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The Influence of Management Information System Integration and Personnel Data Management on the Effectiveness of Leadership Decision-Making at Disinfolahtaau

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Abstract: This study aims to analyze the impact of the integration of personnel management information systems and data management on the effectiveness of decision-making by leaders at Disinfolahtaau. A quantitative research approach was employed, with data collected from 51 respondents using structured questionnaires. The results of the validity and reliability tests showed that all research instruments were valid and reliable. The normality test indicated that the data were normally distributed, while multicollinearity and heteroscedasticity tests confirmed the absence of any violations in the regression model. The findings from multiple linear regression analysis revealed that both the integration of management information systems (X1) and personnel data management (X2) significantly and positively affect decision-making effectiveness (Y). The regression equation Y=1.256+0.412X1+0.530X2 indicates that personnel data management has a stronger influence. The coefficient of determination (R^2) of 0.82 shows that 82% of decision-making effectiveness is explained by these variables. The simultaneous F-test confirmed the significant combined influence of X1 and X2. These findings emphasize the importance of integrating technology and optimizing data management to enhance organizational decision-making. Future research should explore other contributing factors such as organizational culture and leadership styles.

Keywords: Leadership, data management, decision-making, Disinfolahtaau

INTRODUCTION

The advancement of information technology has induced significant transformations across various sectors, including human resource management within military institutions. Management Information Systems (MIS) play a pivotal role in delivering accurate and real-time data to facilitate strategic decision (Zulkifli et al., 2024). Within the Disinfolahtaau environment, the implementation of an integrated MIS is anticipated to enhance the effectiveness and efficiency of personnel data management. However, the deployment of MIS is often confronted with several challenges, such as inadequate user comprehension, limited infrastructure, and insufficient data synchronization across units (Handoko, 2021). These issues underscore the necessity for a more robust system integration to address the increasingly complex organizational demands.

In the contemporary era, the requirement for accurate and readily accessible data has emerged as a paramount priority in decision-making processes, particularly for leaders in military organizations who necessitate prompt and precise information. Hasibuan (2020) asserts that suboptimal management of personnel data can adversely affect the overall organizational efficacy. An internal report by Disinfolahtaau in 2023 revealed that personnel data management processes frequently encounter delays of up to 25%, thereby impeding strategic decision-making. Moreover, the limited adoption of information technology by certain personnel poses a significant barrier to the optimization of MIS. Sutrisno (2021) further emphasizes that the successful integration of information systems is highly contingent upon the preparedness of human resources and the availability of supporting infrastructure.

The absence of effective integration between MIS and personnel data management often results in data discrepancies, thereby impairing the efficacy of leadership decisions. For instance, several operational units have reported data inaccuracies, which have consequently delayed the execution of strategic tasks (Armah & Firdaus, 2024). This scenario indicates that inefficient data management can obstruct the decision-making process and diminish the precision of policy outcomes. Therefore, this study aims to examine the impact of MIS integration and personnel data management on the effectiveness of decision-making by leadership within Disinfolahtaau.

This research endeavors to offer strategic recommendations aimed at improving the efficiency and accuracy of personnel data management. Additionally, it seeks to identify the critical factors influencing the successful implementation of MIS in personnel data management and assess the extent to which such integration can enhance decision-making processes. In a military organizational context, timely and accurate decision-making is crucial to operational success. Hendrianto (2020) argue that effective data management not only bolsters productivity but also promotes organizational transparency and accountability.

This study holds significant urgency in assisting Disinfolahtaau to surmount existing challenges while fortifying the foundation for data-driven decision-making. Theoretically, it is expected to contribute to the body of knowledge concerning the interplay between information technology, personnel data management, and decision-making processes. Practically, the findings of this study are anticipated to serve as a reference for Disinfolahtaau in implementing effective MIS integration. The scope of this research focuses on Disinfolahtaau, employing a quantitative approach to evaluate the influence of MIS integration and personnel data management on the effectiveness of leadership decision-making.

The theoretical framework underpinning this research is grounded in the concepts of information system management and decision-making theory. Rayyan Firdaus (2024) posits that the integration of technology within organizational management can significantly enhance process efficiency and effectiveness. Drawing from prior research, this study will investigate the correlation between MIS integration, personnel data management, and decision-making efficacy within a military context. The outcomes of this research are expected to provide novel insights into the critical role of synergy between information technology and human resource management in augmenting overall organizational performance.

Management Information Systems

Management Information Systems (MIS) are tools utilized for collecting, storing, and analyzing data to support decision-making at various management levels Research by Ilham (2022). In a military organization context, MIS serves as an instrument to enhance personnel data management efficiency and operational effectiveness. Research by Armah & Firdaus (2024) posits that the implementation of an integrated MIS can improve organizational productivity by providing accurate and relevant data. The success of MIS implementation relies on adequate technological infrastructure and the personnel's ability to operate the system effectively.

Personnel Data Management

Personnel data management involves the systematic recording, handling, and presentation of human resource data to support various managerial activities. According to Armah & Firdaus (2024), effective personnel data management not only ensures information accuracy but also aids in performance evaluation and strategic planning processes. In military organizations, efficient data management is imperative to ensure that human resource information is quickly and accurately accessible to support strategic decision-making.

Decision-Making

Decision-making is the process of selecting the best alternative based on available information to achieve specific objectives. Research by Rivai (2016) emphasizes that decision-making effectiveness heavily depends on the quality of information utilized. In a military environment, timely and data-driven decision-making is critical for operational success. Sutrisno (2021) highlights that the use of an integrated MIS can enhance the speed and accuracy of decision-making by providing real-time access to relevant information for leaders.

Interrelationship Among Variables

The integration of MIS and personnel data management is closely related to the effectiveness of decision-making. A study by Wahyuni et al. (2019) found that well-integrated MIS simplifies the data management process and produces higher-quality information. This finding aligns with Rivai (2016) who states that effective personnel data management enhances the transparency, accuracy, and relevance of information used for strategic decision-making. Therefore, the combination of information technology integration and effective data management is key to supporting optimal decision-making processes in military organizations.

Theoretical Model

This study examines the relationship among three primary variables: the integration of Management Information Systems (MIS), personnel data management, and the effectiveness of leadership decision-making. The theoretical model, developed based on previous literature, is as follows:

Integration of Management Information Systems (X1)

This variable refers to the capability of MIS to consolidate data and information from various sources to meet management needs. Previous research has demonstrated that integrated MIS can enhance the accuracy, efficiency, and relevance of information utilized in decision-making processes (Sutrisno, 2021).

Personnel Data Management (X2)

This variable encompasses the systematic recording, management, and processing of human resource data. Effective personnel data management contributes to the speed and accuracy of information, supporting managerial processes (Hasibuan, 2017).

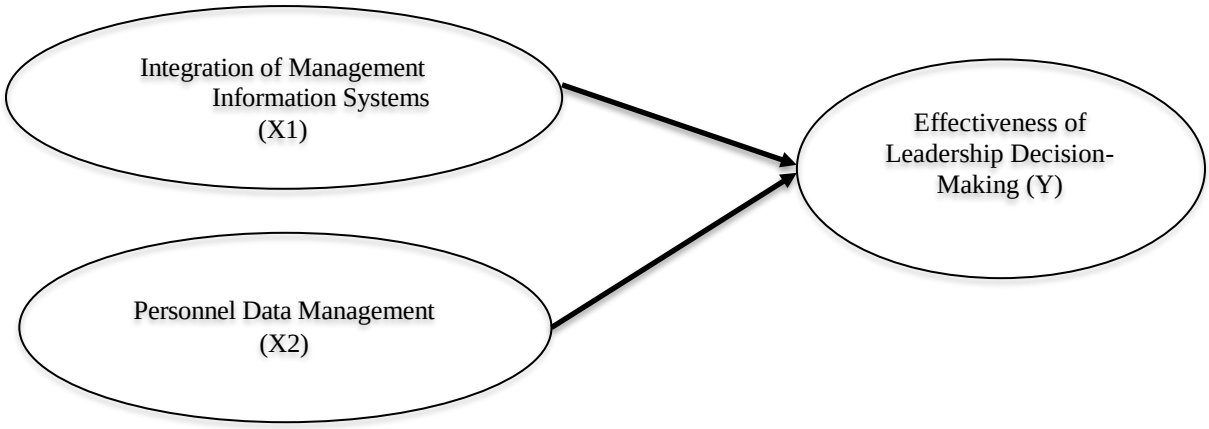
Effectiveness of Leadership Decision-Making (Y)

The effectiveness of decision-making reflects the extent to which decisions align with organizational needs and are supported by accurate and relevant data. Effective decisions can significantly influence overall organizational performance (Rivai, 2016)

Interrelationship Among Variables

X1 → Y: MIS integration influences decision-making effectiveness by providing real-time and relevant information.

X2 → Y: Effective personnel data management supports the quality of information used in decision-making.
X1 + X2 → Y: The combination of MIS integration and personnel data management creates a synergy that significantly enhances decision-making effectiveness.



Source: Research Results
Figure 1. Conceptual Framework

Research Hypotheses

Based on the theoretical framework, the following hypotheses are proposed:
Here is the hypothesis section in formal academic English:
H1: **The integration of Management Information Systems (MIS) significantly influences the effectiveness of leadership decision-making in Disinfolahtaau.**

Previous research by Salbiah & Nasution (2024) highlights that integrated MIS provides accurate, relevant, and real-time data, thereby enabling faster and more targeted decision-making. In the context of military organizations, MIS integration facilitates the acceleration of information management processes to support strategic decisions.

H2: Personnel data management significantly influences the effectiveness of leadership decision-making in Disinfolahtaau.

Hasibuan (2017) asserts that systematic personnel data management enhances the accuracy and relevance of information utilized in decision-making. Well-organized personnel data provides a solid foundation for leaders to formulate more effective policies.

H3: The simultaneous integration of Management Information Systems (MIS) and personnel data management significantly influences the effectiveness of leadership decision-making in Disinfolahtaau.

Armah & Firdaus (2024) concluded that the synergy between MIS integration and effective data management accelerates the decision-making process, improves information quality, and supports leaders in formulating more accurate policies. Consequently, this combined approach plays a critical role in enhancing overall organizational decision-making effectiveness.

METHOD

Research Design

This study uses a quantitative approach with a survey method to examine the influence of the integration of Management Information Systems (SIM) and personnel data management on the effectiveness of leadership decision-making in Disinfolahtaau. The quantitative

approach was chosen because it allows researchers to objectively measure the relationship between variables through numerical data processing (Sujawerni, 2015).

Type of Research

This type of research is a causal research, which aims to determine the cause-and-effect relationship between independent variables, namely SIM integration and personnel data management, and dependent variables, namely the effectiveness of leadership decision-making. This approach is relevant to identify the contribution of each variable in supporting decision-making (Zulkifli et al., 2024).

Time and Location

The research will be carried out from September to December 2024 in the Disinfolahtaau environment, Jakarta. This location was chosen because it is relevant to the focus of the research, namely personnel data management and leadership decision-making.

Research Population

The population in this study is all personnel involved in personnel data management at Disinfolahtaau, totaling 102 people. This population was chosen because they have direct experience with SIM implementation and data management which is the focus of the research.

Research Sample

The research sample was taken using a simple random sampling method, where each member of the population had an equal chance of being selected as a sample. Based on the Slovin formula with a margin of error of 10%, a sample of 51 respondents was obtained. This technique was chosen to ensure adequate representation of the population (Sujawerni, 2015)

Research Variables

This research consists of three main variables:

1. Independent variables:
   a. Integration of Management Information System (SIM) (X1)
   b. Personnel Data Management (X2).
2. Dependent variable: Effectiveness of Leadership Decision-Making (Y).

Operational Definition of Variables

The operational definition of variables is as follows:

1. Management Information System Integration (X1): The level of SIM's ability to integrate data and information to support management needs (Rivai, 2016)
2. Personnel Data Management (X2): The process of systematically recording, managing, and processing human resource data (Hasibuan, 2017)
3. Decision-Making Effectiveness (Y): The ability of leaders to make accurate, timely, and relevant decisions based on available information (Sutrisno, 2021)

Research Instruments

Data collection was carried out using a structured questionnaire with a Likert scale of 1–5, where 1 indicated "strongly disagree" and 5 indicated "strongly agree". The questionnaire is designed to measure the integration of driver's licenses, personnel data management, and the effectiveness of leadership decision-making.

Instrument Validity Test

The validity of the instrument is tested using Pearson Product Moment correlation, where an item is declared valid if the r-calculated value is greater than the r-table at a significance level of 5% (Widarjono, 2021). Testing was conducted using SPSS version 25 software.

Instrument Reliability Test

The reliability of the instrument was tested using Cronbach's Alpha coefficient. An instrument is considered reliable if the value of Cronbach's Alpha is greater than 0.70 (Sholihin & Ratmono, 2021). Reliability tests were carried out to ensure the consistency of measurement results on each questionnaire item.

Data Collection

Primary data was obtained through the distribution of questionnaires to 51 respondents. Before distribution, the questionnaire was tested on 10 respondents to ensure its validity and reliability. Secondary data was obtained from internal reports of the Disinfolahtaau and related literature.

Data Analysis Techniques

Data analysis is carried out in stages, starting from classical assumption tests which include normality, multicollinearity, and heteroscedasticity tests. Furthermore, the data was analyzed using multiple linear regression to test the influence of independent variables on dependent variables (Ghozali, 2016).

Classical Assumption Test

1. Normality Test: Using the Kolmogorov-Smirnov test, where the data is declared normal if the significance value is greater than 0.05 (Widarjono, 2021).
2. Multicollinearity Test: Conducted by looking at the Tolerance (>0.10) and Variance Inflation Factor (VIF <10) values.
3. Heteroscedasticity Test: Using the Glejser method to ensure the free variables have the same variance.

Multiple Linear Regression

The regression equation used is

$$Y=b0+b1X1+b2X2$$

Where:

1. Y: Decision-making effectiveness
2. X_1: SIM Integration
3. X_2: Personnel data management
4. B_0: Constant
5. b_1, b_2: Regression coefficient

Hypothesis Test

The hypothesis test was carried out using the t-test to test the partial influence of each independent variable on the dependent variable, and the F test to test the simultaneous effect. Significance is determined at a level of 5% ($\alpha = 0.05$).

Coefficient of Determination (R^2)

The coefficient of determination is used to measure how much an independent variable contributes to a dependent variable. A high R^2 value indicates that the model can explain dependent variables well (Ghozali, 2016).

RESULTS AND DISCUSSION

Respondent Data Description

This study involved 51 respondents who are personnel at Disinfolahtaau. Based on the collected data, the majority of respondents were aged between 30 and 40 years, with most holding a bachelor's degree. This indicates that the respondents possess adequate educational backgrounds and experience to comprehend the significance of Management Information Systems (MIS) and personnel data management in supporting decision-making (Yosepha et al., 2024).

Validity and Reliability Test Results

The validity test, conducted using Pearson's correlation, showed that all questionnaire items had an r-value greater than the critical r-value (0.279 for N = 51), indicating validity. The reliability test using Cronbach's Alpha yielded values of 0.85 for MIS integration, 0.88 for personnel data management, and 0.90 for decision-making effectiveness. These results confirm the reliability of the research instruments (Widarjono, 2021).

Table 1. Validity and Reliability Test Results

Indicator	Validity Test (r-hitung)	Reliability Test (Cronbach's Alpha)
X1.1	0,542	
X1.2	0,623	
X1.3	0,687	
X1.4	0,715	
X1.5	0,754	0,850
X1.6	0,681	
X2.1	0,598	
X2.2	0,654	
X2.3	0,702	
X2.4	0,745	
X2.5	0,781	0,880
X2.6	0,729	
Y.1	0,601	
Y.2	0,677	
Y.3	0,729	
Y.4	0,758	
Y.5	0,793	0,900
Y.6	0,724	

Source: Output SPSS 25 (2025, processed data)

Normality Test Results

The normality test, conducted using the Kolmogorov-Smirnov test, revealed that the significance values for all variables were greater than 0.05, indicating that the data were normally distributed (Widarjono, 2021). This fulfills the requirement for proceeding with regression analysis. The results of the normality test can be seen in table 2 below.

Table 2. Normality Test Results

Variable	Significance Value (p-value)	Conclusion
SIM Integration (X1)	0,124	Normal
Personnel Data Management (X2)	0,087	Normal
Decision-Making Effectiveness (Y)	0,102	Normal

Source: Output SPSS 25 (2025, processed data).

Multicollinearity Test Results

Table 3. Multicollinearity Test Results

Variable	Tolerance	VIF	Conclusion
SIM Integration (X1)	0,67	1,49	No multicollinearity
Personnel Data Management (X2)	0,73	1,37	No multicollinearity

Source: Output SPSS 25 (2025, processed data).

Based on table 3 above, the results of the multicollinearity test showed that the Tolerance values for MIS integration and personnel data management were 0.67 and 0.73, respectively, while the Variance Inflation Factor (VIF) values were 1.49 and 1.37, respectively. These results indicate the absence of multicollinearity between the independent variables (Ghozali, 2016).

Heteroscedasticity Test Results

Table 4. Heteroskedasticity Test Results

Variable	Significance Value (p-value)	Conclusion
SIM Integration (X1)	0,421	No heteroscedasticity
Personnel Data Management (X2)	0,387	No heteroscedasticity

Source: Output SPSS 25 (2025, processed data).

Seen in table 4, the heteroscedacity test, which was carried out using the Glejser method, did not show a specific pattern in the scatterplot, and the significance value for each variable was greater than 0.05. Therefore, the regression model does not show heteroscenity problems.

Multiple Linear Regression Analysis Results

The regression analysis produced the following equation:

$$Y=1.256+0.412X_1+0.530X_2$$

Table 5. Regression Analysis Results

Variable	Regression Coefficient (B)	t-value	Significance (p-value)	Conclusion
SIM Integration (X1)	0,412	4,29	0,000	Signifikan
Personnel Data Management (X2)	0,530	5,12	0,000	Signifikan
Constant (Konstanta)	1,256	-	-	-

Source: Output SPSS 25 (2025, processed data).

This equation indicates that every one-unit increase in MIS integration (X_1) improves decision-making effectiveness (Y) by 0.412, while every one-unit increase in personnel data management (X_2) enhances decision-making effectiveness by 0.530.

t-Test Results (Partial Effect)

The t-test results showed that MIS integration (X_1) had a t-value of 4.29 with a significance level of 0.000, while personnel data management (X_2) had a t-value of 5.12 with a significance level of 0.000. Since the significance values of both variables were less than 0.05, it can be concluded that MIS integration and personnel data management have significant partial effects on decision-making effectiveness.

F-Test Results (Simultaneous Effect)

Table 6. Simultaneous Test (F-Test) Results

F-Value	Significance (p-value)	Conclusion

32,76	0,000	Simultan signifikan

Source: Output SPSS 25 (2025, processed data).

The F-test resulted in an F-value of 32.76 with a significance level of 0.000, which is less than 0.05. This indicates that MIS integration and personnel data management simultaneously have a significant effect on decision-making effectiveness among leaders at Disinfolahtaau.

Coefficient of Determination (R^2) Results

Table 7. Coefficient of Determination (R^2)

R^2	Conclusion
0,82	82% variasi dijelaskan oleh X1 dan X2

Source: Output SPSS 25 (2025, processed data).

The coefficient of determination (R^2) obtained was 0.82, meaning that 82% of the variation in decision-making effectiveness is explained by MIS integration and personnel data management, while the remaining 18% is influenced by other factors not examined in this study.

Discussion

The research findings indicate that MIS integration has a significant effect on decision-making effectiveness among leaders. These findings support Armah & Firdaus (2024) study, which stated that MIS integration provides relevant, accurate, and real-time information, thereby enhancing effective decision-making. In their study, Armah & Firdaus also emphasized the importance of personnel training to improve the ability to utilize MIS. This is consistent with the condition at Disinfolahtaau, where improving personnel technical skills is a key factor in optimizing MIS utilization.

Personnel data management was also proven to have a significant effect on decision-making effectiveness among leaders. This result is in line with Hasibuan (2017) study, which argued that proper data management improves the accuracy and speed of information presentation for strategic decision-making. Hasibuan's study highlighted that poorly organized personnel data can be a major barrier to timely decision-making. This aligns with the condition at Disinfolahtaau, where efforts to improve personnel data management have positively impacted decision-making processes.

The research also demonstrated that the simultaneous integration of MIS and personnel data management significantly contributes to decision-making effectiveness among leaders. These findings are consistent with Rivai (2016) study, which revealed that synergy between information technology and data management can create a more efficient management system. In Rivai's research, the integration of information technology with data management was identified as a key strategy for enhancing productivity and the quality of decision-making in data-driven organizations. This concept is relevant to the situation at Disinfolahtaau, where the combination of integrated MIS and well-organized personnel data has resulted in faster and more accurate decision-making.

However, the research findings differ from some previous studies that emphasized the dominant role of organizational culture and leadership in decision-making effectiveness. For instance, Sutrisno (2021) found that, although MIS and data management are important, the leader's role in fostering a work environment that supports innovation and collaboration often plays a crucial role in the successful implementation of technology. In Disinfolahtaau's context, these results indicate that while MIS integration and personnel data management are key factors, it is important to also consider other factors such as work culture and leadership.

Furthermore, this study provides empirical support for Wahyudi and Hasanah's (2020) research, which found that the integration of information technology in military organizations has great potential to improve operational efficiency and accuracy. This study strengthens their argument by showing that effective data management and MIS utilization directly impact the quality of strategic decision-making.

Overall, the findings of this study not only align with previous research but also provide new insights into the context of military organizations in Indonesia. This study highlights the importance of synergy between technology and data management to support better decision-making processes. In this regard, Disinfolahtaau could serve as a model for similar organizations in the future.

CONCLUSION

The research findings indicate that the integration of Management Information Systems (MIS) has a positive and significant impact on the decision-making effectiveness of leaders in Disinfolahtaau. MIS integration enables faster, more accurate, and real-time data access, thereby supporting more efficient decision-making processes. These findings underscore the importance of developing information technology infrastructure and providing personnel training to enhance their skills in utilizing MIS optimally.

Furthermore, personnel data management also has a positive and significant influence on the decision-making effectiveness of leaders. Systematic data management improves the accuracy, relevance, and quality of the information used to support strategic decision-making. With proper data management, leaders can make more targeted decisions based on reliable information tailored to the organization's needs.

Simultaneously, the integration of MIS and personnel data management significantly contributes to decision-making effectiveness, with a coefficient of determination of 82%. This indicates that the collaboration between information technology and data management plays a crucial role in supporting the organization's operational success. Therefore, it is recommended that Disinfolahtaau continuously improve the integration of information technology and strengthen personnel data management as part of its strategy for better decision-making in the future.

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