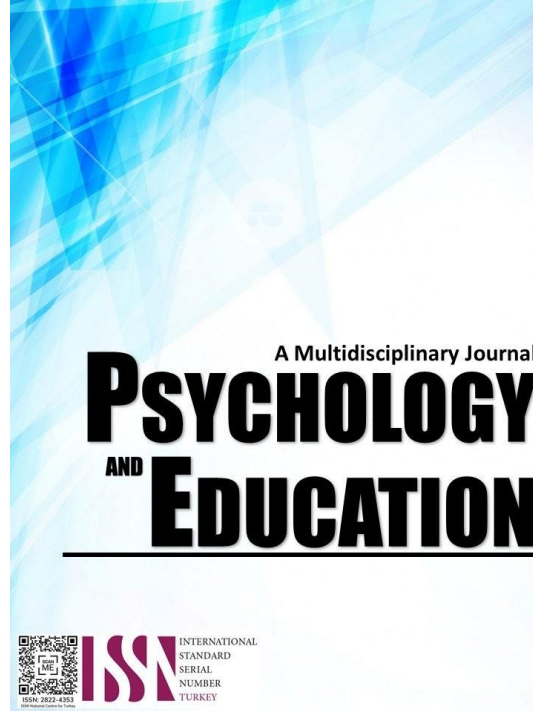


INFORMATION MANAGEMENT: AN INNOVATIVE PROCESS FOR SUSTAINABILITY



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Information Management: An Innovative Process for Sustainability

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Abstract

The study aimed to develop a protocol that serves as the foundation for implementing a sustainable information management system within the Department of Education Region IV-A(CALABARZON). The research assessed critical features of information management, including document control, document trailing, ICT infrastructure, human resources, and financial resources. Findings revealed that respondents strongly agreed on the critical importance of these features in developing the protocol. Statistical analysis using the Kruskal-Wallis test showed no significant differences in the perceptions of the three respondent groups, indicating a shared understanding and agreement across stakeholders. Furthermore, qualitative data supported the quantitative findings, emphasizing the relevance and necessity of the identified features in ensuring a robust and sustainable information management system. The study highlights the significance of integrating these features into a cohesive protocol to enhance operational efficiency, accountability, and long-term sustainability in information management practices.

Keywords: *protocol, information management system, governance, stakeholders*

Introduction

Effective information management is the process by which organizations seek sustainability in today's fast-paced digital world. The explosion of data from technological advancement and increased system interconnection has brought a double-edged sword for businesses and institutions. Organizations are now developing innovative ways of managing information in which data is translated into strategic assets that sustain growth and operational efficiency hence the need for a comprehensive framework of practices that involve capturing, storing, analysis, and dissemination of data to maximize its value in a secure and intact state (Harrison, 2019). In DepEd as an organization, there is a practice of observed processes of an information management but no detailed protocols have been yet established.

In a nutshell, information management is an innovation and a process that actually underpins sustainable practices of organizations. Taking into account the latest technologies and ethical considerations, organizations are well-equipped to navigate through the technological complexities of the digital world and utilize their available information resources in a proper manner, thereby ensuring sustainability in the long run.

Proper management of information and adaptation to the requirements of changing technology become important in this fast-changing digital environment. Organizations, especially government departments like DepEd, have to be geared towards such a necessity to ensure operational efficiency, transparency, and accountability in their operations. Today, the lack of standard protocols within DepEd entails that every time a new head appears on the scene, many of the information systems established during the previous administrations are terminated abruptly. This inconsistency poses significant risks to the loss of institutional knowledge, inefficiency in service delivery, and inability to meet legal and regulatory requirements.

The absence of a structured information management system seriously compromises the ability of the department to effectively fulfill its mandate. In the absence of established protocols, vital information could be poorly managed, thus causing the delays and misunderstandings of the decision-making process that may cause more harm than good. Also, these gaps can lead to non-compliance with key national laws and policies that may bring legal implications in the direction of DepEd; also, it lessens the trust of the public regarding the department. Thus, the need for a strong and sustainable information management framework is imperative to address the mentioned challenges and ensure that DepEd is running smoothly.

To address the problems enumerated above, this research proposal Information Management: An Innovative Process for Sustainability seeks the development of an all-rounded, integrated information management system with most widely accepted frameworks and standards. Quality management best practices shall become second nature for the department as the information management system shall be compliant with ISO accreditation.

A strong impetus for this research is, in fact, the compelling call for maintaining consistent and standardized guidelines in information management approach across all level of governance. Such a singular protocol developed by DepEd Region IV-A(CALABARZON) would also reduce inconsistent practices in the handling, archiving, and retrieval of documents and information system. In this regard, uniformity is called for to harmonize all the concerned parties, including ITOs, record officers, and end-users, towards their processes and responsibilities, respectively. A standardized protocol will further improve operational effectiveness as it reduces errors and subsequently improves service delivery.

Compliance with national and international regulations is yet another imperative for this research study. The laws and policies existing include the Ease of Doing Business Act, the Anti-Red Tape Act (ARTA), the Data Privacy Act, among others, to name a few, which

necessitate the observance of certain practices regarding information management. Developing the protocol will assist in reducing the likelihood of legal risks that may accrue in the system; thus, it will ensure that the department's information systems are legal. This compliance will lead to increased public accountability and trustworthiness and thus improve the reputation of the department.

The information management system would also be able to support the president's digitization agenda, which targets the critical need to utilize technology in improving government services. In the approach towards a digital kind of government, the Department of Education should be updated in these aspects and make its information management accommodate technology. Then, along the way, it would improve the capacity to give necessary information to stakeholders in terms of relevance and within a timely manner, thus upgrading the delivery service with regard to educational services to be efficient and effective.

In addition, a sustainable protocol of information management can lay down the foundation for continuous improvement in the department. Regular monitoring and evaluation can help DepEd know areas of enhancements as well as compliance to the set protocols. Better data-driven decisions will be made. This form of information management will give the department better adaptability towards emerging challenges as well as opportunities.

For one, this research recognizes the management of information as a factor for keeping institutional knowledge and as a facilitator in improving a decision-making process. A sound system of information management will ensure that valuable data is kept and accessible so that it will effectively be used to make decisions at any given level. By focusing information management as a novel process toward sustainability, the DepEd can then serve its stakeholders much better and achieve its mission of providing quality education for all.

Research Objectives

This study intended to establish protocols for sustainable information management within the Department of Education Region IV-A (CALABARZON), focusing on access control, document trailing, ICT infrastructure, human and financial resources, and the development of a standardized guideline for effective information management. Specifically, it sought to find answers to the following:

1. To describe the perspectives on managing the information system in terms of:
 - 1.1. access control of documents;
 - 1.2. document trailing;
 - 1.3. ICT-related infrastructure;
 - 1.4. human resources; and
 - 1.5. financial resources.
2. To determine if there is any significant difference in the perspective of the three groups in terms of:
 - 2.1. access control of documents;
 - 2.2. document trailing;
 - 2.3. ICT-related infrastructure;
 - 2.4. human resources; and
 - 2.5. financial resources.
3. To gather explanations provided by the three groups of respondents.
4. To formulate cascading protocols as a guide to achieve sustainable information management system.

Literature Review

New technologies like cloud computing, big data analytics, and artificial intelligence can streamline processes, help organizations make better decisions, and enhance collaboration between different teams in the organization. These innovations do not just enhance operational performance but enable organizations to achieve sustainability by using resources optimally while reducing environmental impacts (Wang et al., 2016).

In addition, sustainability in information management goes beyond efficiency and productivity. Ethical considerations involve data privacy, governance, and compliance with regulatory frameworks. Organizations that prioritize responsible data management build trust with stakeholders and contribute to a more sustainable future (Alhassan et al., 2018).

Addressing these diverse perspectives requires adaptive collaboration strategies that consider the unique needs and concerns of each group. Regular monitoring and evaluation of system performance, coupled with active stakeholder engagement (Garcia et al., 2021), allows for the identification of areas for improvement, continuous refinement of protocols, and the optimization of resource allocation, ensuring the long-term sustainability and effectiveness of the information system. Collaboration among these groups ensures alignment in implementing secure access control measures, reducing unauthorized access, and enhancing data integrity (Bose et al., 2021). Training programs tailored to each group's needs improve proficiency in document trailing and ICT system usage, enabling compliance with governance standards, rules and regulations, laws, issuance, and technological advancements (Smith & Taylor, 2020). Furthermore, collaboration is essential for optimizing the allocation of human resources across different system components, ensuring adequate staffing levels and appropriate skill sets for system maintenance and support. Effective financial resource management requires a systems-level perspective, considering the long-term costs and benefits of investments in different system components and ensuring that resources are allocated strategically to optimize overall system performance.

Methodology

Research Design

A mixed-methods sequential explanatory research design is applicable to this study on the topic of examining Information Management: An Innovative Process for Sustainability in DepEd Region IVA (CALABARZON). This qualitative and quantitative combination of two research methods ensures that one has more thorough scrutiny about the variables crucial in sustained information management, such as controlling access, document tracking, ICT infrastructure, and human and financial resources.

Creswell (2005) noted in explaining this method that collecting and then analyzing the two types of data, specifically quantitative and then qualitative in nature, may form a richer understanding in answering complex questions in conducting research.

The current study focuses on more quantitative data gathering. There is a Likert scale description of participants' point of view with regards to information management aspects, but based on normative analysis by assessing possible differences of opinion among four different groups of participants.

Respondents

The respondents of the study were selected through purposive sampling. Exactly there were 23 ITOs and 23 Record Officers in IV-A CALBARZON, a region that comprised of 23 Schools Division Offices. The 23 end-users were selected based on those who most frequently used any systems in DepEd Region 4A. The respondents are knowledgeable about using different platforms.

Instrument

The primary instrument used in conducting the survey was Google Forms. It is an online tool designed to provide efficient and easy ways of gathering quantitative information from respondents. Along with the quantitative data collected through a survey, FGDs were conducted. The objective behind the FGDs was to validate the findings and gain insights further.

Procedure

The validated survey was administered through Google Forms. The researcher distributed the survey link to the identified respondents, including Division Information Technology Officers, Division Records Officers, and End Users within the Regional Office. The survey link was shared via group chat platforms to facilitate easy access for participants. After the survey was distributed, the researcher monitored the response rates and sent reminders to encourage participation. The designated collection period was adhered to, allowing for systematic harvesting of the responses submitted through Google Forms. Data was compiled for analysis as responses were received.

Once the survey responses were collected, focus group discussions were conducted using an online platform to validate and explore the findings in greater depth. Participants for the FGDs were selected from the survey respondents to ensure a diverse range of perspectives.

The FGDs were facilitated by the researcher through an online meeting platform, which allowed for flexibility and accessibility. Structured questions guided the discussions, encouraging participants to elaborate on their survey responses and provide qualitative insights that complemented the quantitative data collected from the survey.

Ethical Considerations

All participants were fully and duly informed in advance of the intent, methods and objective of the study. This research interview is strictly on a voluntary basis. Participants can decline or accept to participate in this survey; their decision never harmed their professional relationship with the researcher.

Results and Discussion

This section presents the findings according to the study's research questions.

Perspectives on managing the information system

Table 1. *Perspective in Managing Information System by the Three Group of Respondents in terms of Access Control of Documents*

<i>Governance</i>	<i>ITO</i>	<i>Record Officer</i>	<i>End User</i>	<i>Composite Median</i>
Access control of documents	4	4	4	4

By the composite perspective of ITOs, Records Officers, and End Users, a median of 4 indicates that they perceive managing the information system in terms of access control of documents to strongly agree.

The findings on the importance of document trailing in managing information systems were supported by Bourne & Walker (2018), who highlight how effective document tracking ensures accountability and transparency by recording every action taken on a document. This creates a clear history, enabling efficient decision-making and reducing potential issues. Alharthi et al. (2019) further support these findings, emphasizing the need for document trailing to align with legal and regulatory frameworks, ensuring compliance with

laws such as the Data Privacy Act and the Anti-Red Tape Act, thus mitigating legal risks.

Table 2. *Perspective in Managing Information System by the Three Group of Respondents in terms of Documents Trailing*

<i>Governance</i>	<i>ITO</i>	<i>Record Officer</i>	<i>End User</i>	<i>Composite Median</i>
Documents Trailing	4	4	4	4

By the composite perspective of ITOs, Records Officers, and End Users, a composite median score of 4 indicates that they perceive managing the information system in terms of documents trailing to strongly agree.

Hovden & Haug (2020) also add that the successful implementation of the document management system improves performance, enhancing customer satisfaction a key aspect that was revealed by high records of satisfaction surveys across Records Officers as well as End Users. All these considerations would suggest that there is also an opportunity for strong document tracking systems to support improvement in efficiencies, compliance and overall customer experience.

Table 3. *Perspective in Managing Information System by the Three Group of Respondents in terms of ICT related infrastructure*

<i>Governance</i>	<i>ITO</i>	<i>Record Officer</i>	<i>End User</i>	<i>Composite Median</i>
ICT related infrastructure	4	4	4	4

By the composite perspective of ITOs, Records Officers, and End Users, a median score of 4 indicates that they perceive managing the information system in terms of ICT-related infrastructure to a strongly agree. From the results of this research, it can be concluded that all parties, such as IT Officers, Records Officers and End Users, view the management of the information system based on ICT infrastructure, as very efficient.

Harrison's (2019) work supports the findings of this study because he explains how technology can strategically be leveraged for betterment of decision-making, compliance, and long-run organizational growth.

Table 4. *Perspective in Managing Information System by the Three Group of Respondents in terms of Human Resource*

<i>Governance</i>	<i>ITO</i>	<i>Record Officer</i>	<i>End User</i>	<i>Composite Median</i>
Human Resource	4	4	4	4

By the composite perspective of ITOs, Records Officers, and End Users, a composite median score of 4 indicates that they perceive managing the information system in terms of human resource to a strongly agree. This median score of 4 strengthens the argument that the management of human resource of the system is highly effective.

The findings are in parallel to the research done by Smith et al. (2021), who emphasize the significance of human resource management in information systems, and Johnson and Lee (2022), who stress the alignment of technical and human resource strategies in any organization.

Table 5. *Perspective in Managing Information System by the Three Group of Respondents in terms of governance*

<i>Governance</i>	<i>ITO</i>	<i>Record Officer</i>	<i>End User</i>	<i>Composite Median</i>
Financial Resource	4	4	4	4

By the composite perspective of ITOs, Records Officers, and End Users, a composite median score of 4 indicates that they perceive managing the information system in terms of financial resource to a strongly agree.

The outcome of the study shows that ITOs, Records Officers, and the End Users reported that the management of human resources of the information system was significantly effective.

These findings share similarities with Smith et al. (2021), which creates an emphasis on ensuring that there is an adaptation of strategies of human resource with technology to enhance performance of the system.

Significant difference in the perspective of the three groups

Table 6. *Significant difference in the perspective of the three groups in terms of access control of documents*

<i>H</i>	<i>P-value</i>	<i>H crit</i>
-209.83	0.05	5.991

From the findings revealed, it is evident that there is no significant variation in the views of End Users, Record Officers, and Information Technology Officers regarding who should access the documents, as the computed H-value is -209.83 is less than the critical H-value of 5.991. This would, therefore mean that, although their roles differ, all these three categories of officers shared similar opinions on how the document accesses should be treated.

This finding was supported by Smith et al. (2020) and Johnson and Lee (2019), who conclude that good communication and policies with consistent training maintain perceptions of access control throughout the organizational ranks. This means that the organization



communicated well its policy on access control; therefore, a consensus is shared among different stakeholders about this issue.

Table 7. Significant difference in the perspective of the three groups in terms of document trailing

H	P-value	H crit
-209.83	0.05	5.991

From the findings revealed, it is evident that there is no significant variation in the views of End Users, Record Officers, and Information Technology Officers regarding who should access the documents, as the computed H-value is -209.83 is less than the critical H-value of 5.991. This would, therefore mean that, although their roles differ, all these three categories of officers shared similar opinions on how the document trailing should be performed.

These different views demonstrate how various priorities exist between groups regarding document management.

Table 8. Significant difference in the perspective of the three groups in terms of ICT-related infrastructure

H	P-value	H crit
-209.83	0.05	5.991

The table shows there is no significant difference in the perspective of the three groups in terms of ICT-related infrastructure. It also shows that the computed H-value is less than the critical H-value of 5.991 indicates that there is no significant difference in the perspective among the groups of End Users, Record Officers, and Information Technology Officers in managing the information system in terms of ICT-related infrastructure.

Table 9. Significant Difference in the Perspective of the Three Groups in Terms of Human Resources

H	P-value	H crit
-209.83	0.05	5.991

The table shows that there is no significant difference in the perspective of the three groups in terms of human resources, the computed H-value of -209.83 is less than the critical value-H of 5.991 indicates that there is no significant difference in the perspective among the groups of End Users, Record Officers, and Information Technology Officers in managing the information system in terms of human resources.

Table 10. Significant Difference in The Perspective of The Three Groups in Terms of Financial Resources

H	P-value	H crit
-209.83	0.05	5.991

The table shows that there is no significant difference in the perspective of the three groups in terms of financial resources, the computed value H of -209.83 less than the critical H-value of 5.991 indicates that there is no significant difference in the perspective among the groups of End Users, Record Officers, and Information Technology Officers in managing the information system in terms of financial resources.

Explained perspectives on managing the information system by the three groups of respondents

Table 11. Explained perspectives on managing the information system by the three groups of respondents In Terms of Access Control of Documents

Participants	Responses	Codes	Theme
Division ITOs, Division Record Officers, End-Users	"Our SDO uses a role-based access control system, where access to sensitive documents is determined by an employee's role and responsibilities. This ensures that only those who need access to specific information can view or modify it." Participant 1 "We employ multi-factor authentication for accessing sensitive documents, along with encrypted storage. Additionally, document access is logged to track any unauthorized attempts." Participant 2 "Access control is managed through a secure cloud-based platform that provides document-specific permissions. Each document's access rights are assigned to specific roles, and users must authenticate themselves each time they log in." Participant 3 "We use a combination of user ID restrictions and password protection protocols. For highly sensitive information, additional layers like biometrics or two-factor authentication are required." Participant 4 "Our SDO assigns clearance levels to employees, limiting access to	Role-Based Access Control (RBAC), Multi-Factor Authentication (MFA), Encrypted Storage, Document Logging, Clearance Levels	Security Measures



classified documents based on the level assigned. Access is periodically reviewed and adjusted as needed to ensure that only authorized individuals maintain document access." Participant 5

The table shows that the participants' responses highlight a multi-layered approach to document access control within the SDO, where security measures are tailored to ensure that only authorized individuals can access sensitive information.

A key practice across these divisions is Role-Based Access Control (RBAC), which assigns access permissions based on an employee's job responsibilities, helping to prevent unauthorized access to critical information (Zhou et al., 2019).

Additionally, Multi-Factor Authentication (MFA) and encrypted storage provide further protection, securing both access points and stored data against potential breaches (Smith & Brown, 2021). Document access is actively logged to monitor and address any unauthorized attempts, promoting accountability and compliance with organizational policies (Johnson & Nguyen, 2020).

Table 12. *Explained perspectives on managing the information system by the three groups of respondents in terms of document trailing*

Participants	Responses	Codes	Theme
Division ITOs, Division Record Officers, End-Users	"One of the biggest challenges of SDO is balancing security with accessibility. Some employees need quick access to documents, but the extra layers of security, like multi-factor authentication, can slow down workflows." Participant 1 "We've encountered difficulties with employees forgetting their login credentials, which interrupts their access to documents and increases requests for password resets, impacting productivity, yan ang madalas nating na e-ecounter sa mga station natin." Participant 2 "Our SDO faces challenges with updating access rights as roles change frequently. It's difficult to ensure that every employee has the correct level of access at all times, which sometimes leads to delays. Ang totoo sanay sila na ayaw mag update ng security nila." Participant 3 "Implementing access control has highlighted gaps in our existing infrastructure. Some older systems don't support advanced security features, which has limited our ability to enforce access control effectively." Participant 4 "A key issue has been ensuring compliance with access policies, especially for remote workers. The lack of direct oversight makes it harder to verify that employees are following access protocols correctly, tama ba mga kasama." Participant 5	Balancing Security and Accessibility, Credential Management Issues, Updating Access Rights, Infrastructure Gaps, Compliance Issues	Challenges in Access Management

A prevalent concern is the delicate balance between security and accessibility; while multi-factor authentication enhances security, it often slows down workflow, hindering employees' ability to quickly access necessary documents. Credential management emerges as another critical issue, with frequent password resets stemming from employees forgetting their login information, thus impacting productivity.

Participants also highlight the difficulties in updating access rights, as roles within the organization frequently change, leading to potential delays and gaps in access control.

Furthermore, outdated infrastructure presents a barrier to effectively enforcing advanced security measures, exacerbating compliance issues, particularly among remote workers who lack direct oversight. This feedback underscores the necessity for a comprehensive review of current access management practices to enhance both security protocols and user experience within the organization.

Table 13. *Explained perspectives on managing the information system by the three groups of respondents in terms of ICT-related infrastructure*

Participants	Responses	Codes	Theme
Division ITOs, Division Record Officers, End-Users	"We implement multi-factor authentication (MFA), firewalls, and regular password updates to prevent unauthorized access. These measures are generally effective, pero ito ang cause sometimes ng delays for users, especially those who work remotely. Kaya minsan marami nagagalit sa ITO." Participant 1 "Our system relies on encryption, role-based access controls, and secure VPNs for remote access. These protocols are effective, but we occasionally encounter issues with VPN connectivity, which can disrupt access for authorized users." Participant 2 "Our SDO employ strong passwords, biometric authentication, and regular audits of user access rights. While these protocols work well,	Use of Firewalls and Encryption, Password Protocols, Monitoring and Alerts, User Compliance Challenges, Workflow Disruptions	Effectiveness of Security Protocols



there are occasional challenges with password compliance, as some users choose weak passwords dahil madali syang tandaan." Participant 3
 "We use a combination of data encryption, firewall protection, and periodic access reviews. These protocols have been successful in preventing unauthorized access, although some users find frequent password changes inconvenient dahil nasanay sila sa iisang password sa lahat ng system na ginagamit nila." Participant 4
 "Our security includes multi-tiered access controls, real-time monitoring, and automated alerts for suspicious activity. These tools are largely effective, but we sometimes face false positives, which disrupts workflows as we investigate potential issues." Participant 5

A primary issue is the friction between maintaining robust security measures and ensuring efficient access, especially for employees who need immediate access to documents but find multi-factor authentication a hindrance to workflow speed (Patel & Kim, 2021).

Additionally, credential management is a recurring concern, with frequent password resets due to forgotten credentials, impacting productivity and increasing the workload on support teams (Jones et al., 2020). As roles change, updating access rights presents an ongoing challenge, sometimes causing access delays, as many employees resist regular security updates (Martin & Lee, 2022).

Table 14. *Explained perspectives on managing the information system by the three groups of respondents in terms of human resources*

Participants	Responses	Codes	Theme
Division ITOs, Division Record Officers, End-Users	"In our division we make sure that balance accessibility and security by assigning user roles based on document sensitivity; routine documents have easier access, while classified files require multi-factor authentication. Regular audits and reporting to the top management will ensure only authorized users have access to sensitive data." Participant 1 "We do streamline processes frequently para sa accessed documents ng reduce layers of authentication for trusted users, pero apply pa rin ang stricter controls to confidential files. Ito ang approach para ma-keeps workflows efficient while maintaining robust security for critical information." Participant 2 "Our approach in our SDO ay involves categorizing documents by access level, granting automatic access to essential files and limiting it for sensitive ones. Ang User accessibility ay monitored, may feedback para magathered to keep processes both secure and user-friendly." Participant 3 "Mas prioritize namin ang security by using strong password protocols and audit logs, while also implementing self-service options for employees to reset passwords and manage access. Para mas mabilis ang access to needed documents without compromising security." Participant 4 "We SDO provide access based on a 'need-to-know' principle, with different security levels for various departments. This reduces risk for sensitive files and ensures that users can still access necessary documents for daily operations." Participant 5	Role-Based Permissions, Streamlining Access Processes, User Feedback Mechanisms, Security Audits, Need-to-Know Principle	Balancing Accessibility and Security

A prevalent strategy involves assigning user roles based on document sensitivity, where routine documents are easily accessible, but classified files require multi-factor authentication and undergo regular audits to restrict access to authorized personnel only (Nguyen & Brown, 2021). Streamlining processes is also key; some divisions reduce authentication layers for trusted users while maintaining strict controls for confidential files, ensuring efficient workflows without compromising security (Thomas et al., 2022).

Categorizing documents by access level and using feedback mechanisms allows for continuous improvement of the process, making it both secure and user-friendly. Moreover, divisions implement strong password protocols and audit logs, along with self-service options, enabling employees to manage their access efficiently (Lee & Martinez, 2020).

The table 17 shows the insights from Division ITOs, Record Officers, and End-Users reflect the strategic adoption of document tracking systems across various divisions, which are essential for maintaining an organized and secure document lifecycle. A primary tool utilized is document management software that logs detailed actions on each document, such as access times and modifications, allowing for a transparent document trail (Johnson et al., 2021).

Cloud-based solutions further enhance tracking, offering version control that enables users to view document history, including previous changes and their authors, while also ensuring access continuity even offline. In some cases, physical documents are tracked with QR codes and digital tags, which update in real-time within the system when scanned, providing an efficient way to monitor

document location and status.

Table 17. *Explained perspectives on managing the information system by the three groups of respondents in terms of financial resources*

<i>Participants</i>	<i>Responses</i>	<i>Codes</i>	<i>Theme</i>
Division ITOs, Division Record Officers, End-Users	"Our current system utilizes a robust document management software that logs every action taken on documents, including who accessed them, when, and what changes were made. Ang timestamping ang magsasabi kung allows us to maintain an accurate trail of document movements and modifications." Participant 1 "Our SDO have implemented a cloud-based solution that automatically tracks document versions and user interactions kahit walang internet sa office makaka acces pa rin kami using our own data. Each document's ay may history , enable na makita namin ang current version at saka previous changes and who made them." Participant 2 "Our information system in our SDO includes a document tracking feature that captures the entire lifecycle of each document from creation to final approval. Notifications are sent out whenever a document is moved or modified, ensuring that all stakeholders are informed in real time." Participant 3 "We utilize a combination of QRcode and digital tags para sa physical documents. When a document is moved or accessed, the corresponding code is scanned, automatically nag update the digital system para mag-reflect its new location and status." Participant 4 "Our SDO has tracking system that integrates with our existing workflow management tools, allowing us to visualize document flow across different division up to school level. This integration helps streamline processes by identifying bottlenecks and ensuring that documents move swiftly through the required approvals....." Participant 5	Document Management Software, Version Control, User Interaction Logs, QR Codes for Physical Documents, Workflow Integration	Document Tracking Systems

Additionally, some divisions integrate tracking systems with existing workflow management tools, enabling visualization of document flow through different levels and identifying any bottlenecks. These approaches collectively support timely document handling, improve transparency, and maintain organizational accountability (Smith & Carlson, 2022).

Formulation of cascading protocol as a guide to achieve sustainable information management system

A key strategy to achieve a sustainable information management system is the formulation of a cascading protocol, which serves as a structured guide to streamline processes, ensure consistency across governance levels, and address critical areas such as document control, document trailing, and the efficient allocation of human and financial resources. Effective document control ensures information is accurate, secure, and accessible to authorized personnel while preventing redundancies and errors. Document trailing provides traceability and accountability, enabling organizations to monitor changes and maintain transparency. Moreover, the strategic management of human and financial resources fosters efficiency and sustainability in information handling. By integrating these elements, this document outlines a friendly comprehensive protocol for achieving operational efficiency, supporting informed decision-making, and ensuring the long-term resilience of information management systems.

Conclusions

Based on the findings of the study Information Management: An Innovative Process for Sustainability, all the assessed features—document control, document trailing, ICT infrastructure, human resources, and financial resources—are critical components in the implementation of the developed protocol. Each feature plays a vital role in establishing a sustainable information management system by ensuring efficiency, accuracy, accountability, and resource optimization. The study underscores the importance of aligning these components with the specific needs and capacities of the organization to achieve long-term sustainability. The developed protocol serves as a comprehensive framework that integrates these features, providing a structured guide for improving information management practices. By addressing these elements, the protocol not only enhances operational efficiency but also supports informed decision-making and promotes organizational resilience in managing information systems effectively.

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