

EVALUATION OF ELECTRONIC OFFICE MEMORANDUM SYSTEMS IN GOVERNMENT INSTITUTIONS USING TRADE METHOD

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ABSTRACT

Abstract - This study aims to evaluate the sustainability of the Electronic Official Document System (SINDE) at a government institution using the TRADE (Techniques for Research and Data Evaluation) method. SINDE was implemented to enhance efficiency and transparency in managing electronic document administration within the government. However, despite its implementation, the system still faces technical and operational challenges that hinder its effectiveness, such as delays in document processing, errors when uploading files, and downtime that impacts work effectiveness. This research uses the TRADE method to assess five key dimensions of system performance: Targets, Resources, Analysis, Design, and Evaluation. Data were collected through interviews, observations, and questionnaires involving various stakeholders. The evaluation results show that the system has achieved good performance in most aspects, with the highest score in the Design aspect (83%) and the lowest score in the Evaluation aspect (79%). Based on these findings, this study provides recommendations to improve performance analysis impact evaluation and strengthen resources and user involvement. The contribution of this research is expected to provide insights and guidance for government institutions in optimizing electronic-based digital administration systems to support more efficient and transparent governance.

Keywords: SINDE, TRADE, Performance Evaluation, Digital Administration

I. INTRODUCTION

The government faces significant challenges in enhancing efficiency and transparency in public administration in the digital era. One solution implemented is the Electronic Official Document System (SINDE), which replaces manual processes with a digital system. SINDE aims to accelerate communication between units, enhance document security, and reduce reliance on physical documents. However, issues persist regarding the system's performance, including discrepancies between actual performance and the set objectives, along with barriers to system integration that affect operational efficiency (Gani et al., 2024).

This research aims to evaluate the effectiveness of the TRADE method in measuring the performance of SINDE and provide improvement recommendations, including optimizing resources and training for new users. Evaluation results are expected to serve as a reference for other government institutions looking to optimize their digital administration systems. The primary motivation behind this research is to assess SINDE's performance in supporting administrative efficiency at the Directorate General of Higher Education. Such an evaluation is crucial for identifying system weaknesses and offering data-driven solutions to enhance overall system performance (Tangi et al., 2021).

Furthermore, this study intends to contribute to the advancement of digital administration systems within government institutions through the application of the TRADE method to evaluate five key dimensions of the system: goal setting, resource utilization, performance analysis, solution design, and impact assessment (Owu et al., 2023). The research questions focus on the effectiveness of the TRADE method, challenges identified in the system's performance, and how the findings can serve as valuable references for improving digital administration systems in other governmental entities (Adereti & Olaogun, 2018).

II. LITERATURE REVIEW

A system can be defined as a set of elements that interact to achieve a common goal. In this study, the Electronic Official Document System (SINDE) is conceived as a cohesive system consisting of various components working together to replace traditional manual processes with a technology-based solution for managing official documents (Dewanti et al., 2023). The primary objective of SINDE is to improve efficiency and transparency in public administration by leveraging information technology to manage documents swiftly and securely (Tamara, 2022). An Information System (IS) comprises interrelated components designed to gather, process, and disseminate information that supports decision-making (Rusydi et al., 2023). SINDE serves as an information system specifically designed to manage official documents and facilitate communication between work units within government institutions (Nurdiana, 2023).

The core components of an IS typically include people, hardware, software, data, and communication networks that collectively enhance the system's functionality. In this context, information refers to data that has been processed and converted into a more useful format for decision-making. In government document management, SINDE digitizes physical documents to enhance searchability, facilitate archiving, and improve overall workflow efficiency, thereby further promoting transparency in administrative processes (Fauzia et al., 2023).

To evaluate the performance of this system, the TRADE (Techniques for Research and Data Evaluation) method is employed. TRADE is a team-based approach designed to assess the effectiveness and efficiency of a system or organization by examining critical dimensions such as target setting, resource utilization, performance analysis, solution design, and impact evaluation. Utilizing this method allows the study to identify issues within the system and provide actionable improvement recommendations based on detailed measurements and data (Aprillia & Magdalena, 2018).

Through this research, we aim to understand SINDE's contribution to enhancing administrative efficiency and to formulate practical strategies for optimization that can also serve as a model for other government institutions aiming to refine their digital administration systems.

III. METHODS

This research employs a descriptive quantitative approach with an evaluative design to evaluate the Electronic Official Document System (SINDE) performance at the Directorate General of Higher Education, Ministry of Education, Science, and Technology. Data were collected through observations, interviews, and the distribution of questionnaires to stakeholders directly involved in using SINDE.

Data Selection and Collection:

- Direct Observation: Observations were conducted in the workplace to analyze SINDE use in administration and identify operational barriers. This observation also aimed to verify data from interviews and questionnaires.
- Interviews: Semi-structured interviews were conducted with key stakeholders to gain insights into technical barriers, user perceptions, and expectations regarding SINDE.
- Questionnaires: Questionnaires were distributed to SINDE users to measure satisfaction, effectiveness, and barriers using a Likert scale from 1 to 5, focusing on the five TRADE dimensions: target setting, resource utilization, performance analysis, solution design, and impact evaluation.

Measurement and Operational Definition of Research Variables:

- The variables analyzed in this study are defined operationally to ensure precise and consistent measurements. The following are the operational definitions of the variables used:

- **Target Setting (Targets):** Measures the extent to which SINDE has achieved its established goals, such as efficiency in document management, processing speed, and document security.
- **Resource Utilization (Resources):** Assesses the adequacy and quality of resources available to support SINDE operations, including human resources (trained personnel), infrastructure (hardware and software), and the available budget.
- **Performance Analysis (Analysis):** Measures how effectively SINDE performs its expected functions, such as the speed of document processing, the accuracy of data produced, and the degree of system integration with related applications.
- **Solution Design (Design):** Assesses SINDE's ease of use and interface, as well as its features that support user needs, such as ease of navigation, interface layout, and accessibility.

Impact Evaluation (Evaluation): This assesses the impact of SINDE implementation on administrative efficiency, user satisfaction, and transparency in document management and administrative processes.

TRADE Method Phases

The TRADE method (Techniques for Research and Data Evaluation) consists of a series of phases utilized to evaluate the performance of a system or organization effectively. This method provides a structured framework that helps assess various dimensions crucial for measuring performance and facilitating improvements. Evaluating a system like the Electronic Official Document System (SINDE) requires identifying specific metrics and outcomes to ensure that it meets its intended objectives of enhancing efficiency and transparency in government processes. Below are the phases in the TRADE method used to assess the performance of SINDE:

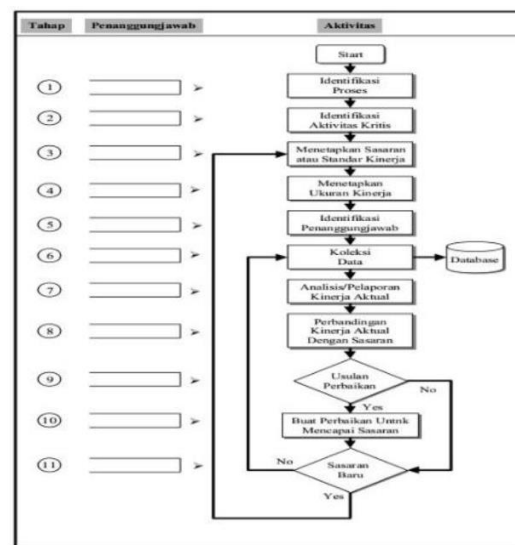


Figure 1. Phases of the TRADE Method

(Source: A Handbook of Techniques and Tools, 1995)

1. Process Identification: Mapping all processes within the SINDE system to understand each process's workflow and objective.
2. Critical Activity Identification: Identifying activities that significantly impact the system's outcomes.
3. Performance Goal Setting: Setting clear, measurable, and realistic goals to evaluate the system's performance.
4. Performance Measurement Criteria: Defining clear performance metrics to assess the achieved outcomes.
5. Responsibility Assignment: determining who is responsible for each process and activity.
6. Data Collection: Gathering relevant data through interviews, observations, and questionnaires.
7. Actual Performance Analysis: Analyzing and comparing the system's performance with the established goals.
8. Comparison of Actual Performance with Goals: Comparing the actual performance with the goals to determine any discrepancies.
9. Improvement Suggestions: Providing recommendations for improvements to address issues and enhance performance.
10. Implementing Improvements: Implementing changes to the system to better align with the set goals.
11. Setting New Goals: Establish new, more realistic goals if improvements do not fully meet the desired objectives.

IV. RESULTS AND DISCUSSION

Usecase Diagram SINDE:

The Use Case Diagram illustrates interactions between actors and the SINDE system for managing electronic official documents. It shows actors like the Document Operator, System Administrator, Unit Administrator, and Signing Officer, each with specific tasks and responsibilities to support digital document administration and management.

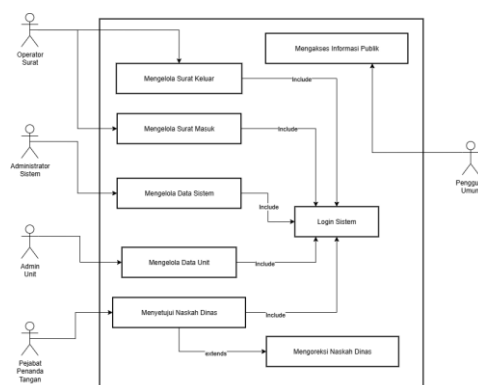


Figure 1. Use Case Diagram

His use of a Case Diagram provides a clear overview of the relationship between actors and processes within the system, helping to understand the workflow within the Electronic Official Document System (SINDE) and the role of each actor in managing and overseeing official documents electronically. The diagram reflects how the system can meet the main objectives of efficiency and transparency in managing official correspondence in government institutions.

At this stage of the research, data were collected to evaluate SINDE's performance through a questionnaire distributed to 67 respondents who are active employees in the Secretariat of the Directorate General of Higher Education, Ministry of Education, Science, and Technology. Respondents were asked to assess various dimensions affecting the system's performance using a Likert scale from 1 to 5 for each statement in the questionnaire.

The data collection process aims to provide a clear picture of SINDE's effectiveness in supporting document administration. Each aspect of the questionnaire is related to the TRADE dimensions (Targets, Resources, Analysis, Design, Evaluation), which evaluate factors such as efficiency, resource utilization, and the impact of system implementation. After data collection, an analysis is performed by calculating the average score for each dimension. The maximum score per aspect is 15 points, which is calculated based on the respondents' ratings to determine the system's performance. More comprehensive figures and tables will present the evaluation results and score calculations.

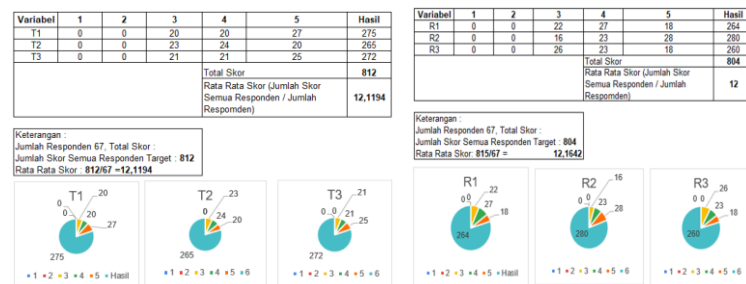


Figure 2. Calculation of Target and Resource Aspects

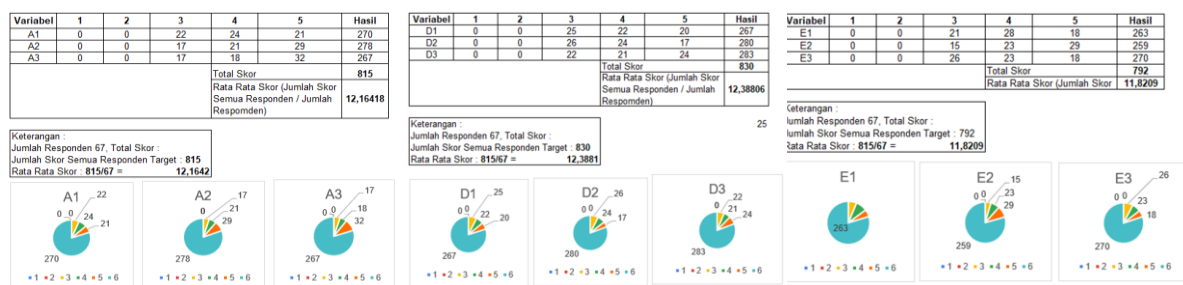


Figure 3. Calculation of Analysis, Design, and Evaluation Aspects

Performance Percentage per Aspect

$$\left(\frac{\text{Total Score per Aspect}}{\text{Number of Respondents} \times 15} \right) \times 100\%$$

Performance Percentage per Aspect =

Number of respondents: 67

Target Aspect:

- Total Score: 810
- **Performance Percentage: $(810/1005) * 100\% = 81\%$**

Resources Aspect:

- Total Score: 804
- **Performance Percentage: $(804/1005) * 100\% = 80\%$**

Analysis Aspect:

- Total Score: 815
- **Performance Percentage: $(815/1005) * 100\% = 81\%$**

Design Aspect:

- Total Score: 830
- **Performance Percentage: $(830/1005) * 100\% = 83\%$**

Evaluation Aspect:

- Total Score: 792
- **Performance Percentage: $(792/1005) * 100\% = 79\%$**

Table 1. Summary of Evaluation Results

Aspect	Total Score	Maximum Score	Percentage	Category
Target	810	1005	81%	Very Good
Resources	804	1005	80%	Good
Analysis	815	1005	81%	Very Good
Design	830	1005	83%	Very Good
Evaluation	792	1005	79%	Good

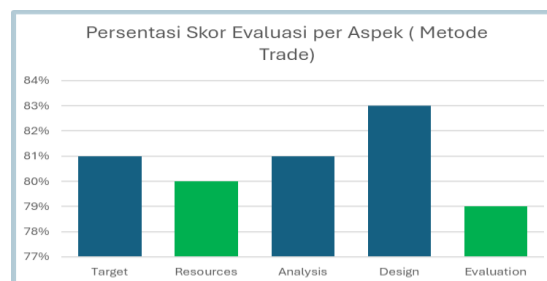


Figure 4. Bar Graph of Score Percentage

1. Target Setting (Targets):

Score: 81% (Very Good). Most respondents felt the system met its primary objectives, especially document efficiency and communication between units. However, system integration needs improvement to avoid delays in document uploads.

2. Resource Utilization (Resources):

Score: 80% (Good). Infrastructure and human resources adequately support the system's operation. However, training for advanced features needs improvement to enhance user competency.

3. Performance Analysis (Analysis):

Score: 81% (Very Good). The system effectively processes documents, but minor technical issues, such as file upload errors and delays, must be addressed to improve system stability.

4. Solution Design (Design):

Score: 83% (Very Good). The system's interface and features are responsive to user needs. However, some new users reported difficulties in initial navigation, which could be addressed through further training.

5. Impact Evaluation (Evaluation):

Score: 79% (Good). The system generally evaluates its impact well, but improvements in monitoring performance and feedback collection are needed for continuous development.

Discussion:

Based on the TRADE method evaluation, the Electronic Official Document System (SINDE) performs well across most dimensions. It achieved an 81% score in the Target Setting dimension, indicating its effectiveness in accelerating administrative processes and improving coordination. However, the Resource Utilization dimension, scoring 80%, still requires attention. While human resources and infrastructure are sufficient, user training needs improvement to ensure optimal system use.

The system's performance analysis also scored 81%, but technical issues such as uploading delays and file errors need resolution to enhance stability. The design scored 83%, reflecting a user-friendly interface, but new users reported navigation difficulties, suggesting the need for better onboarding and comprehensive training.

In the Evaluation dimension, SINDE scored 79%, indicating the need for more systematic evaluations. Implementing direct feedback and real-time performance monitoring will improve the evaluation process. Overall, SINDE demonstrates satisfactory performance, but further improvements in resource utilization and impact evaluation are essential for its continued development..

V. CONCLUSION

This study evaluates the performance of the Electronic Official Document System (SINDE) implemented at the Directorate General of Higher Education, Ministry of Education, Science, and Technology. The analysis shows that SINDE has improved document and administrative management efficiency, with 81% of respondents acknowledging faster document processing and enhanced coordination between work units. The system design also received high marks, with a score of 83%, indicating ease of use and accessibility for users. However, some technical issues, such as delays in file uploading and data errors, were still found, requiring further improvements. New users also reported difficulties in initial usage, suggesting the need for better training.

Overall, SINDE has achieved its goals of improving administrative efficiency, reducing dependence on physical documents, and speeding up administrative processes. This research significantly contributes to developing digital administration systems in the government sector. However, this study is limited to one institution, and the results may not be generalized. Future research should include more institutions and assess system security and accessibility aspects.

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APPENDICES

