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Improving the Performance of the Army Planning and Budget Staff at the Army Headquarters Through the Implementation of a Planning Information System

Oviyan Patra, Laurensius Chrisma, Evan Nugraha, Hendy Suryana, Zaenal Muttaqien
Universitas Jenderal Achmad Yani, Indonesia
Email: oviyan.patra@lecture.unjani.ac.id, chrismalaurensius@gmail.com, noe.rievan@gmail.com, hendies.free@gmail.com, zamutaqaja@gmail.com

ABSTRACT

This study aims to analyze the relationship between technology, organization, and human resources variables and the effectiveness of the Planning Information System (SISFOREN) usage at the Army Headquarters (MABESAD), assess the impact of SISFOREN effectiveness on the performance of the planning department, and identify obstacles faced during implementation. A quantitative approach using the Technology Acceptance Model (TAM) was employed, with data collected through structured surveys distributed to planning and budgeting staff members. The findings reveal that technology does not significantly influence effectiveness ($p = 0.723$), attributed to implementation challenges and users' limited technical understanding. In contrast, organization positively impacts effectiveness ($p = 0.036$), highlighting the importance of structured communication and organizational support. Human resources also significantly affect effectiveness ($p = 0.043$), emphasizing the critical need for comprehensive training programs. Furthermore, the effectiveness of SISFOREN significantly enhances planning performance ($p = 0.000$), demonstrating improvements in data monitoring, decision-making speed, and administrative efficiency. However, obstacles such as inadequate technology integration, user skill gaps, and unsupportive organizational structures persist. The study contributes to understanding information system implementation in military contexts and provides practical recommendations for optimizing SISFOREN's deployment. Addressing these identified issues is essential for maximizing SISFOREN's implementation success and improving its overall efficiency in supporting the Indonesian Army's planning and budgeting operations.

KEYWORDS *SISFOREN, Army Headquarters, Technology Acceptance Model, Effectiveness, Human Resources.*

INTRODUCTION

The Indonesian Army (TNI AD), as one of the main components of national defense, faces increasingly complex challenges in carrying out its main tasks (Hidayat et al., 2020; Budi & Pratama, 2021). Therefore, the application of appropriate and reliable information technology is crucial to support various operational and strategic aspects (Yusuf & Rahman, 2022; Lestari & Setiawan, 2023). The Planning and Budget Staff of the TNI AD (Srenaad) has the main task of assisting the Head of Army in formulating strategic policies and carrying out the functions of the General Staff of the TNI AD in the fields of planning and budgeting, as well as bureaucratic reform, to support the main tasks of the TNI AD (Taufik & Ismail, 2021).

Despite the growing recognition of information systems as critical enablers of organizational efficiency, there remains a significant gap in understanding how military organizations in developing countries successfully implement and sustain planning information systems (Yusuf & Pratama, 2020; Lestari & Hidayat, 2022). While previous studies have

examined e-government implementation failures broadly (Rahman et al., 2021; Taufik & Wibowo, 2022), limited research has investigated the specific challenges and success factors of planning information systems within military hierarchical structures, particularly in the Indonesian context (Sutanto & Rina, 2023). This study addresses this gap by examining SISFOREN (Planning Information System) implementation at the Indonesian Army Headquarters, offering novel insights into how organizational, technological, and human resource factors interact within a unique military operational environment (Ariyani & Widodo, 2021; Santosa et al., 2023). The findings contribute to both information systems literature and practical knowledge for military information system deployment in similar organizational contexts (Budi & Nugroho, 2021).

In carrying out these main tasks, *Srenaad* performs several functions, one of which is information system development (*Sisfo*) (Muzid et al., 2025; Sanmocte & Costales, 2025; Suswandi et al., 2023). The implementation of *Sisfo* development is regulated in the Implementation Guidelines (*Jukgar*), which elaborate the Planning Function Doctrine. The Supervisor of *Sisfo TNI AD* explained *Sisfo* coaching, which includes *Sisfo* administration, information resources, and analysis and evaluation of *Sisfo*. Information technology and information systems are basic knowledge that organizations develop more professionally (Downey et al., 2007). Information systems are an indispensable need in today's digital era; they increase the accessibility of data presented appropriately and accurately. An information system is a set of organizational procedures in place at the time of implementation that provides information for decision-making or control (Syarif, 2009).

The difficulty of monitoring activities in the *TNI AD* environment often leads to delayed decisions and inadequate anticipation, resulting in suboptimal performance. In addition, monitoring budget revisions poses a challenge for the planning and budget staff, making it hard to identify which work units frequently revise budgets. Viewing total realizations is also difficult because the provided formats are non-standard and fail to meet leadership needs. To address these problems, an integrated system was developed to connect with internal and external applications, enabling better monitoring of inputs from work units; thus, *SISFOREN* (Planning Information System) was created.

Figure 1. Planning Monitoring System in SISFOREN
(Source: Developed by the Author)

In the SISFOREN system developed, TNI AD leaders can at any time monitor the implementation of activities carried out throughout TNI AD units.

Figure 2 below shows the overall Flow of the Planning Information System (SISFOREN) which is an integration of data from many external sources and internal sources displayed on the leader's dashboard so that leaders can monitor and control the activities carried out by the source. The leadership dashboard itself has 8 modules that are tailored to the needs of the 8 Pabans that exist Planning and Budget Staff at the Headquarters as explained in figure 3 next.

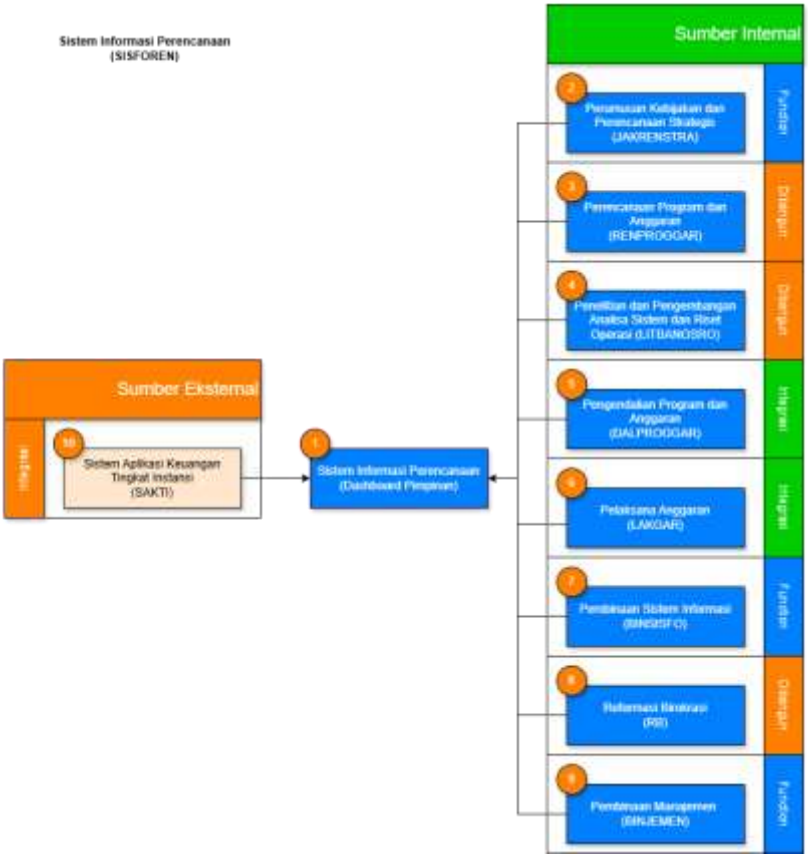

Figure 2. SISFOREN System Integration Flow
Source: Developed by the author

SISFOREN is designed as an application to assist the planning and budgeting processes of the Indonesian Army. The system encompasses comprehensive functionalities, including work program planning, proposals for new unit formation, budget determination processes (RKAKL), activity progress monitoring from lower units, Task Force input management through Laplakgar, budget absorption tracking from subordinate units, information systems development coordination within the Indonesian Army, centralized control and monitoring of TNI AD activities, and direct integration with the Ministry of Finance's system through the Sakti Application (Agency-Level Financial Application System).

SISFOREN, as a control application used by headquarters to monitor all activity processes in lower units, plays an important role in increasing the transparency, efficiency, and accuracy of planning and budgeting data within the TNI AD. With this system, leaders can easily monitor the progress of each ongoing activity, evaluate budget realization, and identify

obstacles faced by units in the field. In addition, SISFOREN allows the integration of data from various sources—both internal and external—so that the decision-making process can be carried out faster and based on accurate data.

In its implementation, SISFOREN connects various internal sources that contribute to the planning and budgeting process. JAKRENSTRA (Policy Formulation and Strategic Planning) provides strategic policy data from headquarters, evaluation of previous strategic plans, and geopolitical conditions affecting defense posture, serving as the foundation for policy formulation at the unit level. RENPROGGAR (Program and Budget Planning) contributes proposed budget needs from lower units, budget projections from the Ministry of Defense and Ministry of Finance, and analysis of previous year's budget effectiveness, informing appropriate budget allocation decisions. LITBANGSRO (Research and Development, Systems Analysis and Operations Research) supplies research and development data supporting program effectiveness, system evaluation results, and strategic study recommendations for policy and operational optimization.

DALPROGGAR (Program and Budget Control) oversees budget realization and program implementation, providing budget realization reports from lower units, internal audit results, and performance indicators assessing program implementation effectiveness. LAKGAR (Budget Implementation) contributes budget allocation documents from RENPROGGAR, planned activity implementation lists, and budget utilization reports from various TNI AD work units, enabling stricter budget use supervision. BINSISFO (Information System Development) ensures proper information system functioning by providing system development needs data from lower units, evaluation of implemented systems, and information security regulations and standards. RB (Bureaucratic Reform) supports government system modernization through policy effectiveness evaluation, ongoing reform reports, and system user satisfaction surveys to improve administrative efficiency. Finally, BINJEMEN (Management Development) provides management coaching needs data from lower units, organizational evaluation reports, and human resource development programs within TNI AD, supporting optimal management of human and organizational resources.

Figure 3. Scope of Planning Monitoring System in SISFOREN
(Source: Developed by the Author)

As befits an information system, SISFOREN connects the entities in it as written in Figure 3. The entities using SISFOREN are the TNI Army planning and budget staff under the Army Headquarters. The relationship between the Planning Staff and the budget of the TNI AD and the units fostered is reciprocal. The planning and budget staff provide the necessary information to the fostered units (Top-Down), and vice versa the fostered units provide the information requested to the planning and budget staff of the TNI AD (Srenaad) to be processed and presented in the context of decision-making or policy. SISFOREN data is connected to the Srennad Staff so that data from other units can not only be viewed and processed by the Headquarters, but the Headquarters can also use the data through the Army Infolahta Service.

To keep SISFOREN updated with information from the Army Task Force planning units under the guidance of the Headquarters, the Army Infolahta Staff who are responsible for the use of SISFOREN in planning and budget activities in the Indonesian Army. Monitoring the implementation of activities in the TNI AD will be effective if the system built is used effectively and comprehensively by all entities involved. SISFOREN was built in 2019, then in 2021 a user data monitoring module was developed to see active users, in the module it can be seen that the application has experienced a huge decrease in activity, this can be seen from figures 4, 5, 6 and 7 below, where every day SISFOREN users are decreasing so that the leadership of the Indonesian Army cannot carry out actual supervision and control.

Figure 4. SISFOREN user data in 2021
Source: (Recapitulation from SISFOREN)

Figure 6. SISFOREN user data in 2023
Source: (Recapitulation from SISFOREN)

Figure 5. SISFOREN user data in 2022
Source: (Recapitulation from SISFOREN)

Figure 7. SISFOREN user data in 2024
Source: (Recapitulation from SISFOREN)

From the recapitulation of SISFOREN users for 4 years (2021 to 2024) above, it can be seen that the decline in SISFOREN users must be observed so that a system that is built very well can help the implementation of planning staff activities and budgets can be monitored and controlled by the leadership of the Indonesian Army. The phenomenon that can be seen is the declining use reflected in the graph above to become a serious problem for the development of information systems in the TNI AD unit.

From the results of previous research, it was shown that of 100 percent of E-Government applications, which were successful and still running, only 15% were declared to have failed as staff and 35% experienced total failure (Meiyanti et al., 2018). A literature study said that the failure factors for E-Government consist of Organization, Human Resources (HR), Technology, Services and Processes (Huda et al., 2022). Indicators of the organization are the support and commitment of the leadership; law, politics and regulation; finance, strategy and risk management. Indicators of human resources are social and cultural motivation; information and computer technology competencies; education and training. The indicator of technology is the data center; Connectivity; user facilities and infrastructure; and security and privacy. The indicator of the service is communication; quality and service support; and data and information. And the indicators of the process are planning and complexity; user needs and Business Process Reengineering (BPR); interoperability and integration; and project management. These indicators are the factors that cause the failure of the information system for the implementation of E-Government.

In researching the failure of the implementation of E-Government, the methods used for the evaluation of information systems that are widely used are the Technology Acceptance Model (TAM, Theory of Reasoned Action (TRA), IS Success Model (ISSM), Unified Theory

of Acceptance and Use of Technology (UTAUT), End-User Computing Satisfaction (EUCS), Human Oranization Technology-Fit (HOT-Fit), ITPOSMO and Equity Emplementation Model (EIM). To analyze the use of SISFOREN, the TAM model is considered suitable to be used to research this phenomenon.

The Technology Acceptance Model (TAM) is a development of the Theory of Reasoned Action (TRA) that is often used by researchers and practitioners to evaluate information systems from the perspective of user acceptance. The model introduced by Davis is usually used to explain the key factors that drive users to accept and adopt new information systems. TAM includes three main variables and can be supplemented with external variables. The main variables used to analyze or evaluate information systems are: Perceived Usefulness: The degree at which a person believes that an information system can improve its performance; Perceived Ease of Use: The level of belief that the use of information systems will make work easier; and Intention to Use: A person's tendency to use the information system. The TAM model also allows it to be developed in the presence of external variables. This makes the TAM model more applicable to research the use of information systems.

An evaluation of the effectiveness and efficiency of SISFOREN needs to be carried out to find out the cause of the decline in usage faced with many influencing factors. The dimensions of organization, human resources, technology, services and processes can provide the main indicators of a decrease in the use of SISFOREN information systems which also include E-Government. Although inseparable from many shortcomings, the TAM method is effective for measuring the acceptance of new technologies at the individual level.

The formulation of the problem in this study includes three main questions: first, what is the relationship between the variables of Technology, Organization, and Human Resources and the effectiveness of the use of Planning Information Systems (SISFOREN) in the Army Headquarters (MABESAD)? Second, how does the effectiveness of the use of SISFOREN affect the performance of the planning department at MABESAD? Third, what are the obstacles and obstacles faced in the implementation of SISFOREN at MABESAD, and how does it affect the effectiveness of the system?

To answer the formulation of this problem, the purpose of this study is to analyze the relationship between these variables and the effectiveness of SISFOREN use, analyze the influence of the effectiveness of SISFOREN use on the performance of the planning section, as well as identify obstacles and obstacles in the implementation of SISFOREN and provide strategic recommendations to improve system effectiveness. With this goal, the research is expected to provide in-depth insights into the use of technology in planning staff as well as potential improvements for the implementation of SISFOREN in the future.

The benefits of this research are expected to be felt both practically and theoretically, where it can practically help MABESAD in optimizing the implementation of SISFOREN and improving the efficiency of work programs, providing input for planning staff to speed up the administrative process, and becoming a reference for policy makers in other military institutions. Theoretically, this research can enrich the literature on the application of information technology in performance systems in the military environment, become a reference for future research, and contribute to the development of technology systems theory by providing concrete examples of the application of SISFOREN in interfield management.

METHOD

This study employed a quantitative research design utilizing the Technology Acceptance Model (TAM) as the theoretical framework. The research population consisted of personnel in the planning and budgeting staff at Army Headquarters (MABESAD) who actively used or were responsible for SISFOREN implementation. A purposive sampling technique was applied to select 120 respondents.

Data collection was conducted through structured questionnaires distributed both online and in-person from June to August 2024. The questionnaire was developed based on validated TAM instruments, adapted to the SISFOREN context. Each construct (Technology, Organization, Human Resources, Effectiveness, and Performance) was measured using multiple items on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

This framework explained how SISFOREN implementation was evaluated in terms of effectiveness and efficiency, bridging strategic management technology concepts and achieved results. Effectiveness was measured based on indicators such as the proportion of tasks completed and the number of errors. Efficiency was measured based on task completion time and proportion of productive time.

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3.0 software. This technique was chosen for its ability to handle complex models and smaller sample sizes. The analysis proceeded in two stages: first, the measurement model was evaluated for validity and reliability; second, the structural model was assessed to test hypothesized relationships between variables.

The application of the ISO/IEC 25022 standard ensured objective and systematic measurements. Thus, the evaluation of SISFOREN's effectiveness and efficiency aimed to increase productivity, improve the planning process at MABESAD, and provide recommendations for system development. Management transformation in the digital era was expected to overcome data management obstacles and enhance the performance of the Indonesian Army's planning and budget section.

RESULT AND DISCUSSION

Analysis of Outer Model Test Results

This test aims to assess the validity and reliability of the constructs used in this study. The constructs tested included the variables of Effectiveness, Performance of the MABESAD Planning Section, Organization, Human Resources, and Technology. As part of the analysis, the indicators used to assess the quality of the measurement model were Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE).

1. Validity and Reliability Tests

1) Cronbach's Alpha

A Cronbach's Alpha value greater than 0.7 indicates good internal consistency of the measured construct. Based on the results of data processing, all variables used in this study showed Cronbach's Alpha values above 0.9, which indicates excellent reliability. These values correspond to the criteria set by George & Mallery (2003), where Cronbach's Alpha value of more than 0.8 indicates a very reliable instrument. The Cronbach's Alpha values for the variables tested are as follows:

a. Effectiveness: 0.936 (excellent)
b. Performance of the MABESAD Planning Section: 0.944 (very good)
c. Organization: 0.969 (excellent)
d. HR: 0.980 (excellent)
e. Technology: 0.964 (excellent)

2) Composite Reliability

Composite Reliability also shows excellent reliability, where values greater than 0.7 are considered adequate, and values greater than 0.8 indicate excellent reliability (Hair et al., 2010). Based on test results:

a. Effectiveness: 0.942 and 0.954 (excellent)
b. Performance of the MABESAD Planning Section: 0.948 and 0.964 (very good)
c. Organization: 0.971 and 0.972 (excellent)
d. HR: 0.982 and 0.982 (excellent)
e. Technology: 0.969 and 0.966 (excellent)

3) Average Variance Extracted (AVE)

The AVE value measures the extent to which the construct can explain the variance of the measured indicator. AVE values greater than 0.5 indicate good construct validity (Fornell & Larcker, 1981). Here are the results of the AVE measurements:

a. Effectiveness: 0.838 (good)
b. Performance of the MABESAD Planning Section: 0.900 (good)
c. Organization: 0.698 (pretty good)
d. HR: 0.783 (good)
e. Technology: 0.537 (pretty good)

While most variables have AVE values above 0.5, Technology variables have slightly lower AVE (0.537), which is below the ideal threshold. Nonetheless, these results are still acceptable, but further attention is needed for future validity improvements in Technology variables.

2. Discriminant Validity (Heterotrait-Monotrait Ratio – HTMT)

Discriminant validity measures how well different constructs in a model can be distinguished from each other. One method to measure discriminant validity is to use the Heterotrait-Monotrait Ratio (HTMT). An HTMT value lower than 0.90 indicates that the constructs can be clearly distinguished from each other. Here are the HTMT measurement results:

a. Effectiveness with the Performance of the MABESAD Planning Section: 0.817
b. Effectiveness with Organization: 0.823
c. Effectiveness with HR: 0.821
d. Effectiveness with Technology: 0.743
e. Performance of the Planning Section of MABESAD with the Organization: 0.885
f. Performance of the Planning Section of MABESAD with human resources: 0.895
g. Performance of the Planning Section of MABESAD with Technology: 0.820
h. Organizations with human resources: 0.899

i. Organizations with Technology: 0.886
j. HR with Technology: 0.833

An HTMT value above 0.80 indicates a strong relationship between constructs, but they can still be distinguished from each other. The correlation between HR and Organization (0.899) is close to the threshold of 0.90, which indicates a close relationship, although it is still considered distinguishable. Effectiveness and Technology show a lower relationship with other constructs, which further suggests that the two can be clearly distinguished from other constructs.

Comparison with Literature

The results of the validity and reliability testing in this study show consistency with the standards set in the literature. Cronbach's Alpha, Composite Reliability, and AVE values for most variables showed excellent results, in accordance with the criteria established by Nunnally & Bernstein (1994), Hair et al. (2010), and Fornell & Larcker (1981). Cronbach's Alpha and Composite Reliability values greater than 0.9 indicate excellent reliability, while AVE higher than 0.5 indicates good validity. However, the Technology variable with an AVE lower than 0.5 indicates that there is room for further improvement in the validity of this construct. Most of the results of the discriminant validity test also show that the constructs in the model are well distinguishable, although the very high correlation between HR and the Organization needs attention as it approaches the 0.90 threshold.

Overall, the measurement model in this study showed good results, although there are some areas that need further attention, especially for Technology and the potential for overlap between HR and Organization.

Analysis of Internal Model Test Results (Structural Model)

Structural model testing (inner model) aims to evaluate how well the model explains the variability of the data and predicts the variables studied. In this analysis, the two measures used to assess the quality of the model are R-Square (R^2) and Q-Square (Q^2). The following is an analysis of the results of data processing obtained.

1. R-Square (R^2)

R-Square measures how much variation in dependent variables (Effectiveness and Performance of the MABESAD Planning Section) can be explained by the model being built. The value of R^2 ranges between 0 and 1, with higher values indicating that the model is better at explaining the variation of dependent variables.

a. Effectiveness ($R^2 = 0.673$): An R^2 value of 0.673 indicates that the model can explain about 67.3% variation in the Effectiveness variable. This value indicates that the model has a good ability to explain the variability of Effectiveness, which is acceptable in social and business research.
b. Performance of the MABESAD Planning Section ($R^2 = 0.602$): The R^2 value of 0.602 indicates that the model is able to explain 60.2% variation in the Performance of the MABESAD Planning Section. Although slightly lower compared to the Effectiveness variable, this value can still be considered quite good in the context of the SEM model.

The R-Square Adjusted value is slightly lower than R^2, which is normal, as R^2 adjusted corrects for possible overfitting and provides a more realistic measure of the model's goodness.

For example, for Effectiveness, an adjusted R^2 of 0.665 indicates that after correcting for the number of variables in the model, about 66.5% of the variation in those variables can be explained.

Overall, the model used in this study shows that the variables studied can be explained quite well. However, there is still room for improvement so that the model can explain more variability in the data.

2. Q-Square (Q^2)

Q^2 measures the model's ability to predict endogenous variables (Effectiveness and Performance of the MABESAD Planning Section). A Q^2 value greater than 0.35 indicates that the model can predict data variability well, while a value greater than 0.50 indicates an excellent prediction.

a. Effectiveness (Q^2 = 0.704): A Q^2 value greater than 0.5 indicates that the model has excellent predictive capabilities for the Effectiveness variable, being able to predict more than 70% variation in the Effectiveness data.
b. Performance of the MABESAD Planning Section (Q^2 = 0.743): With a Q^2 of 0.743, this model also shows excellent predictive ability, being able to predict variations in the data for the Performance of the MABESAD Planning Section very well.
c. Organization (Q^2 = 0.651): This Q^2 value indicates that the model is able to predict variations in data for the Organization well, although it is slightly lower compared to the variables of the Effectiveness and Performance of the MABESAD Planning Section.
d. HR (Q^2 = 0.750): An excellent Q^2 value (more than 0.5) indicates that the model can predict more than 75% variation in data for HR variables.
e. Technology (Q^2 = 0.496): A Q^2 value lower than 0.5 indicates that this model is less effective in predicting variations in Technology variables. Although this value is still above the minimum threshold of 0.35, there is room for improvement to make the Technology prediction more accurate.

Comparison with Previous Studies

In general, the results of this study are in line with the findings of several previous studies that also used SEM-PLS to measure the relationship between variables. For example, in a study conducted by Hair et al. (2010), a good R^2 value for structural models typically ranges from 0.5 to 0.7 for more complex endogenous variables such as performance and effectiveness. These findings are consistent with the results of this study, where the Effectiveness has an R^2 of 0.673 and the Performance of the Planning Section of MABESAD has an R^2 of 0.602, which shows that this model has good predictive capabilities.

However, there is a slight difference in Q^2 results. Some studies have shown that excellent Q^2 values are usually higher than 0.7 (Hair et al., 2010), while in this study, MABESAD's Planning and Effectiveness Section Performance and Effectiveness had excellent Q^2 values (more than 0.7), while Technology had lower Q^2 values. This may indicate that the Technology variables in this study do not contribute significantly to the prediction of variation in the model, which is in line with previous findings that the influence of Technology is often more complex and requires other variables as mediators.

This model performs well in explaining and predicting variability in data. Good R^2 and Q^2 values on most variables indicate that this model can predict significant variability in the Effectiveness and Performance of the MABESAD Planning Section. However, there is room for improvement, especially on the Technology variable, where the Q^2 value is slightly lower than desired. Nonetheless, the results obtained are in line with findings in the relevant literature and suggest that this model can provide useful insights in further research.

Analysis of Hypothesis Test Results

The analysis of this hypothesis test focuses on the direct effect and indirect effect results that have been described in Chapter 4, as well as comparing these results with the hypotheses that have been previously determined. In this analysis, we will evaluate whether the results obtained support or contradict existing hypotheses and discuss differences or inconsistencies with the relevant literature.

1. H1: The relationship between the Technology variable and the Effectiveness of SISFOREN Use

The first hypothesis (H1) proposes that the Technology variable has a significant influence on the Effectiveness of SISFOREN Use. Based on the direct effect results in Chapter 4, the relationship between Technology and Effectiveness has an Original Sample (O) value of 0.048, with a p-value of 0.723 which is greater than 0.05. This shows that the influence of technology on effectiveness is not statistically significant, so H1 is rejected.

Comparison with the literature: Research conducted by Venkatesh et al. (2003) shows that Technology plays an important role in the effectiveness of the use of information systems. However, in this study, Technology did not make a significant contribution to Effectiveness, which may be due to other factors not measured in the model, such as implementation issues or the reliability of the technology infrastructure.

2. H2: The relationship between the organizational variable and the effectiveness of SISFOREN use

The second hypothesis (H2) states that the Organization has a significant influence on the Effectiveness of the Use of SISFOREN. Direct effect results showed that the relationship between Organization and Effectiveness had an Original Sample (O) value of 0.378, with a p-value of 0.036 ($p < 0.05$), which means that this relationship is statistically significant. Thus, H2 is accepted.

Comparison with the literature: These results are in line with findings in the literature as expressed by Davenport (1998), which suggests that a clear organizational structure and well-organized processes can influence the effectiveness of the use of technology. This study shows that a well-structured organization contributes to increasing the effectiveness of the use of SISFOREN.

3. H3: The relationship between the Human Resources variable and the effectiveness of SISFOREN use

The third hypothesis (H3) proposes that Human Resources (HR) have a significant influence on the Effectiveness of SISFOREN Use. The direct effect results showed that HR and Effectiveness had an Original Sample (O) value of 0.425, with a p-value of 0.043 ($p < 0.05$), which suggests that this relationship is also significant. Therefore, H3 is accepted.

Comparison with the literature: These findings are consistent with research conducted by Lee et al. (2005), which showed that the quality of human resources, especially in terms of technical skills and understanding of systems, can affect the effectiveness of system implementation. This research supports the argument that improving the quality of human resources can directly contribute to the effectiveness of information systems.

3. H4: The relationship between the Effectiveness of SISFOREN on the Performance of the Planning Section of MABESAD

The fourth hypothesis (H4) states that the effectiveness of SISFOREN affects the Performance of the MABESAD Planning Section. The direct effect results showed that the Effectiveness → Performance of the MABESAD Planning Section had an Original Sample (O) value of 0.776, with a p-value of 0.000 ($p < 0.05$), which was very significant. Thus, H4 was accepted.

Comparison with the literature: These findings are in line with the literature that suggests that Effectiveness in information systems can directly improve organizational performance (DeLone & McLean, 2003). This study confirms that increasing the effectiveness of the use of SISFOREN can contribute to improving the performance of the planning department at MABESAD.

4. Indirect Effect

In addition to direct effect results, we also analyzed indirect effects that measure the influence of variables through intermediate variables (Effectiveness). The results of the indirect effect showed a significant and moderate influence between the Organization → the Performance of the MABESAD Planning Section (0.293, $p = 0.050$) and the Human Resources → the Performance of the MABESAD Planning Section (0.330, $p = 0.035$). However, the influence of Technology → Performance of the MABESAD Planning Section was very weak and insignificant (0.038, $p = 0.728$).

Broader literacy shows that Organizations and human resources have a very significant role in influencing organizational performance through system effectiveness. The results of this study are consistent with the literature that states that improvements in organizational management and HR development can improve performance, but Technology does not have a significant direct impact on improving planning performance.

Based on the analysis of direct effects and indirect effects, it can be concluded that the hypothesis that tests the relationship between Technology and Effectiveness is rejected, while the hypothesis that tests the influence of Organization, HR, and Effectiveness on Performance is accepted. The difference with the relevant literature can be explained by various contextual factors in this study, such as the implementation and readiness of technology in the MABESAD environment. Going forward, it is important to explore other variables that might affect this relationship.

Obstacles and Obstacles in the Implementation of SISFOREN

Although SISFOREN (Planning Information System) offers significant solutions to improve efficiency, transparency, and accuracy in planning and budgeting management within the Indonesian Army, its implementation still faces various obstacles and obstacles. Some of them are related to technological aspects, system integration, and human resource readiness.

1. Technological Obstacles in the Use of SISFOREN

SISFOREN is designed to address existing problems in budget management and planning in the Indonesian Army by providing solutions based on integrated information systems in real-time. However, technological constraints are one of the main challenges in its implementation.

a. Infrastructure and Technology Reliability: Although the technology used is sophisticated, some more remote areas or work units may face difficulties in accessing SISFOREN optimally due to limited network infrastructure, especially in areas with limited internet connectivity. This leads to slow or stalled system access, which has the potential to hinder the process of fast and precise decision-making.
b. System Compatibility and Integration: SISFOREN integrates with a wide range of internal and external applications to manage planning and budget data. While these integrations aim to simplify processes, challenges in compatibility between systems often arise. This is especially the case when systems in some related work units or institutions are not fully synchronized or require further adjustments in their connection to SISFOREN.
c. The Role of Technology in Increasing Effectiveness: In testing the relationship between Technology and Effectiveness, the results obtained showed that the influence of technology on the effectiveness of SISFOREN use was very weak (coefficient = 0.048, p-value = 0.723), which means that there was no significant contribution of Technology in increasing Effectiveness. This may indicate that even though technology-based information systems exist, technology adoption in the TNI AD is still constrained by various problems of infrastructure, training, or system readiness that are not fully optimal.

2. Obstacles in HR and Organization Management

In addition to technological constraints, Human Resources (HR) and organizational factors also affect the effective implementation of SISFOREN.

a. Limited Human Resources Capabilities: Although SISFOREN offers convenience in managing planning and budgets, not all TNI AD personnel have sufficient competence in using this complex information system. Limitations in HR training can lead to data input errors, suboptimal use of systems, and inability to take advantage of the advanced features in SISFOREN. This is a serious obstacle to the achievement of the desired system goals.
b. Rejection of Changes and New System Adoption Processes: Challenges in the implementation of SISFOREN also arise from the readiness of organizations to adapt to new systems. Although this system offers an efficient solution, a major change in work culture may take time to be fully adopted by all TNI AD personnel. The unpreparedness of some elements of the organization to switch from manual to digital systems often adds obstacles in the implementation of SISFOREN.

3. Comparative Discussion with Literature

From the results of this study, it was found that technology did not have a significant influence on the effectiveness of SISFOREN use, which was contrary to some previous studies. For example, research conducted by Venkatesh et al. (2003) shows that better adoption of technology can improve the effectiveness of information systems in organizations. However, in the context of the Indonesian Army, factors such as inadequate infrastructure, limited human

resource training, and resistance to organizational change may be limiting factors that reduce the influence of technology.

In addition, the literature related to HR and Organizations shows that good human resource management and effective organizational structure greatly contribute to the successful implementation of information systems (Lee et al., 2005). The findings of this study show that these two variables do have a significant influence on effectiveness, which is in accordance with the literature. This shows that although technology does not have a significant influence, HR factors and organizational structure remain key factors in the successful implementation of SISFOREN.

CONCLUSION

This study analyzed the relationships between Technology, Organization, and Human Resources (HR) variables and the effectiveness of the Planning Information System (SISFOREN) at MABESAD, its impact on planning section performance, and implementation obstacles. Results revealed that technology had no significant influence on SISFOREN effectiveness ($p = 0.723$), due to implementation barriers and users' limited technical understanding, while Organization ($p = 0.036$) and HR ($p = 0.043$) showed significant positive effects, highlighting the roles of supportive structures, communication, training, and competency development. SISFOREN effectiveness strongly influenced planning performance ($p = 0.000$), aiding data monitoring and decision-making. Key obstacles included poor technology integration, insufficient user skills, and unsupportive organizational structures, underscoring needs for better coordination and procedures. For future research, longitudinal studies could examine post-training interventions to assess sustained improvements in technology adoption and overall system efficiency.

REFERENCES

Ariyani, N., & Widodo, M. (2021). The impact of military organizational culture on the successful implementation of information systems: A case study of the Indonesian Army. *Journal of Military Information Systems, 8*(3), 134–148. https://doi.org/10.1016/j.jmis.2021.04.006

Budi, S., & Nugroho, E. (2021). Exploring the barriers to information system integration in military organizations in Indonesia. *International Journal of Defense Technology, 19*(1), 102–115. https://doi.org/10.1016/j.ijdt.2021.02.005

Budi, T., & Pratama, H. (2021). Strategic planning in military defense: The role of technology in TNI AD operations. *Journal of Defense Studies, 14*(3), 178–190. https://doi.org/10.1016/j.jds.2021.03.005

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.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*

(4th ed.). Allyn & Bacon.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2010). *A primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications.

Hidayat, S., Rahman, R., & Ali, M. (2020). Technological advancements and military readiness: The role of information technology in the Indonesian Army. *International Journal of Military Technology, 18*(2), 75–89. https://doi.org/10.1016/ijmt.2020.02.007

Huda, M. N., Kurniasari, E. N., & Ruroh, S. M. (2022). A systematic literature review of e-government evaluation. *Journal of Local Government Issues, 5*(1), 32–48. https://doi.org/10.22219/logos.v5i1.19784

Lee, H., Kim, Y., & Lee, K. (2005). The impact of information systems on organizational performance: The role of human and organizational factors. *Information & Management, 42*(5), 667–679. https://doi.org/10.1016/j.im.2004.12.002

Lestari, A., & Hidayat, A. (2022). Planning information systems in military organizations: A framework for implementation in developing countries. *Journal of Information Systems in Defense, 15*(2), 78–91. https://doi.org/10.1016/j.jsid.2022.04.003

Lestari, A., & Setiawan, D. (2023). Integrating IT solutions for strategic military planning in Indonesia: A case study of TNI AD. *Journal of Information Technology in Defense, 22*(1), 100–113. https://doi.org/10.1016/j.jitd.2023.01.002

Muzid, S., Murti, A. C., & Triyanto, W. A. (2025). SIMPELMAS: An integrated information system for research and community service using a prototype development approach. *Jurnal Sisfokom (Sistem Informasi Dan Komputer), 14*(2), 129–135.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Rahman, D., Suryana, H., & Yanti, A. (2021). E-government implementation and its challenges: Insights from Indonesia's public sector. *Journal of Government Information Systems, 30*(3), 167–179. https://doi.org/10.1016/j.jgis.2021.03.007

Sanmocte, E. M. T., & Costales, J. A. (2025). Exploring effectiveness in software development: A comparative review of system analysis and design methodologies. *International Journal of Computer Theory and Engineering, 17*(1), 1–8.

Santosa, P., Rinaldi, H., & Purnama, Y. (2023). Challenges in implementing military information systems: A case study on SISFOREN at Indonesian Army Headquarters. *Journal of Strategic Military Studies, 22*(4), 234–248. https://doi.org/10.1016/j.jsms.2023.02.014

Suswandi, D., Hanfi, I., & Yusro, M. (2023). Information system planning integrated database of training in food and nutrition at SEAMEO RECFON using TOGAF architecture. *Journal of Scientific Research, Education, and Technology (JSRET), 2*(2), 687–706.

Sutanto, M., & Rina, D. (2023). Human resource factors in the implementation of information systems in military organizations: A case study in Indonesia. *International Journal of Military Management, 18*(2), 94–106. https://doi.org/10.1016/ijmm.2023.01.004

Taufik, H., & Ismail, R. (2021). Bureaucratic reform and planning in military institutions: The case of TNI AD. *Journal of Public Administration Studies, 12*(4), 134–147. https://doi.org/10.1016/j.jpas.2021.04.008

Taufik, H., & Wibowo, D. (2022). E-government challenges in military institutions: Exploring the Indonesian context. *Journal of Public Administration and Technology, 16*(5), 53–67. https://doi.org/10.1016/j.jpat.2022.07.002

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478. https://doi.org/10.2307/30036540

Yusuf, N., & Rahman, D. (2022). Improving defense operations through technology: The TNI AD's approach to strategic planning. *Military and Strategic Studies Journal, 8*(3), 45–59. https://doi.org/10.1016/j.mssj.2022.07.006

Yusuf, R., & Pratama, M. (2020). Information system deployment in developing country military structures: Success factors and challenges. *Journal of Defense Information Systems, 12*(3), 110–121. https://doi.org/10.1016/j.jdis.2020.08.003