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EFFECTIVENESS ANALYSIS OF NADINE IMPLEMENTATION AT INDONESIA'S MOF: A COMBINED APPROACH USING IMPORTANCE-PERFORMANCE ANALYSIS AND CAUSAL RELATIONSHIP ANALYSIS

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ABSTRACT
Research Originality — This study provides a unique empirical examination of technology acceptance within Indonesia's public administration system. Unlike previous research, which often focuses on developed countries, this study addresses a gap by analyzing challenges and strategies specific to a developing nation. It contributes to the innovation diffusion theory and the unified theory of acceptance and use of technology (UTAUT) by offering real-world data on the adoption of a digital system within a government institution.
Research Objectives — To evaluate the effectiveness of the NADINE (Digital Official Script System) application implemented by Indonesia's Ministry of Finance (MOF). Specifically, it investigates user satisfaction, identifies areas for improvement, and explores the relationship between policy success and the Application's performance.
Research Methods — A quantitative survey approach is employed, collecting data from over 2,500 MOF employees. Importance-performance analysis is used to assess user satisfaction and prioritize key areas for improvement. Correlation and regression analyses examine the relationship between policy success and the Application's effectiveness. Additionally, a word cloud analysis is conducted to extract insights from user feedback.
Empirical Results — Findings indicate high user satisfaction with both the Policy and the NADINE application. Despite the positive reception, areas such as user interface and navigation require improvement. A strong positive correlation is observed, demonstrating a close link between policy effectiveness and application performance. Regression analysis further confirms this influence, suggesting that improvements in the Application can enhance policy outcomes.
Implications — The study highlights the importance of relative advantage, compatibility, and ease of use in user acceptance of digital government systems. Key recommendations include enhancing user training and optimizing the user interface to improve the overall user experience. These findings provide valuable insights for policymakers and system developers in designing and implementing digital solutions in public administration, particularly in developing country contexts.

Keywords: digital transformation, public administration, user satisfaction, innovation diffusion theory, UTAUT model, NADINE
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INTRODUCTION

Digital transformation has become a central focus for governments worldwide, including Indonesia. It promises significant improvements in government administration, particularly in efficiency, transparency, and accountability (Ciancarini et al., 2024). Successful implementations in countries like Estonia and South Korea demonstrate this potential, increasing public satisfaction with government services (Khliborob et al., 2023; Nielsen & Jordanoski, 2020; Shashyna et al., 2023). For instance, Estonia's X-Road system facilitates secure data exchange between agencies, streamlining administrative processes and expediting public services (Dobrolyubova et al., 2019; Kattel & Mergel, 2019).

APPLICATIONS FOR PRACTICE

- NADINE policies and system applications received an average satisfaction score of 4.70 for policies and 4.67 for applications.
- A strong positive correlation (0.859) exists between policy effectiveness and application performance.
- Key areas needing improvement include user interface and navigation.
- Conduct more workshops to improve understanding and engagement with NADINE.
- Develop educational resources and maintain continuous user feedback channels to address concerns and improve the system.

However, this shift towards a digital government presents unique challenges, especially in developing countries like Indonesia. Obstacles in the readiness of the infrastructure and digital literacy can hinder the acceptance and effectiveness of digital systems (Sabani et al., 2019). With only around 65% of Indonesian civil servants able to operate digital applications, the country lags behind those that have successfully implemented digitalization (Almatrodi & Skoumpopoulou, 2023; Cahyarini & Samsara, 2021; Gayatri et al., 2023).

One initiative by the Indonesian government to address this need is developing and implementing the NADINE application at the Ministry of Finance (MOF). NADINE aims to replace manual document processes with a faster, more efficient, and more secure system (Srimathi & Krishnamoorthy, 2019). It seeks to reduce paper dependence, expedite administrative processes, and enhance data security and integrity. However, a comprehensive evaluation of its effectiveness is crucial given Indonesia's unique context due to its diverse infrastructure and digital literacy capabilities (Daniel & Ndumbaro, 2022; Edwards, 2021; Gray et al., 2018; Hokka, 2022; Urquizo et al., 2020).

The implementation of the NADINE application by the Indonesian MOF presents an opportunity to analyze the effectiveness of digitalization policies in a complex government environment (Gauthier-Beaupré et al., 2023; Hafseld et al., 2021; Wandaogo, 2022). While the adoption of technology by public administration shows positive results globally, local circumstances like the infrastructure and digital literacy in Indonesia create distinct dynamics (Darawsha, 2023; Villumsen et al., 2019). This study aims to contribute new insights into the public sector by examining these dynamics (Alidousti & Sahli, 2024; Escobar et al., 2023).

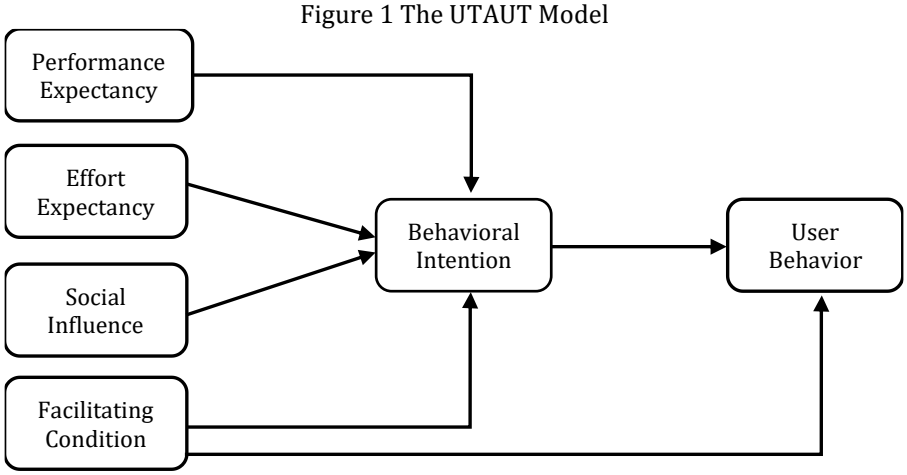
The existing literature often prioritizes the context of developed countries, neglecting the challenges faced by developing nations in implementing and adapting digital technologies within their public administration systems (Atique et al., 2024; Enaifoghe & Ndebele, 2023; Namagembe et al., 2023; Zeebaree & Aqel, 2021). This study seeks to address this gap by empirically exploring the effectiveness of NADINE using a combined theoretical framework incorporating the UTAUT model and the innovation diffusion theory (Dwivedi et al., 2024; Enaifoghe & Ndebele, 2023; Recskó & Aranyossy, 2024; Villumsen et al., 2019).

While numerous studies have examined digitalization in the public sector, most focus on developed countries with superior infrastructure and higher digital literacy levels (Addo & Senyo, 2020; Senyo et al., 2021). Few address the specific challenges and strategies relevant to developing countries like Indonesia (Conde & Wasiq, 2021; Kagoya, 2020). Additionally, the existing literature tends to overlook the specific impact of digitalization policies at the micro-organizational level, such as ministries or government agencies (Di Giulio & Vecchi, 2023; Puentes-Poloche et al., 2023; Jedynak et al., 2021; Kuhlmann & Heuberger, 2023; Udovenko, 2022).

This research addresses the urgent need to understand how digital technologies can be effectively integrated into the public administrations of developing countries (Lemieux, 2016). Given the importance of efficiency, transparency, and accountability in government administration, finding effective ways to overcome these obstacles is crucial (Nalbandyan et al., 2024; Sun et al., 2024). This study also aims to provide practical recommendations for policymakers in designing and implementing more effective digital transformation strategies in such contexts.

The use of the innovation diffusion theory (IDT) is particularly relevant as it provides a comprehensive framework for understanding the factors influencing the adoption of technology, such as relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003; Hameed & Counsell, 2014). These factors align with the unique challenges faced by the Indonesian Ministry of Finance (MOF) in adopting the NADINE application, where infrastructure and varying digital literacy levels significantly impact its adoption. Meanwhile, the UTAUT model (see Figure 1) extends this understanding by incorporating elements such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003; Wang et al., 2023), which are essential for understanding employee behaviour and acceptance in a bureaucratic environment. By integrating these frameworks, the study offers a more nuanced approach that captures both individual and organizational factors influencing the adoption of technology, providing richer insights into the specific context of Indonesia's digital transformation (David et al., 2023; Enaifoghe & Ndebele, 2023).

Figure 1 The UTAUT Model



Source: Venkatesh et al. (2003)

LITERATURE REVIEW

Innovation Diffusion Theory

The innovation diffusion theory describes the process by which an innovation is introduced, disseminated, and adopted within a society (Rogers, 2003). This theory highlights five key characteristics influencing innovation adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage refers to the degree to which an innovation is perceived as better than a pre-existing idea or product (Hameed & Counsell, 2014). For instance, the NADINE application's relative advantage can be assessed by comparing its efficiency to the previous manual method of managing official documents.

Compatibility indicates the extent to which the innovation aligns with potential users' values, experience, and needs. In the context of the NADINE application, compatibility is determined by how well it fits the daily administrative needs of employees within the MOF. Complexity refers to the perceived difficulty of understanding and using the innovation (Robertson & Samy, 2020). The complexity of the NADINE application will influence how quickly and easily employees can adopt and utilize it.

Table 1 Measurement Instruments based on the Theory of Diffusion of Innovation

Variable	Definition	Measurement	Reference
Relative Advantages	The rate at which innovation is perceived as better compared to a pre-existing idea or product.	Q1: "Do you feel that the NADINE application is more efficient compared to the manual management of official documents?"	(Rogers, 2003)
Compatibility	The degree to which innovation matches the values, experience, and needs of potential users.	Q2: "Does the NADINE application fit your official script management needs?"	(Rogers, 2003)
Complexity	The rate at which innovation is considered difficult to understand and use.	Q3: "Do you find the NADINE application complicated to use?"	(Rogers, 2003)
Trialability	The rate at which innovations can be tested before they are fully adopted.	Q4: "Did you have a chance to try the NADINE application before using it officially?"	(Rogers, 2003)
Observability	The degree to which others can see the results of innovation.	Q5: "Are the benefits of using the NADINE application obvious to you and your colleagues?"	(Rogers, 2003)

Source: Data Processed by Author

Trialability represents the opportunity for potential users to test the innovation before fully adopting it. Providing employees with a chance to try the NADINE application before its official implementation can enhance its adoption rate. Observability refers to the extent to which the results of innovation can be seen by others (Tan, 2021). Employees who witness the tangible benefits of using the NADINE application are more likely to embrace the innovation.

This study additionally incorporates the unified theory of acceptance and use of technology (UTAUT) model alongside the innovation diffusion theory. The UTAUT model explores the factors influencing the intention to adopt and use the technology (David et al., 2023), including performance expectancy, effort

expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). By combining these frameworks, this research aims to comprehensively understand the factors influencing user acceptance of the NADINE application within the Indonesian MOF.

The innovation diffusion theory provides a valuable framework for understanding the factors that influence the adoption of new technologies, such as the NADINE application within the Indonesian MOF (See Table 1). By considering the five key characteristics of innovation diffusion and incorporating the UTAUT model, this study aims to gain a comprehensive understanding of the factors that influence user acceptance and provide practical recommendations for policymakers.

The Unified Theory of Acceptance and Use of Technology (UTAUT)

The successful implementation of any technological innovation within an organization hinges on its adoption and utilization by employees (Hammerschmid et al., 2024). Venkatesh et al.'s (2003) UTAUT model provides a comprehensive framework for understanding the factors influencing this process. This model is particularly relevant in the context of the NADINE application, a digital document management system implemented by the MOF in Indonesia.

UTAUT posits four key constructs (in detail Table 2 and Table 3) that shape employees' adoption of technology: performance expectancy, effort expectancy, social influence, and facilitating conditions (Wang et al., 2023; Rosmayanti et al., 2022). Performance expectancy refers to the belief that using technology will improve an individual's job performance (Alblooshi & Abdul Hamid, 2022). In the case of NADINE, employees are likely to have high-performance expectations due to the potential for increased efficiency in managing official documents.

NADINE is particularly significant, as manual processes can lead to delays and inefficiency, hindering the overall performance. Effort expectancy, on the other hand, focuses on the perceived ease of use of the technology (Di Giulio & Vecchi, 2023). A user-friendly design, readily available training resources, and comprehensive support mechanisms are crucial for fostering positive effort expectancy. Employees who perceive NADINE to be easy to learn and navigate are more likely to embrace and integrate it into their workflow.

The third construct emphasizes the impact of social dynamics on technology's adoption. This construct includes the influence of peers and superiors who are already using and advocating for the technology (Recskó & Aranyossy, 2024). Witnessing colleagues or managers successfully utilize NADINE and benefit from its advantages can create a positive social influence, encouraging wider adoption within the MOF. Finally, the facilitating conditions encompass the organizational and technical infrastructure that supports the use of the technology (Darawsha, 2023). Adequate computer access, reliable internet connectivity, and dedicated IT support are essential for employees to utilize NADINE effectively. Without these facilitating conditions, even the most motivated employees may face challenges in adopting and maximizing the benefits of the technology.

Importance Performance Analysis (IPA)

The IPA model is a valuable tool for evaluating user satisfaction with a product or service (Wu et al., 2023). It helps identify areas that users consider important and assess how well the organization meets those expectations. The IPA model utilizes a four-quadrant grid based on importance and performance ratings (Lee & Liu, 2023; Oey et al., 2023; Saleem et al., 2023). Each quadrant within the IPA framework offers valuable insights in the context of implementing the NADINE application within the MOF. The first quadrant is High Importance-Low Performance. This quadrant highlights areas that are critical to users but currently fall short of expectations. These areas require immediate attention and improvement (Agyekum et al., 2023; Gai et al., 2023). The second quadrant is High Importance-High Performance. This quadrant indicates areas where the Application is successfully meeting or exceeding user expectations (Agyekum et al., 2023; Costaner et al., 2024; Heidari et al., 2023). The third quadrant is Low Importance-High Performance. This quadrant represents areas where the Application performs well but may not be a high priority for users. Resources allocated here could potentially be redirected to address more critical areas (Oey et al., 2023; Wu et al., 2023). The fourth quadrant is Low Importance-Low Performance: This quadrant represents areas that are neither critical nor performing well. These areas might be considered for potential elimination or streamlining (Oey et al., 2023; Wu et al., 2023).

The IPA model can be applied to assess various aspects of the NADINE application, including policy objectives, problem analysis, standardization, usability, and user benefits (Indrabudiman et al., 2019; Park & Samijadi, 2021; Hooda et al., 2022). By analyzing user responses through surveys, the IPA model provides actionable insights to optimize the NADINE application and the users' experience within the MOF. In addition to user satisfaction, evaluating the system quality of the NADINE application is crucial. This evaluation focuses on assessing the areas of use and the benefits the Application offers to the MOF. Surveys are employed to gather user feedback on specific aspects, including (i) app usage to evaluate how well the

Table 2 Measurement Instruments based on the UTAUT Model

Variable	Definition	Measurement
Performance Expectations	The belief is that using technology will improve individual performance.	Q1: "Do you believe that the NADINE application can speed up the process of managing official manuscripts?"
Effort Expectations	The belief is that using technology will be easy.	Q2: "Do you find the NADINE application easy to learn and use?"
Social Influence	An individual's perception that people important to them believe they should use a particular technology.	Q3: "Is your boss encouraging you to use the NADINE application?"
Conditions of Facilitation	The belief that organizational and technical infrastructure supports the use of technology.	Q4: "Do you feel you have adequate access to technical support to use the NADINE application?"

Source: Data Processed by Author

Table 3 Survey Instrument of Policy Aspect

Dimension	Item	Statement
Policy Objectives Dimensions	B11	Achieving a common understanding, language, and interpretation of the implementation of the Electronic Service Manuscript System (ESMS).
	B12	Achieve smooth and effective written communication between organizational units.
	B13	Monitoring the processing of official papers becomes easier.
	B14	The implementation of ESMS becomes more effective and efficient.
Problem Analysis Dimension	B21	Electronic Service Manuscript System policies are synchronized with the application.
Standardisation Dimension	B31	The setting of the Electronic Service Manuscript System guidelines realizes the standardization of writing, the use of space or official manuscript sheets, and information specifications.
	B32	The Electronic Service Manuscript System guidelines provide information on the procedures and form of standard official manuscripts.
Dimension of Change	B41	The setting of the Electronic Service Manuscript System guidelines helps to realize the implementation of administrative matters in a single system.
	B42	The setting of the Electronic Service Manuscript System guidelines helps to implement fast, timely, and on-target government administration in editorial, procedural, and distribution matters.
	B43	The setting of Electronic Service Manuscript System guidelines helps to realise security in the preparation, delivery, and storage of the rightsholder, as well as filing, archiving, and distribution.

Source: Data Processed by Author

NADINE application caters to the general needs of employees related to official documents (e.g., accessibility and ease of processing manuscripts); (ii) app menus and displays, to assess the user interface of the Application, focusing on factors like clarity, ease of navigation, and information presentation; (iii) benefits of the NADINE application for users and organizations, to examine the perceived benefits of NADINE for both employees and the MOF as a whole. Areas like efficiency gains, promoting paperless workflows, and user integration with the Application are potential evaluation points.

By analyzing the users' responses to these specific areas, the MOF can gain valuable insights into the strengths and weaknesses of the NADINE application's system quality. This information can then be used to identify the areas for improvement and ultimately enhance the overall user experience.

METHODS

Population and Sample.

This study employed a quantitative research approach to gather user feedback and assess the effectiveness of the NADINE application within the MOF using the research instrument shown in Table 4. This study's population included all Indonesian MOF employees, encompassing various work units and career paths. A purposive sampling method was chosen over other methods to ensure that the sample included only those employees with direct experience of the NADINE application, thereby providing the most relevant and accurate insights into its usage and effectiveness. Unlike random sampling, which could have included respondents with no experience or familiarity with the system, purposive sampling allowed the researchers to target the most likely participants with informed opinions and feedback on the Application's functionality and its alignment with organizational processes. This approach was deemed necessary to critically evaluate the Application's effectiveness from the perspective of actual users, ensuring a higher quality of data and more robust findings (Park & Samijadi, 2021). The sample size for this study

was 2,551 employees, which was considered to be representative and able to provide an accurate picture of the users' perceptions of the NADINE application based on policies and applications.

Table 4 Survey Instruments of Application System

Evaluation Area	Item	Statement
Use of NADINE Application	B51	The NADINE application facilitates the general needs of official scripts required by employees.
	B52	The NADINE application can be accessed anytime and anywhere.
	B53	The NADINE application accelerates the process of preparing and distributing official manuscripts.
	B54	The processing of correspondence service manuscripts through the NADINE application no longer requires by verbal.
	B55	The NADINE application is always developed according to any service developments and input from users.
	B56	The NADINE application is easy to operate and learn.
NADINE Application Menu and Display	B61	The layout of the modules on the home display, menu options, and settings available in the e-Ministry of Finance application are determined by user needs and proportionality.
	B62	The NADINE application has easy and structured navigation.
	B63	The output of the NADINE application is displayed in a format that suits the user's needs.
Benefits of the NADINE Application for Users and Organizations	B71	The NADINE application is often used for every correspondence activity.
	B72	The NADINE application is integrated with various applications required by the employees.
	B73	The NADINE application supports a paperless culture within the Ministry of Finance.
	B74	Idea submission on the NADINE application is done quickly.
	B75	Practical training in the use of the NADINE application is easy to understand and apply.

Source: Data Processed by Author

Analysis Techniques

This study utilized a quantitative approach with a survey design. Data collection occurred through online surveys using structured questionnaires designed specifically for this study. Several measures were implemented during the data collection process to ensure objectivity and minimize bias in the results**.** The surveys were designed with the questions randomly ordered to reduce any potential order bias, and anonymity was guaranteed to all the respondents to encourage honest and uninfluenced responses. The survey was distributed through multiple channels to reach a wide range of participants across various work units, ensuring a representative sample. These strategies were employed to ensure the reliability and validity of the data collected, thereby maintaining the integrity of the research findings. The research employed a combination of analytical techniques, including importance-performance analysis (IPA), correlation analysis, and regression analysis, to gain comprehensive insights into the users' perceptions and experiences with the NADINE application (Pandey et al., 2023; Xu et al., 2023).

RESULTS AND DISCUSSION

The survey garnered responses from 2,551 employees across various MOF work units, demonstrating a diverse range of participants, as detailed in Table 5. The Directorate General of State Assets (36%) and the Secretariat General (21%) had the highest representation. In terms of their age distribution, the majority of the respondents were over 45 years old (29%), followed by those in the 31-35 and 26-30 age groups (both 17%). The gender breakdown indicated a higher participation rate from males (66%) than females (34%).

User Satisfaction Index

Table 6 presents the results of a user satisfaction index test, which was conducted across the various regions of Indonesia. The analysis considers both the users' satisfaction with the NADINE application's policies and the Application itself. The average user satisfaction score for the policies (4.70) and the Application (4.67) are very close, indicating a consistent level of satisfaction across both aspects. These scores are calculated based on a 5-point scale reflecting the user's perception of the app's service quality. Scores exceeding 4.50 signify a high level of user satisfaction. It suggests that users not only find the service satisfactory but also experience consistently high standards in user satisfaction, placing both policy and Application satisfaction within the "Excellent" category.

Importance of Performance Analysis of Policy Aspects

Understanding user perceptions is crucial for effective policy implementation (Wong et al., 2011). Fortunately, the importance of performance analysis (IPA) sheds light on users' experiences of the NADINE

Table 5 Respondents' Demographics

Category	Sub-Categories	Number of Respondents	Percentage
Work Unit	Directorate General of State Assets	918	36%
	Secretariat General	536	21%
	Directorate General of Customs	230	9%
	Directorate General of Treasury	230	9%
	Directorate General of Taxes	178	7%
	Directorate General of Budget	178	7%
	Directorate General of Budget Financing and Risk Management	102	4%
	Fiscal Policy Agency	77	3%
	Financial Education and Training Agency	77	3%
	National Single Window	26	1%
	Directorate General of Fiscal Balance	26	1%
	Inspectorate General	26	1%
Age	21-25 years old	259	10%
	26-30 years old	423	17%
	31-35 years old	427	17%
	36-40 years old	407	16%
	41-45 years old	291	11%
	Above 45 years old	744	29%
Gender	Male	1,682	66%
	Female	869	34%

Source: Data Processed by Author

Table 6 User Satisfaction Index Test Results

No	Region	Policy	Application	Result
1	Sumatra	4.75	4.74	Excellent
2	Java	4.71	4.67	Excellent
3	Kalimantan	4.72	4.67	Excellent
4	Sulawesi	4.72	4.69	Excellent
5	Papua	4.74	4.74	Excellent
6	Bali and Nusa Tenggara	4.72	4.65	Excellent
7	Jakarta	4.58	4.50	Good
	Mean Score	**4.70**	**4.67**	**Excellent**

Source: Data Processed by Author

application's policies. Figure 2 reveals a valuable map, pinpointing various policy aspects based on their importance to users and the level of users' satisfaction.

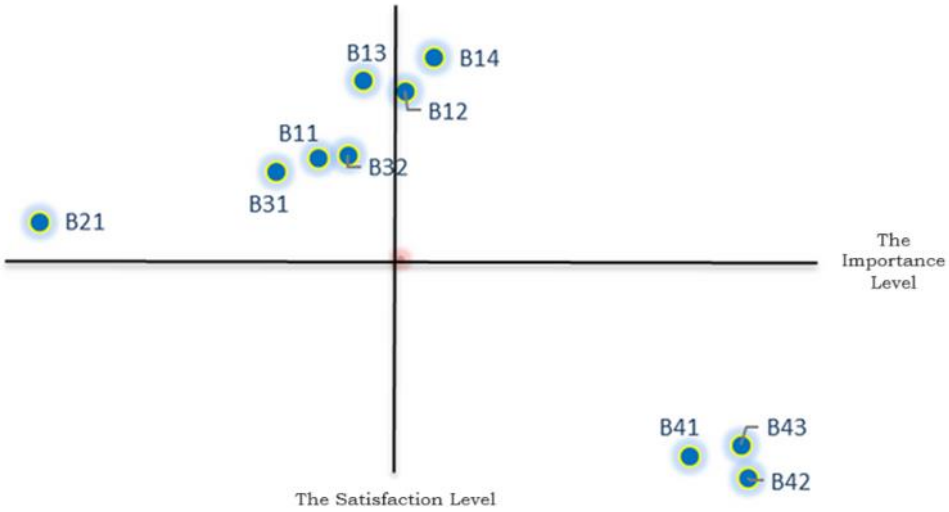
The analysis unveils both the areas for improvement and the existing strengths in the NADINE application's policies. Let us explore these areas to optimize the users' experience. First, addressing communication gaps: User feedback highlights a need for clearer communication. Attributes like "Achieving a common understanding of ESMS implementation" (B11) and standardized writing procedures (B31, B32) suggest users might not fully grasp the Policy's purpose or application. By implementing clearer communication strategies and ensuring consistent official documents, we can bridge these gaps and enhance the users' understanding.

Second, streamlining policy implementation: The analysis also identifies areas for improvement in policy processing and monitoring (B13, B21). These findings urge us to refine these processes to streamline policy implementation and user experience. By addressing these challenges, we can ensure a smoother and more efficient policy rollout.

Third, building on strengths: Fortunately, the analysis also reveals the existing strengths in the NADINE application's policies. Attributes highlighting "Smooth written communication" (B12) indicate success in communicating the Policy. These clear and effective communication channels are valuable assets we must maintain. Furthermore, attributes emphasizing "Effective and efficient ESMS implementation" (B14) demonstrate user satisfaction with the overall policy rollout and its effectiveness. These successes showcase our organization's strong capabilities in policy execution.

Fourth, strategic resource allocation: The analysis also allows us to optimize the allocation of resources. Some areas, like managing change dimensions (B41, B42, B43), are well-managed but considered less important by the users. With this knowledge, we can strategically adjust the resource allocation. It might involve re-evaluating investments in these areas and potentially shifting resources toward areas with more significant user impact, such as improving clarity and policy processing. By prioritizing the users'

Figure 2 IPA for Policy Aspects



Source: Data Processed by Author

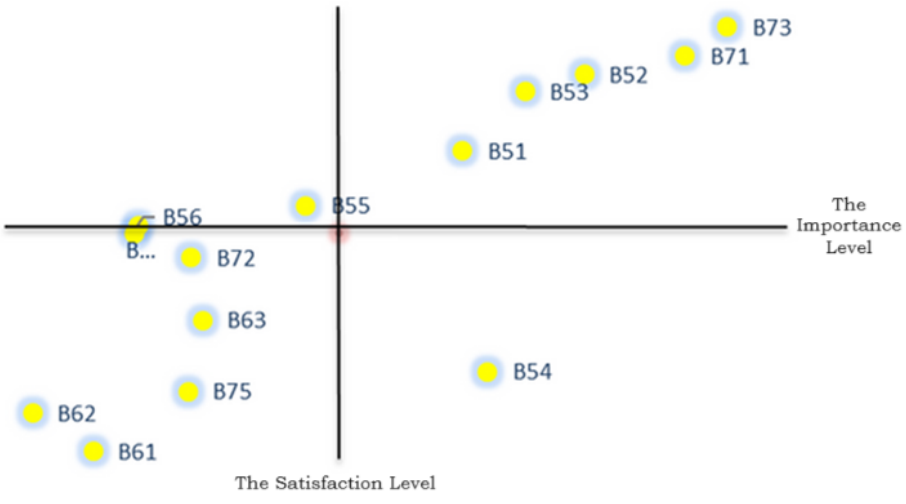
needs through feedback analysis and strategically allocating resources, we can ensure the NADINE application's policies continue to evolve and create a more positive user experience.

Importance of Performance Analysis of Application Aspects

An in-depth analysis in the context of the NADINE application results in a mapping of the Application's attributes based on two dimensions: user satisfaction and importance. This visualization in Figure 3 helps identify areas that need more attention and which ones have met or exceeded the users' expectations. The importance of performance analysis of the Application's aspects shows important findings related to user satisfaction and priorities for the Application's features. The attributes B55 and B56, which are close to the y-axis (importance) but further to the left of the x-axis (satisfaction), indicate that although the users consider the service development features and ease of Application to be very important, the app's performance in these areas has not been satisfactory. This indicates a significant gap between the users' expectations and reality, which requires immediate improvements in usability and service functionality.

On the other hand, attributes such as B51, B52, B53, B71, and B73 in the top right quadrant indicate that the users are very satisfied with the facilities, accessibility, processing speed, and support for paperless operations. These findings show that the app is already doing an excellent job in these aspects and should continue to maintain the standards that have been set. However, attributes such as B61, B62, B63, B72, and B75, located in the bottom left quadrant, indicate that features such as the interface, navigation, and the

Figure 3 IPA for Application Aspects



Source: Data Processed by Author

integration of the app with other applications are less important to users and currently have poor performance.

For attributes in the upper-left quadrant, such as B54, which indicate that the Application performs well on aspects that are considered less important (official script processing), it is worth considering a more effective resource allocation, perhaps by reducing the focus on those areas and focusing on areas that need improvement. Overall, the IPA graph provides a strong foundation for identifying further development priorities in the NADINE application, emphasizing improvements to features that are critical but not yet satisfying the users, as well as maintaining or optimizing its performance in areas that are already performing well.

Correlation Between Aspects of Policy and Application

The analysis reveals a very strong and positive relationship between Policy and Application, with a Pearson correlation value of 0.859. This value falls within the "very strong" category according to the correlation value interpretation scale (0.80-1.00). This result suggests that policy changes tend to be followed by significant and consistent changes in the Application.

Table 7 Results of Correlation Analysis

Description	Correlation value	Coefficient value	T-Value	P-Value	R-square	Interpretation
Correlation of Policy and Application	0.859	1.1742	84.72	<0.000	73.79%	The relationship is very strong and positive. Policies significantly affect the application, with user-high prediction.

Source: Data Processed by Author

The high correlation coefficient (1.1742), T-value (84.72), and R-squared value (73.79%) further support the strength and statistical significance of this relationship (p-value < 0.000). In simpler terms, Table 7 shows that Policy is an excellent predictor for Application. This study implies that improvements in Policy directly have a significant impact on improvements in the Application. This finding is valuable for strategic and operational decision-making, highlighting the importance of policy considerations when developing or modifying the NADINE application.

Regression Analysis

The regression analysis confirms a significant positive relationship between policy effectiveness and the effectiveness of the NADINE application. The regression equation is **Application = 1.1742 × Policy + ε**. The results show that the regression coefficient for the Policy variable is 1.1742. This result indicates that for every one-unit increase in policy effectiveness, the Application's effectiveness increases by 1.1742 units, assuming all other factors remain constant. The high T-value (84.72) and a very small p-value (practically zero) further solidify the statistical significance of this relationship.

The R-squared value of 73.79% signifies that the policy variable can explain approximately 74% of the variation in the Application's effectiveness. This finding reinforces the crucial role of policies in determining how applications function and are implemented. These results align with the existing literature on technology's adoption by public organizations. For instance, Babcock (2005) found within the UTAUT framework that organizational policies and support significantly influence technology's adoption and use. Clear and supportive policies can boost performance expectations and user effort, ultimately leading to greater technology acceptance and utilization (Yuen et al., 2021).

Similarly, Rogers et al. (2009) proposed the innovation diffusion theory, which highlights attributes like relative advantage, compatibility, and observability as key factors influencing the adoption of technology. Effective policies can clarify these attributes for new technologies, making them appear more advantageous and compatible with existing workflows and demonstrating the positive outcomes from their use. This study suggests that effective policies not only accelerated the NADINE application's adoption but also improved operational effectiveness, which aligns with the theory's predictions.

Furthermore, this research resonates with previous studies by Dobrolyubova et al. (2019) and Wandaogo (2022), who all emphasized the critical role of Policy and institutional support in e-government implementation. They argue that the successful implementation of technology in the public sector hinges on a supportive policy framework that addresses the structural barriers and enhances the users' technical capabilities (Park & Samijadi, 2021).

Word Cloud Analysis

An analysis of the word cloud generated from the NADINE application users' feedback (Figure 4) offers valuable insights into their priorities and areas for improvement. Words like "socialization," "workshop," "user-friendly," "practical," and "better" highlight key user expectations and needs.

Figure 4 Word Cloud Analysis

Source: Data Processed by Author

The prominence of "socialization" and "workshop" suggests a need for enhanced user understanding of the NADINE application. Socialization and workshops can provide a platform for users to express their needs and receive constructive feedback from developers directly. It fosters user trust in the Application and helps developers identify shortcomings from a user's perspective. The emphasis on "user-friendly" and "practical" underlines users' expectations for an intuitive and accessible app. This result is particularly relevant considering the average user's age exceeds 45. A simple and easy-to-navigate interface design is crucial for user adoption across all demographics.

The word "better" reflects a general desire for continuous improvement. Users seek improved features that streamline administrative processes. One practical suggestion is to add readily available video tutorials to facilitate faster app mastery. These findings align with technology adoption and digitalization policy theories. Rogers' innovation diffusion theory suggests that factors like trialability and observability influence technology adoption. User feedback emphasizing socialization and workshops aligns with this theory, as these activities allow the users to experience and observe the app's benefits, ultimately increasing its adoption.

The UTAUT model by Venkatesh et al. (2003) is also relevant. Performance and effort expectations, social influence, and facilitating conditions are the key factors influencing technology's adoption within this model. Feedback requesting a "user-friendly" and "practical" application highlights the importance of meeting users' expectations with an intuitive and easy-to-use interface. Socialization and workshops can further amplify social influence by enabling users to share their experiences and support each other while using the app.

CONCLUSION

This study examined user satisfaction with both the policy aspects and application aspects of the NADINE Electronic Service Manuscript System at the MOF. The findings reveal a high level of user satisfaction with the policy aspects of NADINE, reflected in a satisfaction index of 4.70. Users appreciate the system's speed, timeliness, and enhanced security, demonstrating its effectiveness in streamlining and organizing the management of official documents. The study findings signify a positive impact on critical MOF operations.

However, the study also identified room for improvement in the NADINE application. While the users' perceptions of the Application's satisfaction are high (4.67), this falls short compared to their policy satisfaction. Users acknowledge that the Application supports the implementation of policies but highlight shortcomings in the user interface and navigation. Word cloud analysis of the users' feedback reinforces this point. Words like "socialization," "user-friendly," and "practical" indicate a need for improved user understanding of the Application and its interface. They desire more intensive socialization and workshops to enhance their app skills and policy comprehension.

The findings support the innovation diffusion theory, which proposes that factors like relative advantage, compatibility, complexity, trialability, and observability influence the adoption of technology.

While NADINE offers a relative advantage and high compatibility, its perceived complexity necessitates improvement. Increased user socialization and training can enhance trialability and reduce the complexity perceptions. Additionally, the UTAUT model is relevant in analyzing the adoption of NADINE. Performance and business expectations, social influence, and facilitating conditions play crucial roles. Users hold high-performance expectations, but interface design improvements and technical support are needed to address their business expectations.

This study proposes several key recommendations To maximize the positive impact of the NADINE application on the MOF. First, expanding the survey's reach to encompass a more comprehensive range of respondents from various government sectors is crucial. This broader data collection will provide more comprehensive insights into the users' experiences and potential areas for improvement beyond the current sample. Second, addressing the identified shortcomings in the NADINE application's user interface is essential. Implementing improvements to the user interface's features will likely increase overall user satisfaction and a smoother user experience. Finally, prioritizing user socialization efforts through more frequent and high-quality workshops is vital. This study will ensure that all the users, regardless of their technical expertise, can stay updated on the latest functionalities and maximize the benefits offered by the NADINE application. By implementing these recommendations, the MOF can further enhance user engagement and optimize the overall effectiveness of the NADINE application in streamlining its administration.

Overall, this study confirms that the NADINE application and its policies significantly contribute to improved operational efficiency and effectiveness at the MOF. However, continuous efforts to refine the technical aspects and user socialization are crucial to unlocking the system's full potential. By focusing on enhanced user interaction and technological improvements, the MOF can further maximize the benefits of digitalization in its administration, aligning with the principles of the innovation diffusion theory and the UTAUT model.

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