E-Request Document Tracking System (ERD Track) with SMS Notification: Streamlining Administrative Operations

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ABSTRACT

A long waiting times for document transactions are common in government agencies, negatively affecting client satisfaction. To address this issue, the Ministry of Basic, Higher, and Technical Education in the Bangsamoro Autonomous Region has developed an e-request document tracking system with SMS notifications.

This study aims to develop and evaluate "ERD Track," an Electronic Request Document Tracking System designed to streamline document requests in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). It assesses the system's quality in terms of system quality, information quality, ease of use, usefulness, and acceptability. The study also examines whether these ratings vary by user division and evaluates ERD Track's preference over traditional methods in these areas. The results will highlight the system's effectiveness in improving document request processes in BARMM.

The researcher used the agile method in the system development process and distributed survey questionnaires to clients from various school divisions within the MBHTE BARMM, including regional processor users, to evaluate the developed system. The collected data were organized, tabulated, analyzed, and interpreted using statistical methods such as the mean, standard deviation, independent t-test, and ANOVA.

The ERD Tracking System received outstanding ratings across all five indicators, especially for quality, ease of use, usefulness, and acceptability. Both administrators and school division users showed similar levels of appreciation, with a one-way ANOVA and t-test revealing no significant differences in their ratings.

In conclusion, the ERD Track system successfully addresses long waiting times for document transactions in the Bangsamoro Autonomous Region. With SMS notifications and streamlined processing, it improves efficiency and client satisfaction. The system received outstanding ratings across all quality indicators, with no significant differences in feedback from administrators and school division users, proving its effectiveness over traditional methods.

Keywords: e-request document tracking system, SMS notification, streamlining administrative Operation

INTRODUCTION

The world has been rapidly evolving in terms of technology and innovation. The spread of computers and the Internet has caused a significant amount of documents to be available in digital format. Collecting these documents in digital repositories has raised problems that go beyond simple acquisition issues, leading to the need to organize and classify the data to improve the effectiveness and efficiency of the retrieval process (Esposito et al., 2007).

According to the study by Avagyan (2022), the use of e-governance tools is recognized for its effectiveness across various dimensions, primarily focusing on cost-efficiency, time-efficiency, and innovation. During interviews, participants emphasized how these tools streamline processes, saving time and costs for both state workers and citizens. By reducing the need for in-person visits and cutting down on expenses like postal delivery and paper usage, e-governance tools are perceived as innovative, modernizing bureaucratic

procedures and adapting them to technology. The surge in online government service usage during the COVID-19 pandemic was seen as a particularly positive outcome of e-governance.

Documents are essential as they convey information and serve as formal evidence of something. Although this practice dates back to the earliest times of human civilization, current technological development has turned many classical aspects of document creation, management, processing, and exploitation upside-down. In particular, the advent of computer systems has made document production and transmission significantly easier (Ferilli, 2011).

With the modern advancement of platforms and tools, specifically through the use of the internet and web, most transactions are now made digitally. This transition has facilitated easier processing and transactions without the need to be physically present at the site or in the office. It saves time, reduces paper usage due to paperless transactions, minimizes the effort required for physical appointments, and lessens the carbon footprint. One of the most effective ways to solve the problem of manually filing and managing documents is to transform the conventional method of archiving into a digital and online format. This change would reduce the time consumed by in-person filing and minimize the errors that require correction in documents (Berdin, Maria Jean A., et al., 2022).

However, many organizations still struggle with disorganized and inconsistent methods for storing, categorizing, and retrieving documents, resulting in time-consuming searches and an increased risk of data loss. Maintaining an accurate version of documents remains a persistent challenge, leading to confusion, errors, and difficulties in tracking changes over time. Inefficient document workflows and routing can cause delays and errors in various office operations (AbdulAzeez, 2012). Additionally, the transaction time for clients is a significant concern. It takes considerable effort and time to request documents, which burdens clients. For instance, in the case of MBHTE-BARMM, employees, teachers, and other clients must go to the Main Regional Office to transact their documents and wait until they are released. The duration of this process depends on the availability of personnel in charge, particularly the signatories of the documents. Furthermore, users are sometimes restricted in their access to files based on the availability of the personnel processing the work, which has become increasingly important in today's globalized workforce.

Several agencies are adopting technological transformations to meet societal needs. The aim of online document processing systems in any country is to develop the easiest way for citizen transactions to be executed.

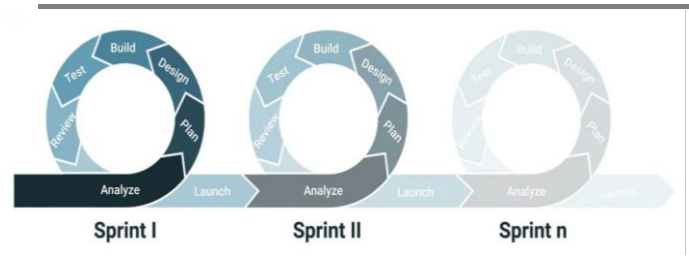
In the Philippines, e-governance represents a new paradigm shift developed in the governing processes applied in information and communication technology. This study seeks to analyze government practices aimed at serving citizens through the application and usage of information and communication technology for delivering quality services to the general public. The application of information and communication technology in public agencies attempts to understand how the government provides transparent, equitable, accountable, efficient, and effective public service delivery, facilitating the quality of e-governance practices and promoting good governance (Pancho, 2022).

Thus, a developed e-request document tracking system (ERD) with SMS notifications was created in MBHTE-BARMM to facilitate the requesting and tracking of client documents.

METHODOLOGY

Software Development Methodology

The Agile Methodology was applied in the development of the system. The concept of this method is to deliver output incrementally by incorporating user requirements and feedback in each iteration.



aqqa, S., Sawalha, S., & AbdelNabi, H. (2020).

Figure 3. Agile Methodology

The researcher used this method to reduce the overall risk associated with software development. In the agile method, software development is approached in a series of sprints, focusing on delivering incremental improvements in each iteration.

First, the Request Form is tackled by creating a simple form layout with basic fields such as Name, Date of Birth, and Request Details, ensuring submission functionality and providing confirmation messages. The second sprint focuses on enhancing the form with validation for required fields and an error-handling feature for the admin.

Similarly, the Tracking Form begins with a basic layout for users to input tracking numbers and view status updates, followed by the integration of real-time tracking data from the backend and the implementation of error handling for invalid entries.

The Login Form starts by implementing the basic login functionality with fields for Username and Password, including a redirection to the dashboard post-login. Subsequent iterations will enhance security features, such as adding “Forgot Password” functionality.

For the Menu Administration Form, the initial version allows admins to monitor the quantity of requested transactions and attempt random transactions. Later sprints will enhance the existing items and improve the interface menus.

The Account Registration Form begins with a simple form for new users to register with fields such as Name, Username, and Password, followed by validation checks. Subsequent iterations will improve the process with additional features like admin confirmation for protection and verification.

The Processor Form starts with the ability to import transaction details, followed by expanding functionality for batch processing and implementing detailed error logs for failed transactions. For the Releasing Form, admins can input tracking details for releasing resources for the issuance of a certificate, along with a simple confirmation system. Further iterations will improve the form’s user interface to make it more user-friendly and enable automatic backend updates to reflect the status change.

Finally, the Certificates Form initially allows users to request certificates by entering basic details such as Name, Certification Type, and Date. Later sprints will enhance the form with selectable certificate templates and the ability to generate different types of certificates to be issued.

Throughout each sprint, prioritizing feedback from stakeholders and users is observed to ensure that each form meets its intended goals. By following Agile principles, these forms were developed incrementally, making continuous improvements and delivering value in manageable amounts for each process.

RESEARCH DESIGN

This capstone project employed a mixed-method approach, specifically utilizing developmental and descriptive-evaluative research methodologies. The study focused on developing and assessing a web-based and software application solution to streamline the document request process in MBHTE BARMM. A survey

was conducted to analyze factors influencing technology adoption based on the Technology Acceptance Model (TAM).

Developmental research, as opposed to simple instructional development, has been defined as the systematic study of designing, developing, and evaluating instructional programs, processes, and products that must meet criteria of internal consistency and effectiveness (Richey, 1994). Meanwhile, the descriptive-evaluative research design incorporates interviews and mailed questionnaires, often involving a preselected group without a baseline group for comparison (De Jesus, F.S. and Cruz, C.F.D., 2021).

In this project, a system is developed and deployed to the Head of Office, staff, and employees of different divisions of the Ministry of Basic, Higher, and Technical Education. After the deployment of the system, the researcher conducted a system performance evaluation through a survey questionnaire about its efficient and effective management of various aspects of document creation, storage, retrieval, and manipulation through digital means. This design is used to establish a new system based upon the analysis of a specific case or problem; that is, the manual practice of the faculty document processing.

Data Gathering Procedure

The capstone project followed the standard operating procedure in gathering the necessary data. After securing the approval of the Dean of the Graduate School to conduct the project, the researcher prepared and executed the following:

A permission letter to the Administrator had been necessary before the actual consultation meeting with the Head Offices, the Operation-in-charge, and some random teaching personnel. Upon approval, the researcher asked permission from the Office of the Ministry of Basic, Higher, and Technical Education for his approval. The approved permits were presented to the respective Head Office and staff manpower.

Interviews and document reviews about the process of the online document transaction and the difficulties of the manual system were also done. The data and information gathered are necessary for the system development. For the evaluation of the developed system, the questionnaire is also presented to the head office, staff of the payroll section, and selected faculty from different school divisions.

Data Gathering Instruments

The capstone project used an adoptive and modified instrument to assess the performance of the developed system. The survey questionnaire is intended to assess the 11 groups of participants namely; Payroll Operators, and employees from ten (10) different school divisions for the evaluation of the developed system. The questionnaire is adopted from (AlShibly, 2014) surveys using the Technology Acceptance Model.

Essentially, the survey tool centers on the perception of the participants as to the performance of the developed system. It covered five (5) indicators each of efficiently and effectively the following; System Quality, Information Quality, Ease of Use, Usefulness, and Acceptance. The indicators were evaluated by the participants according to their honest observations using the 5-point Likert scale as shown below:

Table 14. Interpretation Result of the Questionnaire.

Numerical Rating	Verbal Rating
5	Strongly Agree
4	Agree
3	Neutral
2	Disagree
1	Strongly Disagree

On the other hand, the interpretation of results will be guided by a legend, through the table 15 which will help in understanding how to interpret the data presented in each table.

Table 15. Interpretation Result on the Assessment of the Developed System

Range of Mean	Description	Interpretation of the data base on System Quality	Interpretation of the data base on Information quality	Interpretation of the data base on Ease of Use	Interpretation of the data base on Usefulness	Interpretation of the data base on Acceptability	Interpretation of the data base on overall perfomance
4.20–5.0	Strongly Agree (SA)	Highly Regarded	Highly Quality	Very Easy to Use	Very Useful	Highly Acceptable	Excellent Performance
3.40–4.19	Agree (A)	Fairly Regarded	Fair Quality	Easy to Use	Useful	Fairly Acceptable	Good Performance
2.60–3.39	Neutral (N)	Undecided	Undecided	Undecided	Undecided	Undecided	Undecided
1.80–2.59	Disagree (D)	Regarded	Poor Quality	Difficult to Use	Less Useful	Less Acceptable	Poor Performance
1.00–1.79	Strongly Disagree (SD)	Less Regarded	Very Poor Quality	Very Difficult to Use	No use at all	Not Acceptable	Very Poor Performance

Statistical Tool and Treatment of Data

The data was organized, tabulated, analyzed, and interpreted using statistical methods, including the independent t-test, ANOVA, mean, and standard deviation.

Objective 1 use mean statistical treatment to get an overall idea, or picture, of the data set. The mean (or average) is the most popular and well known measure of central tendency. It can be used with both discrete and continuous data, although its use is most often with continuous data. The mean is equal to the sum of all the values in the data set divided by the number of values in the data set. (Ltd, 2018)

Objective 2 use independent t test to compare the means of two groups. Calculating a t-test requires three fundamental data values. First, The difference between the mean values from each data set, also known as the mean difference. Second, The standard deviation of each group and lastly, the number of data values of each group (HAYES, 2024).

Objective 3 use an ANOVA to assess the difference between the means of more than two groups. ANOVA's versatility and ability to handle multiple variables make it a valuable tool for researchers and analysts across various fields. By comparing means and partitioning variance, ANOVA provides a robust way to understand the relationships between variables and identify significant differences among groups using a formula of F = MST/MSE wehre F is equal to ANOVA coefficient, MST is equal to Mean sum of squares due to treatment and lastly MSE is equal to Mean sum of square due to error (KENTON, 2024).

Respondents of the Study

The respondents of this capstone project are divided into eleven (11) groups, namely; the operation-in-charge, and the rest are client from ten (10) school's division of random employees' personnel. These groups consisted of 12 administer processor members, 12 each from randomly selected employees in every school's division, a total of 132 respondents came from all divisions. Survey questionnaires were distributed to the respondents to gather the needed data. They tested and evaluated the developed system by accessing it through the domain name www.mbhte-erdtrack.online.

Sampling Technique

The project utilized Slovin's formula to determine the sample size for respondents. According to Hakizimana and Dushimimana (2023), when the population is too large to sample every member directly, Slovin's formula helps calculate the required sample size. Using this formula, the researcher selected 12 administrator-processor members and 12 employees from ten (10) different school divisions of the Ministry of Basic, Higher, and Technical Education (MBHTE) BARMM as the study sample.

RESULTS AND DISCUSSION

This chapter presents the results of the data collected, both in tabular and textual formats. Each variable is analyzed and interpreted, along with its implications, following the objectives of the study, guiding the evaluation of the developed system's performance.

The system was tested with randomly selected respondents from different school divisions. A total of 120 employees were randomly chosen from ten (10) school divisions within the Ministry of Basic, Higher, and Technical Education of the Bangsamoro Autonomous Region in Muslim Mindanao. Additionally, 12 administrative processor members participated, resulting in a total of 132 respondents. The input gathered from these respondents was essential for developing the E-Request Document Tracking System.

The system aims to address the challenges posed by the manual processes currently used by the Ministry of Basic, Higher, and Technical Education, particularly within the Payroll Section Unit under the Human Resource Management Office, for issuing various types of certificates. A link was sent to the respondents, directing them to a Google Form where they could watch a demo video (4 minutes and 28 seconds in length) that demonstrated how the system works in issuing and tracking certificates. The video, along with the domain or website of the developed system, served as a reference for respondents to complete the evaluation form. The respondents were asked to assess the system's performance in terms of system quality, information quality, ease of use, usefulness, and acceptance.

Assessment of the Developed System Based on System Quality

To assess the performance of the developed system, respondents were asked to assess its quality using a set of indicators. These indicators measured users' perceptions of the system based on its technical features and design aspects (Alshibly, 2014).

Table 16. Performance Rating of the Developed System Based on System Quality.

No.	Items	Mean	Description	Interpretation
1	ERD Track allows information to be readily accessible to you.	4.96	Strongly Agree	Highly Regarded
2	ERD Track makes information very accessible.	4.88	Strongly Agree	Highly Regarded
3	ERD Track is easy to use the first time I	4.85	Strongly Agree	Highly Regarded

	access it.			
4	ERD Track can flexibly adjust to new work demands.	4.81	Strongly Agree	Highly Regarded
5	ERD Track returns answers to my requests quickly.	4.91	Strongly Agree	Highly Regarded
6	ERD Track is versatile in addressing needs as they arise.	4.89	Strongly Agree	Highly Regarded
MEAN		**4.88**	**Strongly Agree**	**Highly Regarded**

Table 16 shows the performance ratings of the developed system based on system quality. The data provided reveals a highly positive evaluation of the ERD Track system. With an overall mean score of 4.88, respondents strongly agree that the system is effective, user-friendly, and adaptable to their needs. Specifically, users appreciate the easy access to information, with scores of 4.96 and 4.88 for the items related to accessibility. Additionally, the system is recognized for its ease of use even for first-time users (4.85), and its quick response time (4.91), highlighting its efficiency. While the system's ability to adjust to new work demands (4.81) and its versatility in addressing emerging needs (4.89) are slightly lower in comparison, they still reflect a strong positive consensus.

Overall, ERD Track is highly regarded for being efficient, accessible, and flexible, with no significant concerns raised by users. Further, the system responds quickly to requests as long as the necessary information is correctly inputted. The output also meets users' work demands, demonstrating versatility in addressing emerging needs and ensuring all target outputs are achieved. Based on these results, the system's quality is highly regarded and recommended for replication, particularly for its effectiveness in addressing clients' needs, especially in the issuance of various types of certificates.

The result is supported by Reeves and Bednar (1994), who emphasize that quality can be defined in several ways: as excellence, as value, as conformity to specifications, and as the fulfillment of customer expectations. To meet these expectations for information system (IS) quality, it is essential to provide attractive, user-friendly interfaces, accommodate user requests for modifications, and ensure stakeholder satisfaction. This approach reflects the quality of information processing, which involves using advanced technology, offering essential functions and features, and providing software that is intuitive, easy to learn, and simple to maintain (Gorla, Somers, et al., 2010).

Assessment of the Developed System Based on Information Quality

Information Quality is the extent to which the features of the developed system meet the user's needs was assessed by evaluating how well the information from a system meets users' needs, including factors like accuracy, relevance, and timeliness (Alshibly, 2014). The information quality of the system was evaluated, and the results are shown in the table below.

Table 17. Performance Rating of the Developed System Based on Information Quality.

No	Items	Mean	Description	Interpretation
1	ERD Track provides sufficient information	4.89	Strongly Agree	Highly Quality
2	The information content provided by ERD Track meets my needs	4.86	Strongly Agree	Highly Quality
3	ERD Track outputs are presented in a useful	4.89	Strongly Agree	Highly Quality

	format			
4	ERD Track provides reports that seem to be just about exactly what I need	4.86	Strongly Agree	Highly Quality
5	ERD Track produces comprehensive information.	4.86	Strongly Agree	Highly Quality
6	ERD Track provides up-to-date information	4.90	Strongly Agree	Highly Quality
7	ERD Track information clear	4.90	Strongly Agree	Highly Quality
8	ERD Track information accurate	4.92	Strongly Agree	Highly Quality
MEAN		**4.88**	**Strongly Agree**	**Highly Quality**

Table 17 presents the performance ratings for the developed system. The data indicates that users strongly agree that ERD Track provides high-quality information. The overall mean score of 4.88 suggests a very positive response. Respondents feel that the system provides sufficient information (4.89) and that the content meets their needs (4.86). The format in which the information is presented is also highly regarded, with a score of 4.89, indicating that it is both useful and accessible. Users believe the reports produced by ERD Track are precisely what they require (4.86), and that the system generates comprehensive information (4.86).

Furthermore, the system is praised for providing up-to-date (4.90) and clear (4.90) information, as well as being highly accurate (4.92). These results reflect that ERD Track is perceived as delivering high-quality, relevant, and precise information that aligns with users' needs and expectations for issuing certificates while adhering to the proper format specified by end-users.

Additionally, the system provides a different type of report that seems to be exactly what the needs are and accurate based on the results output. The system is widely recognized for its high-quality information and is recommended for replication, as it efficiently meets the client's requirements, especially in issuing different types of certificates.

The result is supported by Gorla, Somers, et al. (2010), who stated that measuring information quality is related to the quality of information system outputs. This can be described in terms of outputs that are useful to business users, relevant for decision-making, and easy to understand, as well as outputs that meet users' information specifications. These outputs are dependent on data quality and involve both the content and presentation format of the information provided to a firm's stakeholders.

Assessment of the Developed System Based on Ease of Use

Ease of Use is an assessment conducted on how person believes using a system would require minimal physical and mental effort. It reflects a user's perception of how effortless it is to use a technology, with systems that are easier to use being more likely to be accepted by users (Alshibly, 2014). The results of this assessment are presented in Table 18.

Table 18. Performance Rating of the Developed System Based on Ease of Use.

No.	Items	Mean	Description	Interpretation
1	Learning to operate ERD Track is easy for me	4.81	Strongly Agree	Very Easy to Use
2	I find it easy to get ERD Track to do what I want it to do	4.79	Strongly Agree	Very Easy to Use
3	It is easy for me to become skillful at using	4.83	Strongly Agree	Very Easy to Use

	the ERD Track.			
4	I find ERD Track easy to use	4.80	Strongly Agree	Very Easy to Use
MEAN		**4.80**	**Strongly Agree**	**Very Easy to Use**

Table 18 presents data strongly indicating that ERD Track is perceived as exceptionally user-friendly, with respondents expressing a high level of agreement regarding its ease of use. Across all four items, participants consistently reported that they found the tool intuitive and easy to navigate. For example, the item 'Learning to operate ERD Track is easy for me,' received a mean score of 4.81, the highest rating among all items, suggesting that the process of getting started with the tool is smooth and uncomplicated. Respondents feel that the learning curve is minimal, making the tool accessible for both new and experienced users alike.

This high score highlights that ERD Track's training process does not pose significant challenges, enabling users to quickly familiarize themselves with its features and functions. While the item 'I find it easy to get ERD Track to do what I want it to do,' received the lowest score among the four (4) items, it still achieved a high mean of 4.79, reflecting users' ability to effectively interact with the tool and accomplish specific tasks aligned with their needs.

In addition, the remaining items earned mean scores of 4.83 and 4.80, further affirming that the tool is widely regarded as easy to operate. These scores reflect overall satisfaction with its simplicity and efficiency, as respondents feel comfortable using ERD Track daily without encountering unnecessary difficulties or complexity. Overall, the tool achieved an impressive mean score of 4.80, solidifying its reputation as a highly user-friendly system.

The consistently high ratings across all four (4) items demonstrate that users find ERD Track intuitive and accessible, from the initial learning phase to gaining proficiency and using it effectively for their tasks. This ease of use likely contributes to greater user satisfaction, as employees can quickly adapt to the tool and utilize it productively without the need for extensive training or support, particularly in issuing various types of certificates.

These findings are supported by Davis (1993), who defined perceived ease of use as "the degree to which an individual believes that using a particular system would be free of physical and mental effort."

Assessment of the Developed System Based on Usefulness

Usefulness is an assessment conducted to evaluate how well the system or technology will improve job performance or help complete tasks more effectively. It reflects a user's belief that using the technology will be beneficial to their personal or professional well-being (Alshibly, 2014). The results of this assessment are presented in Table 19.

Table 19. Performance Rating of the Developed System Based on Usefulness.

No.	Items	Mean	Description	Interpretation
1	Using ERD Track enables me to accomplish tasks more quickly.	4.90	Strongly Agree	Very Useful
2	Using ERD Track enables one to perform work's requirements more quickly.	4.90	Strongly Agree	Very Useful
3	Using ERD Track improves my job performance.	4.84	Strongly Agree	Very Useful
4	Using the ERD Track in my job increases my productivity.	4.88	Strongly Agree	Very Useful

5	Using the ERD Track enhances my effectiveness in the job.	4.82	Strongly Agree	Very Useful
6	Using ERD Track makes it easier to do my job.	4.90	Strongly Agree	Very Useful
7	Using the ERD Track improves my ability to make good decisions.	4.88	Strongly Agree	Very Useful
MEAN		**4.87**	**Strongly Agree**	**Very Useful**

Table 19 shows a strong agreement among respondents on the significant role of the ERD Track tool in enhancing both the efficiency and effectiveness of their work. For instance, ERD Track helps users complete job tasks more quickly and makes it easier, with a mean score of 4.90, indicating that it streamlines workflows and reduces time spent on tasks. Similarly, the tool's ability to assist users in meeting work requirements more efficiently also received a high score of 4.90, further emphasizing its contribution to time-saving and task management. While the lowest rate got a mean score of 4.82 but still falls to a high rate for efficiencies respondents feel that ERD Track enhances their overall effectiveness in carrying out job responsibilities.

In addition, those items that are not yet mentioned are also appreciated by the respondents at a high rate for example items 4 and 7 obtained a mean value of 4.88 indicating that respondents believe that the system supports better judgment and decision-making through the provision of valuable insights or streamlined information that helps them accomplish more within the same amount of time. Lastly, item 3 got a mean value of 4.84. suggesting that it positively influences employees' ability to perform at a high level.

Overall, with a mean score of 4.87, the data strongly suggests that ERD Track is regarded as an indispensable tool that not only accelerates task completion but also improves the quality of work, increases productivity, enhances decision-making, and ultimately boosts overall job effectiveness, particularly in issuance of different types of certificates.

This finding is supported by Davis (1993), which states that perceived usefulness is the "degree to which an individual believes that using a particular system would enhance his or her job performance."

Assessment of the Developed System Based on Acceptability

Acceptability is an assessment carried out to evaluate the system's acceptability by analyzing how the interaction of system and information characteristics, along with perceived usefulness and ease of use, influenced users' perceptions and overall acceptance of the system (Alshibly, 2014). The results of this evaluation are presented in Table 20.

Table 20. Performance Rating of the Developed System Based on Acceptability.

No.	Items	Mean	Description	Interpretation
1	I like the idea of using ERD Track.	4.90	Strongly Agree	Highly Acceptable
2	I have a generally favorable attitude toward using the ERD Track.	4.90	Strongly Agree	Highly Acceptable
3	I believe it is (would be) a good idea to use ERD Track.	4.84	Strongly Agree	Highly Acceptable
MEAN		**4.88**	**Strongly Agree**	**Highly Acceptable**

Table 20 presents the data indicating a very positive reception toward using ERD Track. All three (3) items show strong agreement, with mean scores of 4.90 for both items 1 and 2, and a slightly lower score of 4.84 for item 3. Despite the slight difference, all scores fall within the "Strongly Agree" range, which is interpreted as

"Highly Acceptable." The overall mean score of 4.88 reinforces this positive trend, suggesting that the respondents have a highly favorable view of the ERD Track and consider it a good idea to use. The results collectively point to strong approval and high acceptability of the system among participants.

The findings of this study align with Moesker, Pesch, et al.,(2024), who stated that a system's acceptability is the degree to which stakeholders like end-users, consumers, and policymakers view these innovations as appropriate and appealing. This perception represents the willingness or favorable attitude toward their adoption.

Table 21. Overall Performance Rating of the Developed System.

No.	Items	Mean	Std. Deviation	Description	Interpretation
1	System Quality	4.88	0.31	Strongly Agree	Excellent Performance
2	Information Quality	4.88	0.32	Strongly Agree	Excellent Performance
3	Ease of use	4.80	0.40	Strongly Agree	Excellent Performance
4	Usefulness	4.87	0.34	Strongly Agree	Excellent Performance
5	Acceptability	4.88	0.33	Strongly Agree	Excellent Performance
MEAN		**4.86**	**0.34**	**Strongly Agree**	**Excellent Performance**

Table 21 presents the overall performance evaluation of the developed system. Respondents rated the system highly, with an overall mean score of 4.86, reflecting strong agreement on its effectiveness. The system's quality received a rating of 4.88, with a standard deviation of 0.31, indicating that it successfully performs aspect-based sentiment analysis on transaction requests from multiple users. Additionally, the system was found to be more adaptable than traditional manual methods, allowing clients to efficiently manage their requests using its features.

The system's information quality was rated 4.88, with a standard deviation of 0.32, demonstrating its ability to process data with integrity while remaining adaptable when modifications are needed. The ease of use received a rating of 4.80, with a standard deviation of 0.40, further supporting the system's flexibility and user-friendliness. Similarly, its usefulness was rated 4.87, with a standard deviation of 0.34, confirming its capability for functional integration and adaptability. Lastly, the system's acceptability received a rating of 4.88, with a standard deviation of 0.33, signifying that it meets standard requirements and performs effectively.

The findings are supported by Zarić, Miroslav, et al. (2014), who emphasized that the use of an e-request processing system in government institutions can easily adapt and facilitate a smooth transition for users handling various types of requests, provided they align with the established workflow. This approach reduces operational costs and minimizes disruptions.

Table 22. Data on the Test of Significance of Difference (T-test) Across all Five Indicators.

Indicator	Source of Variation	Sum of Squares	df	Mean Square	F	P-value
System Quality	Between Groups	427.636	1	427.636	1029.327	0.000
	Within Groups	108.848	262	0.415		
	Total	**536.485**	**263**			

Information Quality	Between Groups	133.879	1	133.879	266.249	0.000
	Within Groups	131.742	262	0.503		
	Total	**265.621**	**263**			
Ease of Use	Between Groups	453.470	1	453.470	1084.414	0.000
	Within Groups	109.561	262	0.418		
	Total	**563.030**	**263**			
Usefulness	Between Groups	412.500	1	412.500	1042.981	0.000
	Within Groups	103.621	262	0.396		
	Total	**516.121**	**263**			
Acceptance	Between Groups	485.470	1	485.470	1105.881	0.000
	Within Groups	115.015	262	0.439		
	Total	**600.485**	**263**			

Table 22 presents the statistical results on the significant differences across all five indicators: System and Information Quality, Ease of Use, Usefulness, and Acceptance.

For System Quality, an F-statistic of 1029.327 and a p-value of 0 indicate a substantial difference between groups, with the between-group sum of squares (427.636) far exceeding the within-group sum of squares (108.848). This suggests that perceptions of system quality vary significantly between groups, and the difference is not due to random variation. Similarly, for Information Quality, an F-statistic of 266.249 and a p-value of 0 provide strong evidence that groups perceive information quality differently. The between-group sum of squares (133.879) is substantially greater than the within-group sum of squares (131.742), confirming a meaningful and statistically significant difference.

Regarding Ease of Use, the results shows a significant difference, with an F-statistic of (1084.414) and a p-value of 0, further indicating that one group experiences significantly greater ease of use compared to the other. The between-group sum of squares (453.470) vastly exceeds the within-group sum of squares (109.561), emphasizing ease of use as a key differentiator between groups.

For Usefulness, an F-statistic of 1042.981 and a p-value of 0 confirm a significant difference in how useful the product or service is perceived by the two groups. The between-group sum of squares (412.500) is notably higher than the within-group sum of squares (103.621), suggesting that perceptions of usefulness are strongly influenced by group membership.

Finally, Acceptance results show the highest F-statistic 1105.881 and a p-value of 0. The between-group sum of squares (485.470) far surpasses the within-group sum of squares (115.015), indicating that one group finds the product or service significantly more acceptable than the other.

The substantial differences in the sum of squares across all indicators suggest that these observed differences are both statistically significant and practically meaningful, rather than random variations. These findings underscore the importance of exploring the factors contributing to these differences, which could inform strategies for improving system design, user experience, and overall satisfaction.

Table 23. Data on the Test of Significance of Difference (ANOVA) when Grouped according to the Type of Evaluators.

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
System Quality	Between Groups	2.682	10	0.268	8.062	0.000
	Within Groups	4.025	121	0.033		
	Total	**6.708**	**131**			
Information Quality	Between Groups	3.642	10	0.364	8.147	0.000
	Within Groups	5.409	121	0.045		
	Total	**9.051**	**131**			
Perceived Ease of Use	Between Groups	8.763	10	0.876	15.365	0.000
	Within Groups	6.901	121	0.057		
	Total	**15.664**	**131**			
Perceived Usefulness	Between Groups	3.665	10	0.366	7.858	0.000
	Within Groups	5.643	121	0.047		
	Total	**9.307**	**131**			
Acceptance	Between Groups	4.648	10	0.465	11.125	0.000
	Within Groups	5.056	121	0.042		
	Total	**9.704**	**131**			

Table 23 presents an analysis that statistically identifies significant differences across five (5) variables: System Quality, Information Quality, Perceived Ease of Use, Perceived Usefulness, and Acceptance, as demonstrated by the ANOVA results.

For system quality, an F-statistic of 8.062 and a p-value of 0.000 indicate meaningful differences, with the between-group mean square (0.268) far exceeding the within-group mean square (0.033). Similarly, information quality shows significant variation, with an F-statistic of 8.147 and a p-value of 0.000, where the between-group mean square (0.364) is considerably larger than the within-group mean square (0.045).

The most substantial differences appear in perceived ease of use, which has the highest F-statistic (15.365) and a p-value of 0.000, as the between-group mean square (0.876) greatly outweighs the within-group mean square (0.057). Perceived usefulness also demonstrates significant differences, with an F-statistic of 7.858 and a p-value of 0.000, supported by a between-group mean square (0.366) that surpasses the within-group mean square (0.047). Finally, acceptance exhibits meaningful variation, with an F-statistic of 11.125 and a p-value of 0.000, as the between-group mean square (0.465) exceeds the within-group mean square (0.042).

These findings confirm that variability in all five (5) dimensions is driven by differences between groups rather than random chance. The consistently larger between-group mean squares compared to within-group mean squares suggest that the observed differences in system quality, information quality, perceived ease of use, perceived usefulness, and acceptance are substantial and meaningful, reflecting distinct characteristics or experiences across the groups being compared.

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Collecting the documents in digital repositories raised problems that go beyond simple acquisition issues, and caused the need to organize and classify the data to improve the effectiveness and efficiency of the retrieval procedure (Esposito et. al., 2007)

According to the study of (Avagyan, 2022) using of E-governance tools are recognized for their effectiveness across various dimensions, primarily focusing on cost-efficiency, time-efficiency, and innovation. During interviews, participants emphasized how these tools streamline processes, saving time and costs for both state workers and citizens.

Documents are essential for it's the means to convey information and/or the formal evidence of something. Although it dates back to the first times of human civilization, current technological development has turned upside-down many classical aspects are document creation, management, processing, and exploitation. In particular, the advent of computer systems has made much easier document production and transmission (Ferilli, 2011).

One of the most effective ways to solve the problem of manually filing and managing documents is to transform the conventional way of archiving into digital and online. This would ease the time consumed by filing personally and going back and forth and minimize the errors to be corrected on the documents (Berdin, Maria Jean A., et al., 2022).

Maintaining an accurate version of the document is a persistent challenge, causing confusion, errors, and difficulties in tracking document changes over time. Inefficient document workflows of document routing can lead to delays and errors in various office operations (AbdulAzeez, 2012).

The application of information and communication technology in the public agency tries to understand how the government provides transparent, equitable, accountable, efficient, and effective public service delivery, facilitating the quality of e-governance practices and promoting good government (Pancho, 2022).

This research applies the "Law of Exercise" theorized by (Thorndike, 1913) which states that frequent connections between stimulus and response strengthen that connection unless the response has an unsatisfying effect. When the client follows the process and meets all the requirements needed.

According to the study of Zarić et al. (2014) e-request document processing systems are designed to address the administrative challenges faced by some government agencies, particularly in managing electronic documents (eRequests).

The system employs familiar office applications, making it easy for users to adopt without the need for extensive learning. Other studies have explored related systems such as IT service request systems (Luengwattanakij, 2003).

In academia, systems like the Academic Record Management System (Eludire, 2011) have been designed to tackle issues in course registration and result delays

Likewise, healthcare management benefits from the integration of Clinical Decision Support Systems (CDSS) with Electronic Medical Records (EMR), which help manage chronic diseases through tailored care recommendations (Schnipper et al., 2008).

Furthermore, Duranti et al. (2013) examine the importance of maintaining document integrity through the use of electronic archives, advocating for international standards in records management.

At the institutional level, systems developed to improve document processing in offices, such as at Manuel S. Enverga University (Hermosa et al., 2023) and the SUNIDOC System at the University POLITEHNICA of Bucharest (Costoiu et al., 2012), illustrate how centralized digital platforms streamline workflows, minimize document loss, and enhance efficiency.

According to the book Conference paper entitled electronic document tracking systems (EDTS) by (Demong, Rochin et. al, 2009) play a crucial role in streamlining administrative tasks and improve the efficiency of retrieving the document online at any time and tracking the movement of documents in and out.

Hermosa et al. (2023) focus on the development of a centralized system at Manuel S. Enverga University Foundation to track documents and prevent inefficiencies in document processing. Similarly, systems like the Absence and Leave Management Software (Chirag Narang, 2022) automate leave requests and track employee absences in real-time, enhancing coordination between departments. The use of technology to track document movement, such as in the Document Tracking System Using Barcode Technology with SMS Notifications (Rellon et al., 2020) and the Accreditation Document Tracking System (Salleh et al., 2020), allows for real-time updates on document locations, enhancing transparency and ensuring that processes are followed efficiently.

Document Tracking System at Akanu Ibiam Federal Polytechnic (Madubuike et al., 2022) and the Online Document Tracking System at Universiti Teknologi Petronas (Jalaludin, 2014) aim to reduce paper consumption and improve document retrieval speeds, thus contributing to a more organized and efficient workplace.

Therefore, the system was designed automatically to send an alert SMS text message to the client about the details that is needed.

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Systems have gained widespread adoption due to their ability to facilitate quick, reliable communication across diverse sectors (Osman, 2017).

SMS is particularly popular because it offers immediate, accessible communication, with 74% of mobile phone users globally engaging in text messaging (Olaleye et al., 2013).

These include their speed, low cost, wide reach, and reliability. Studies have shown that SMS alerts are typically read within minutes of receipt and have a 98% read rate, which ensures high engagement (NorthText, 2020).

However, SMS alerts do have limitations, such as character restrictions, which can pose challenges when detailed information is required. Additionally, the possibility of cell tower congestion during emergencies can delay message delivery (Gasaymeh et al., 2013).

The disadvantages of SMS alerts, including issues with authentication and message delivery delays during crises, can be mitigated with strategies like early dispatching of alerts, clear sender identification, and concise messaging (NorthText, 2020).

Developmental research, as opposed to simple instructional development, has been defined as the systematic study of designing, developing, and evaluating instructional programs, processes, and products that must meet criteria of internal consistency and effectiveness (Richey, 1994). Meanwhile, the descriptive-evaluative research design incorporates interviews and mailed questionnaires, often involving a preselected group without a baseline group for comparison (De Jesus, F.S. and Cruz, C.F.D., 2021).

The difference between the mean values from each data set, also known as the mean difference. Second, The standard deviation of each group and lastly, the number of data values of each group (HAYES, 2024).