have implications for organizational discipline, assignment transparency, and confidential information management, which demand higher accuracy, speed, and security. This condition confirms the existence of a research gap that has not been fully researched. Therefore, this study emphasizes the unique context of police institutions, particularly in relation to HR management, organizational discipline, and internal data security, which makes it significantly different from previous EUCS studies.

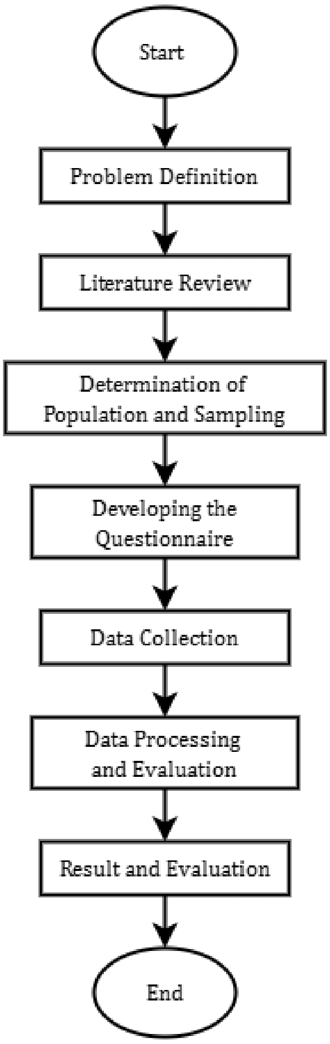
This research's main objective is to analyze the effectiveness of SiSDM using the End-User Computing Satisfaction (EUCS) method on Polri SSDM personnel as end users. The results of this study are expected to provide an objective picture of the level of user satisfaction with the system used, as well as input for the development of SiSDM to be more effective, efficient, and adaptive to the internal needs of the organization. In addition, the findings of this study can also be a reference for other government agencies that are implementing HR information systems within the framework of digital transformation. Accordingly, this study seeks to answer the question: “How effective is SiSDM according to user perceptions using the EUCS approach within the scope of the Indonesian National Police's SSDM?”

MATERIALS AND METHODS

Research was conducted using a quantitative approach aimed to evaluate the effectiveness of SiSDM in the SSDM Polri environment based on end-user satisfaction levels. Each stage of the research was designed in a structured manner to ensure data accuracy and the suitability of the results with the research objectives. The process began with problem identification, literature review, instrument development, until data processing and evaluation using the EUCS model. A visualization of the research flow describing each stage in sequence can be seen in Figure 1, which is designed to provide a comprehensive overview of this research process.

Problem Definition

The first step of the research began with defining the main problem, which is the lack of comprehensive evaluation regarding the effectiveness of the SiSDM application from the end user's perspective. The problem definition focused on analyzing user satisfaction with the SiSDM function in distributing internal information digitally within the SSDM Polri environment.



Source: (Research Results, 2025)

Figure 1. Research Stage

Literature Review

A literature review was conducted to examine relevant theories and findings from previous studies, particularly those related to human resource management information systems and EUCS. The results of the review were used as a reference for formulating indicators, developing research instruments, and supporting the development of the conceptual framework and methodology of this study.

Determination of Population and Sampling

The population of this study was SSDM Polri personnel who actively used the SiSDM application in managing official information. The research sample consisted of 100 respondents representing various levels of positions in SSDM Polri.

According to (Marsh et al., 1998), a sample size of 100–200 is sufficient for models with 3–12 indicators per construct, to ensure model stability and avoid non-convergence. However, (Jhantasana, 2023) shows that although the 10-times rule is often used, a minimum sample of 50 is sufficient to achieve statistical power of 0.81 with an effect size (f^2) of 0.437–0.506.

Considering the limited population within the SSDM Polri and the five latent constructs in the PLS-SEM model, a sample size of 100 respondents was selected as the optimal compromise between statistical accuracy, model stability, and the feasibility of field research.

Developing the Questionnaire

The research instrument was developed in the form of a closed-ended questionnaire designed based on the five main dimensions of the EUCS method, including content, accuracy, format, timeliness, and ease of use (Hendrix, 2022). Each statement was measured using a five-point Likert scale, with a rating range from 1 (strongly disagree) to 5 (strongly agree), to capture users' perceptions and satisfaction levels with the SiSDM application.

These are the dimensions in the EUCS method:

1. Content: Assesses the extent to which the information presented by the system meets user needs.
2. Accuracy: Measures the level of accuracy of the information generated by the system.
3. Format: Assesses the display and presentation of information in the system, including readability and ease of interpretation.
4. Ease of Use: Describes the ease with which users can access and operate the system.
5. Timeliness: Assesses the extent to which information is available and delivered in a timely manner.

As summarized in Table 1, each dimension is represented by several question indicators that are designed to measure users' perceptions and satisfaction with the SiSDM application.

Table 1. EUCS Variables

Variable	Sub Variable	Statement
	Content (X1)	The information in the SiSDM application content is in line with user needs (C1) The features in the SiSDM application are in line with user needs (C2) The services in the SiSDM application are in line with user needs (C3)

Variable	Sub Variable	Statement
Independent Variable X	Accuracy (X2)	The SiSDM application generates accurate and reliable information (A1)
		The application system rarely experiences errors (A2)
		From start/input to finish/output, the system operates smoothly (A3)
	Format (X3)	SiSDM application interface has a color composition that is not confusing (F1)
		SiSDM application design has a layout that is easy for users (F2)
		SiSDM application design displays menus that are easy for users to understand (F3)
	Timeliness (X4)	SiSDM application generates the latest information needed by users (T1)
		Input entered by the administrator generates the correct output without a long wait (T2)
	Ease of Use (X5)	The SiSDM application is very easy to use (E1)
		The application displays user instructions that are easy to understand (E2)
		Users of the SiSDM application can use the application without assistance from others (E3)
Dependent Variable	User Satisfaction (Y)	Users of the SiSDM application can more effectively and efficiently receive official information (Y1)
		I am satisfied with using the SiSDM application (Y2)

Source: (Research Results, 2025)

Before distributing the main questionnaire, validity and reliability tests were conducted to ensure that each indicator consistently measured the intended construct. Validity testing was performed through Convergent Validity analysis, where indicators were considered valid if they had outer loading ≥ 0.70 (indicating a strong correlation with the construct) and Average Variance Extracted (AVE) ≥ 0.50 (indicating that more than half of the indicator variance is explained by the construct) (Hair et al., 2021). Reliability testing was conducted using Composite Reliability (CR ≥ 0.70) to ensure internal consistency among indicators (Hair et al., 2021). The testing process was carried out using SmartPLS 4.0 as an initial stage to ensure that the instrument was appropriate for use in the main study.

Data Collection

Data collection was conducted through the distribution of online questionnaires using the Google Form platform. The questionnaires were distributed to 100 SSDM Polri personnel who are active users of the SiSDM application. Participation was voluntary, and data collection was conducted over a period of 7 (seven) days.

Data Processing and Evaluation

The collected data were analyzed quantitatively using SmartPLS 4.0 software with a Partial Least Square – Structural Equation Modeling (PLS-SEM) approach. This method was chosen because it is suitable for testing structural models involving many indicators and moderate sample sizes. The analysis was conducted in two stages, including evaluation of the outer model and inner model.

During the outer model evaluation stage, the construct validity and reliability of the indicators were tested, including:

1. Convergent validity, measured through Outer Loading and Average Variance Extracted (AVE) values. Outer loading was calculated using the SmartPLS system, while AVE could be calculated manually using the formula (Hair, et al., 2021):

$$\frac{\sum(outer\ loading)^2}{jumlah\ indikator} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

2. Composite reliability (CR), calculated using the formula (Hair, et al., 2021):

$$CR = \frac{(\sum outer\ loading)^2}{(\sum outer\ loading)^2 + \sum indicator\ error\ variance} \ldots\ldots\ldots \text{(2)}$$

Where error variance = 1 - (outer loading)^2

Next, in the inner model evaluation stage, the relationship between latent variables was tested using:

1. Path coefficient, to see the strength of the relationship between EUCS dimensions and user satisfaction.
2. R^2 (*R-square*), to determine the extent of the contribution of independent variables to dependent variables, with the following interpretation (Hair, et al., 2021):
   a. $R^2 \geq 0.75$ = strong (substantial)
   b. $0.50 \leq R^2 < 0.75$ = moderate
   c. $R^2 < 0.50$ = weak
3. Effect size (f^2) helps indicate how much each independent variable contributes to the dependent variable. Based on, (Hair, et al., 2021), the f^2 values can be interpreted as follows:

a. an f^2 value below 0.02 reflects a negligible influence;
b. values from 0.02 up to 0.15 suggest a small effect;
c. values between 0.15 and 0.35 point to a moderate effect; and
d. an f^2 of 0.35 or higher signals a strong impact.

Result and Evaluation

Analysis results show the contribution of each EUCS dimension to user satisfaction and perceptions of system effectiveness. These findings form the basis for formulating recommendations for developing SiSDM to be more responsive and adaptive to the needs of personnel at environment Polri.

RESULTS AND DISCUSSION

This section presents the results of data analysis and discussion linking the research findings with the objectives and indicators in the EUCS model. The analysis was conducted on data from 100 active respondents who are users of the SiSDM application within the SSDM Polri environment, obtained through the distribution of online questionnaires and processed using SmartPLS 4.0.

Measurement Model Evaluation

1. Validity Test

The validity test in this study focuses on convergent validity, which aims to ensure that the indicators used in each construct are able to properly represent the variables being measured. Convergent validity was assessed using two criteria, namely outer loading values and Average Variance Extracted (AVE).

Outer loading values indicate the correlation between each indicator and its corresponding latent construct. According to (Hair et al., 2021) an indicator is considered valid if it has an outer loading value of ≥ 0.70. The outer loading values in this study were obtained through an iterative calculation process using the Partial Least Squares (PLS) algorithm implemented in SmartPLS 4.0.

The results of the convergent validity test based on outer loading values are presented in Table 2. The table shows that all indicators across the constructs of Accuracy, Content, Ease of Use, Format, Timeliness, and User Satisfaction have outer loading values exceeding the minimum threshold of 0.70. Therefore, all indicators are declared valid and suitable for further analysis.

Table 2. Convergent Validity Test Results (Outer Loading)

	Accuracy	*Content*	*Ease of Use*	*Format*	*Timeliness*	*User Satisfaction*
A1	0.790					
A2	0.791					
A3	0.847					
C1		0.717				
C2		0.920				
C3		0.859				
E1			0.818			
E2			0.843			
E3			0.847			
F1				0.864		
F2				0.914		
F3				0.898		
T1					0.910	
T2					0.914	
Y1						0.934
Y2						0.930

Source: (Research Results, 2025)

In addition to outer loading, convergent validity was also evaluated using the Average Variance Extracted (AVE). AVE measures the proportion of variance captured by a construct relative to the variance due to measurement error. A construct is considered to have adequate convergent validity if its AVE value is ≥ 0.50 (Hair et al., 2021). AVE values are calculated based on the squared outer loading values of the indicators associated with each construct.

The AVE values for all constructs were calculated using SmartPLS 4.0, and the results are presented in Table 3. The findings indicate that all constructs have AVE values above the recommended threshold of 0.50, confirming that each construct meets the convergent validity criteria.

Table 3. Convergent Validity Test Results (AVE)

	Average Variance Extracted (AVE)
Accuracy	0.656
Content	0.700
Ease of Use	0.699
Format	0.796
Timeliness	0.832
User Satisfaction	0.868

Source: (Research Results, 2025)

2. Reliability Test

Construct reliability in this study was evaluated using Composite Reliability (CR) to assess the internal consistency of indicators within each construct. Composite Reliability is considered more appropriate for PLS-SEM than Cronbach's Alpha because it takes into account the actual outer loading values of the indicators. According to (Hair et al., 2021), a construct is regarded as reliable if it has a CR value of ≥ 0.70.

The CR values were calculated using SmartPLS 4.0, and the results are presented in Table 4. The findings indicate that all constructs have CR values well above the recommended threshold of 0.70,

ranging from 0.851 to 0.930. Specifically, the Accuracy construct shows a CR value of 0.851, Content and Ease of Use each have a CR value of 0.874, Format has a CR value of 0.921, Timeliness records a CR value of 0.908, and User Satisfaction demonstrates the highest CR value of 0.930.
These results confirm that all constructs exhibit high internal consistency, indicating that the measurement items used in this study are reliable.

Table 4. Composite Reliability Test Results (CR)

	Composite Reliability
Accuracy	0.851
Content	0.874
Ease of Use	0.874
Format	0.921
Timeliness	0.908
User Satisfaction	0.930

Source: (Research Results, 2025)

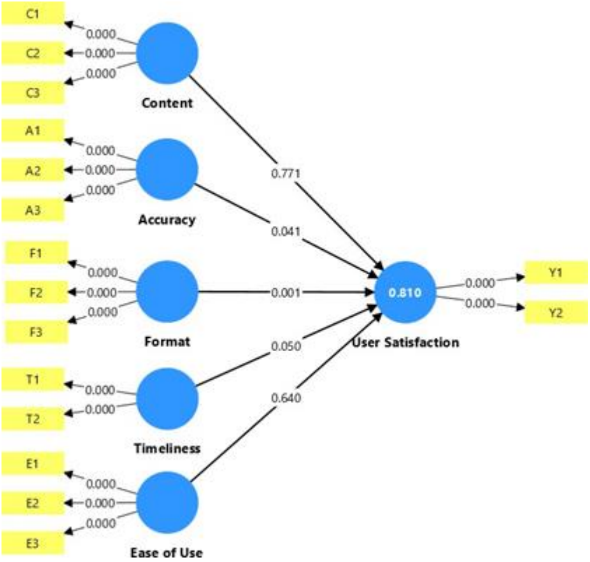
Based on the results of the convergent validity and reliability tests, all indicators in each construct are confirmed to be valid and reliable, as evidenced by outer loading, AVE, and CR values that meet the recommended criteria. Consequently, the measurement model is considered adequate and suitable for further analysis at the structural model evaluation stage.

Structural Model Test (Path Coefficient)

Structural model tests were conducted to determine the influence between latent constructions in the model, particularly the influence of EUCS dimensions on user satisfaction. The analysis was performed using the bootstrapping method in SmartPLS 4, based on path coefficient values, t-statistics, and p-values.

The path coefficient values represent the magnitude and direction of the relationships between latent variables, while t-statistics indicate the strength of the statistical evidence. The p-values are used to determine the level of significance, with relationships considered statistically significant when $p < 0.05$ (Hair et al., 2021). The structural model visualization presented in Figure 2 illustrates the estimated path coefficients and shows both the direction and strength of the influence of each EUCS dimension on user satisfaction.

As a complement to the structural model visualization shown in Figure 2, Table 5 presents the numerical results of the structural model testing, including the path coefficients, t-statistics, and p-values. These results are used to identify the contribution and significance of each EUCS dimension toward user satisfaction with the SiSDM application.



Source: (Research Results, 2025)

Figure 2. Path Coefficient Test Result

Tabel 5. Recapitulation of Path Coefficient Test Result

	Path Coefficient	*T-Statistics*	*P Values*
Accuracy -> User Satisfaction	0.272	2.046	0.041
Content -> User Satisfaction	-0.036	0.291	0.771
Ease of Use -> User Satisfaction	-0.063	0.468	0.640
Format -> User Satisfaction	0.488	3.363	0.001
Timeliness -> User Satisfaction	0.306	1.959	0.050

Source: (Research Results, 2025)

Based on the results presented in Table 5, three dimensions—Accuracy, Format, and Timeliness—exhibit a positive and statistically significant influence on user satisfaction. Accuracy shows a path coefficient of 0.272 with a t-statistic of 2.046 and a p-value of 0.041, indicating that higher information accuracy leads to increased user satisfaction. Format demonstrates the strongest influence among all constructs, with a path coefficient of 0.488, a t-statistic of 3.363, and a p-value of 0.001, highlighting the importance of information presentation and system layout in shaping user satisfaction. Timeliness also has a positive and significant effect, with a path coefficient of 0.306, a t-statistic of 1.959, and a p-value of 0.050, suggesting that timely information delivery plays an important role in enhancing user satisfaction.

In contrast, the Content and Ease of Use dimensions do not show a statistically significant effect on user satisfaction. Content has a negative path coefficient of –0.036 with a p-value of 0.771, while Ease of Use records a path coefficient of –0.063 with a p-value of 0.640. These findings indicate that, although both dimensions are part of the EUCS framework, they do not significantly contribute to user satisfaction with the SiSDM application in its current condition.

Overall, the results confirm that information accuracy, system format, and timeliness are the key determinants of user satisfaction with the SiSDM application, whereas content and ease of use require further evaluation and improvement to enhance the overall effectiveness of the system.

R^2 dan f^2 Value Test

The R^2 and f^2 values were tested to assess the model's ability to explain the dependent variables and identify the contribution of each construct to user satisfaction.

The R^2 value shows the proportion of variance of the dependent variable (user satisfaction) that can be explained by five independent constructs in the model. Based on the analysis results in Table 6, an R^2 value of 0.810 was obtained, which, according to the interpretation by (Hair et al., 2021) is classified as strong (substantial). This indicates that the model has a high predictive ability regarding user satisfaction.

Table 6. R^2 Test Result

Dependent Construct	R^2	Interpretation R^2
User Satisfaction	0.810	Strong (Substantial)

Source: (Research Results, 2025)

Meanwhile, Table 7 shows the results of the f^2 test, which indicates the magnitude of each construct's influence on the dependent variable. Most dimensions such as accuracy, content, ease of use, and timeliness contribute significantly to user satisfaction, while format shows a moderate influence.

Table 7. f^2 Test Result

Independent Construct	f^2	Interpretation f^2
Accuracy	0.358	Strong
Content	0.956	Strong
Ease of Use	0.907	Strong
Format	0.167	Moderate
Timeliness	0.404	Strong

Source: (Research Results, 2025)

Test results R^2 show that 81% of user satisfaction variables can be explained by five dimensions of EUCS, indicating that this model has strong predictive power. Meanwhile, the f^2 value shows that Format has a moderate influence, while Accuracy, Content, Ease of Use, and Timeliness show a large contribution to User Satisfaction. These findings are consistent with other studies by (Agustina & Abdillah, 2022), (Ariska & Rudi Sanjaya, 2024), dan (Adnan & Ndaumanu, 2024) which emphasize the importance of accuracy and ease of use in the successful implementation of information systems.

The results of the study indicate that the dimensions of Content and Ease of Use do not significantly affect user satisfaction with the SiSDM application. This condition may be due to users considering both aspects as basic features that must be present in an information system, so that they are no longer distinguishing factors in assessing satisfaction. Similar findings are also described by (Nuryakin et al., 2023), who state that Perceived Ease of Use does not directly affect user satisfaction but only plays a role through usage attitudes. Furthermore, research by (Naufal et al., 2023) shows that the Content variable does not significantly affect user satisfaction with academic systems, while Accuracy and Timeliness are more dominant. This indicates that in the context of organisations such as the Indonesian National Police, users place more emphasis on the accuracy and reliability of information than on the ease of use of the interface or the completeness of the content.

CONCLUSION

The results of the research indicate that the SiSDM application has been effective in distributing internal information, particularly in terms of accuracy, format, and timeliness which have a significant impact on user satisfaction. In contrast, content and ease of use have not had a significant impact. This indicates that there is still scope for improvement in terms of content relevance and ease of use of the system. The structural model demonstrates a strong explanatory power, with $R^2 = 0.810$, meaning that 81% of the variance in user satisfaction can be explained by the five EUCS dimensions. Furthermore, the f^2 test results show that most dimensions have a large effect size, except for the format dimension, which showed a moderate contribution.

Overall, this study confirms that end-user perceptions play an important role in assessing the effectiveness of information systems, and that the EUCS method is effective for evaluating and improving the quality of systems such as SiSDM in the public sector.

However, this study has several limitations. First, the number of respondents only included personnel in the SSDM Polri environment, so the results of the study cannot be generalized to all work units in the Polri or other government agencies. Second, this study did not involve direct observation or in-depth interviews related to the application usage process, so the analysis results were based solely on the respondents' perceptions through questionnaires.

Based on these limitations, future research should expand the scope of respondents to include other work units in the Indonesian National Police or other public institutions so that the results are more representative. In addition, the use of mixed methods (quantitative and qualitative), such as interviews or field observations, can provide a deeper understanding of the factors that influence user satisfaction. Future research could also apply or compare other evaluation models, such as the Technology Acceptance Model (TAM) or Delone & McLean IS Success Model, to enrich the analysis of the effectiveness and acceptance of information systems in the public or military sectors.

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