European Proceedings of
Social and Behavioural Sciences
EpSBS

www.europeanproceedings.com
e-ISSN: 2357-1330

DOI: 10.15405/epsbs.2024.05.50

INCOMAR 2023
The 9th International Conference on Marketing and Retailing

AN EVALUATION OF ELECTRONIC DOCUMENT MANAGEMENT SYSTEM FUNCTIONALITIES AND EFFECTIVENESS IN MALAYSIA

Dayangku Horiah Awang Gani (a)*, Irwan Kamaruddin Abd Kadir (b),
Mohamad Noorman Masrek (c), Azmi Ab Rahman (d)
*Corresponding author

(a) College of Computing, Informatics and Media Studies, MARA University of Technology, 40150 Shah Alam, Selangor, Malaysia, 2018653706@student.uitm.edu.my
(b) College of Computing, Informatics and Media Studies, MARA University of Technology, 40150 Shah Alam, Selangor, Malaysia, irwan@uitm.edu.my
(c) College of Computing, Informatics and Media Studies, MARA University of Technology, 40150 Shah Alam, Selangor, Malaysia, mnoorman@uitm.edu.my
(d) College of Computing, Informatics and Media Studies, MARA University of Technology, 40150 Shah Alam, Selangor, Malaysia, ar_azmi@uitm.edu.my

Abstract

Previous studies evaluating the effectiveness of the Electronic Document Management System (EDMS) have paid little attention to the functionalities. There isn't much information available about how users rate the effectiveness of its functionalities, and little is known whether these functionalities contribute to effectiveness as measured by information quality, system quality, perceived usefulness, and satisfaction. In light of this, a study was conducted to investigate the perceived effectiveness of EDMS functionalities and their relationship with information quality, system quality, perceived usefulness, and satisfaction. Data was collected from EDMS users using a survey research methodology, and mixed results were obtained from the Partial Least Square Structural Equation Modelling analysis. The findings highlight the significance of EDMS functionalities in enhancing overall effectiveness of the system. This study not only provides theoretical insights but also has practical applications, making it relevant and should pique the interest of individuals involved in the deployment of EDMS implementation.

Keywords: Electronic document, electronic records, electronic document management system, records

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

Organizations must keep business decisions and transaction records to meet corporate accountability and comply with public records legislation. (Ambira et al., 2019) Computerization has enabled the use of ICT in the development and administration of records. However, there needs to be more concern about the government's ability to manage and maintain electronic records (Asogwa, 2012). An EDMS software program manages documents' electronic creation, storage, and control. It includes document management, workflow, text retrieval, and imaging (Minnesota State Archives, 2012). Several commercial EDMS are available today, including Knowmax, pCloud, HubSpot, Alfresco, LogicalDOC, Feng Office, Nuxeo, KnowledgeTree, Seed DMS, Casebox, MasterControl Documents, M-Files, Worldox, Dokmee, Ademero, Knowm. EDMS also is called a Content Management System (CMS) and is widely considered the component of Enterprise Content Management (ECM).

Companies and organizations are developing their own EDMS due to security concerns and long-term cost savings. The Information Systems Success Model developed by DeLone and McLean (2016) is used to assess effectiveness. However, it is crucial to incorporate other antecedent or independent variables to isolate the effect of various independent variables with one or more of these dependent success dimensions.

ISO 9126 defines functionality as a set of attributes that bear on the existence of a set of functions and their specified properties. Suitability is the essential aspect of functionality, with functional completeness, correctness, and appropriateness being subcategories (Moturi & Mbiwa, 2015). Functional correctness is the degree to which a product or system produces the correct results with the required precision. In contrast, Functional completeness refers to the degree to which a set of functions covers all specified tasks and user objectives (Moturi & Mbiwa, 2015). Functional appropriateness is measured by functional appropriateness, and leading institutions have developed principles and functional requirements for EDMS.

Functional requirements define the result the system is expected to achieve and deliver to the users (Alsaleh & Haron, 2016). Automated information capture, federated search and retrieval, collaborative tools, hierarchical file indexing and classification, storage and archival method, automated workflow, security, audit trail, and support and administer compliance are all functional requirements of an EDMS (Laserfiche, 2020). Guo et al. (2021) found that users' functional requirements for services should be highlighted because they impact overall effectiveness assessment. Eichhorn (2014) found that functional requirements positively impact user satisfaction measured in project delivery, business functionalities, and technical functionalities. However, past studies need to pay more attention to functionalities and their relationships with the dimensions of DeLone and Mclean's model. This study attempts to address this gap by examining the relationship between EDMS functionalities and the dimensions of information systems success.

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

2. Literature Review

2.1. Overview of EDMS

ISO 9001 defines a document as information and its supporting medium, while a record is a "document showing results achieved or providing documentation of activities undertaken." In paper-based traditional document management, documents will be kept when the user has finished, but users tend to hoard information once they have gotten the documents they need. For documents in file folders that are not accessible or retrievable, request, receipt, and disposal processes add no value (Forcada et al., 2005). Organizations have implemented Electronic Document Management Systems (EDMS) to handle organizational documents and records efficiently and effectively. EDMS provides many benefits to organizations, such as more effective management, transparency, support the quality system, efficient storage, management, access to information and knowledge, personnel flexibility, logging of activity, optimization of business processes, and automation of implementation and monitoring mechanisms, exclusion or maximum reduction of paper documents circulation, and resource savings (Burtylev et al., 2013).

EDMS use and implementation have drawbacks, such as requiring all data to be in electronic format and interfacing with incompatible systems. Options for data storage, expanded networking capabilities, sophisticated desktop computing, software support, and implementation should be considered when evaluating, selecting, and using EDMS. Start-up costs, payback maximization and analysis, cost justification, and savings should be addressed (Forcada et al., 2005).

2.2. Development of EDMS

Electronic document management systems (EDMS) were developed in the 1980s to manage unstructured electronic information. They use technology to reduce paper consumption, improve communication, and enhance productivity. DMS is a combination of applications that allow for automated storage, organization, transmission, retrieval, manipulation, update, and eventual disposition of documents (Sprague, 1995).

In developing a system, both functional and non-functional requirements the system are essential. Functional requirements are the system's feature specifications that define a system, its component, or its fundamental behavior. Non-functional requirements are not the system's support but rather the performance attribute of a software system. The design method based on information models, standard compliance, uniform access to heterogeneous data sources, and cost-effectiveness must be internationally well-recognized to develop an EDMS. The interface of the document management system should provide users with a consistent access paradigm for searching and exploring documents stored as documents in various formats, and the EDMS should be effective in terms of storage and time for retrieval of documents (Paganelli & Pettenati, 2005)

The applications of an electronic document management system (EDMS) focus on controlling electronic documents throughout their life cycle. This includes document creation, storage and retrieval, management, version control, workflow, and multiple delivery formats. EDMS also allows the user to

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

track changes done to a document and retrieve old versions. EDMS lets users have multiple delivery formats of document content, such as PDF, Word, and Image, to cater to the requirements of the end users.

2.3. Acceptance of EDMS

User acceptance is a user group's willingness to use information technology for the tasks it was created to support. It is determined by five characteristics: relative advantage, compatibility, compatibility, complexity, ease of use or learning, trialability, and observability. EDMS is widely used in government agencies and research has shown that it is accepted among users (Dillon, 2001).

The success of the Electronic Document Management System (EDMS) implementation is determined by the user acceptance rate. Lojonon and Alfred (2021) identified organizational challenges, user resistance and support, system integration needs, accelerating change management strategies, lessons learned and understanding the past implementation of the system. Abdulkadhim et al. (2015) believed that top management support, budget/cost, strategic planning, legislation environment, collaboration, ICT infrastructure, IT implementation team, high security and authentication, and user requirement are the factors that influence the acceptance of EDMS by the users in the organization. Kaaki et al. (2013) identified personal factors such as age, recognition, and experience in EDMS usage. Most researchers agreed that the system could be a waste if no one intends to use or accept it (Sezgin et al., 2013).

2.4. Effectiveness of EDMS

Data Exchange Management System (EDMS) effectiveness measures a system's success in terms of system quality, information quality, usage, user satisfaction, and impact on individuals and the organization. EDMS can be seen in its capability to handle workflow in the organizational business process, such as activation, tracking, status monitoring, messaging, queue handling, and routing of documents (Cho, 2008). Examples of EDMS deployment in a virtual workplace demonstrate its effectiveness in transforming the capabilities of a modern organization and workforce (Alshibly et al., 2016) DeLone and McLean (2016) found that IS effectiveness is determined by six factors: system quality, information quality, consumption of output, user satisfaction, and organizational performance. Gupta et al. (2017) found that system quality can affect users' expectations for future positive outcomes.

2.5. Theoretical Framework

This section examines the theoretical framework of Electronic Document Management System functionalities and factors related to system effectiveness, such as information quality, system quality, satisfaction, and perceived usefulness.

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

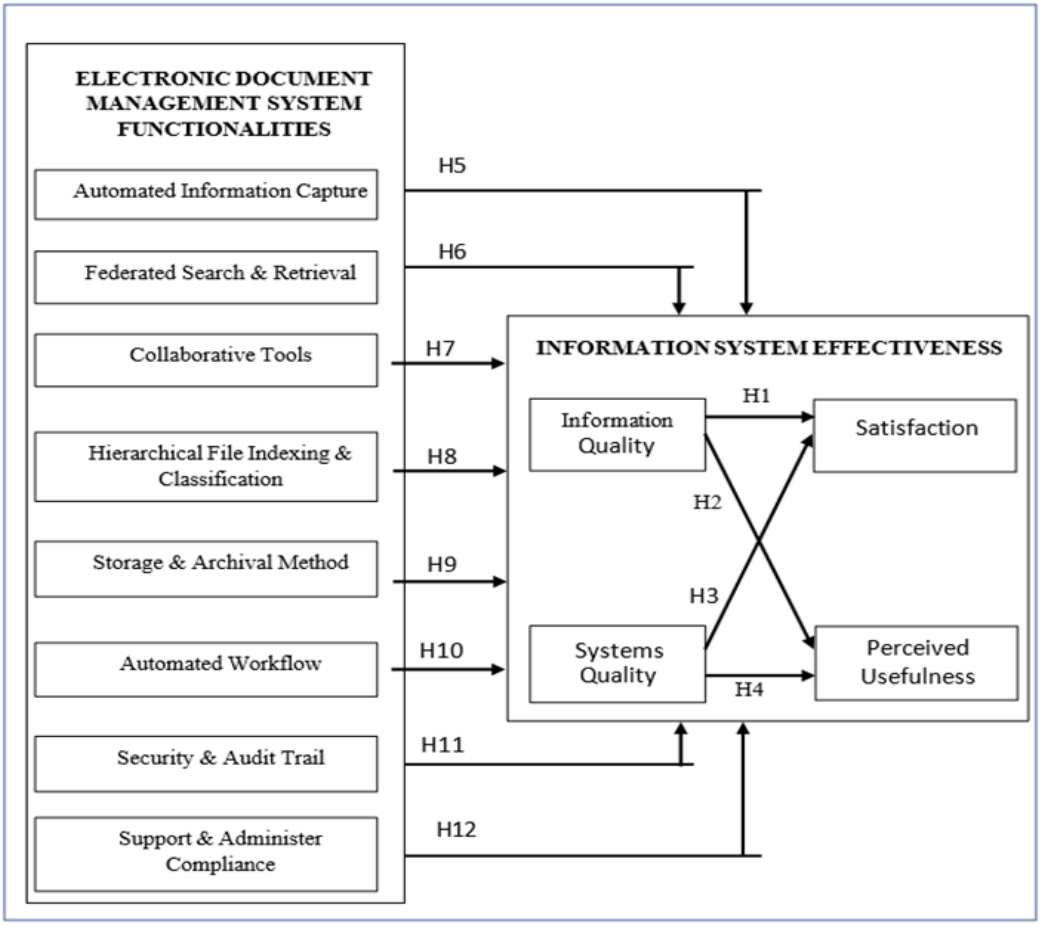

Figure 1. Theoretical Framework

2.6. Information System Effectiveness

DeLone and McLean (2016) conducted a thorough analysis and organization of previous IS research. They stated that an information system's success/effectiveness is determined by its quality, information quality, perceived usefulness, and user satisfaction.

System quality refers to hardware and software reliability, responsiveness, and user-friendliness, while information quality refers to completeness, security, availability, accuracy, relevancy, timeliness, and understandability. User satisfaction is used to assess effectiveness, while perceived usefulness is an individual's perception that technology will improve performance. Electronic Document Management System functionalities include automated information capture, federated search, and retrieval, collaborative tools, hierarchical file indexing and classification, storage & archival method, automated workflow, security & audit trail. In this regard, we will study the relationship between EDMS Functionalities and Information System Effectiveness. Their corresponding relationship is shown in Figure 1. The detailed elaborations, justifications of the relationship, and hypotheses are explained in the following subsections.

Information quality is defined as desirable characteristics of system outputs, such as relevant, accurate, accurate, helpful, available on time, conciseness, completeness, currency, and usability. Positive response to EDMS will lead to increased information quality that impacts the level of openness and

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

transparency in the government business process and contributes to users' satisfaction and perceived usefulness in government agencies (Petter et al., 2013).

Driven by these statements, we also expect that:

H1: Information quality has a significant positive relationship with satisfaction.

H2: Information quality has a significant positive relationship with perceived usefulness.

System Quality in an EDMS is the system's performance in terms of ease of use and learning integration. It includes ease of use, system flexibility, system reliability, ease of learning, and system features of intuitiveness, sophistication, flexibility, and response times (DeLone & McLean, 2016). System quality is positively associated with perceived usefulness as it is easy to use and learn, practical, requires little effort to be used, easy to retrieve information, and responds to instruction quickly. Accordingly, the hypothesis the current study hypothesis that:

H3: Systems quality has a significant positive relationship with satisfaction.

H4: Systems quality has a significant positive relationship with perceived usefulness.

Satisfaction is the pleasure or unhappiness that arises from a person's engagement with an EDMS. It is an evaluation construct and can be the only factor determining an information system's performance (Kalankesh et al., 2020).

In this study, user satisfaction is satisfaction with the EDMS, meets information processing needs, and is satisfied with the ease of use.

Perceived usefulness is the degree to which a person believes using a particular technology will enhance their job performance (Davis, 1989). This includes EDMS enabling to accomplish tasks more quickly, improving job performance, increasing productivity, making it easier to do, and being beneficial to the user's job.

Automated information capture is a service in an EDMS that converts paper documents into digital files by high-volume scanning and OCR. It can capture and store digital files from network folders and drives, Microsoft Office, mobile devices, and digital cameras. Thus, this study postulates the following hypotheses:

H5 Automated information capture has a significant positive relationship with information systems effectiveness.

Federated search & retrieval Federated search & retrieval is a technique for merging multiple search engines into a single virtual search system. It searches for information about each resource's contents, a set of resources selection, and results that have been returned from selected resources (Shokouhi & Si, 2011). EDMS allows authorized users to quickly locate files from across document folders and repositories and access the full content. Thus, the hypothesis that will be tested is that:

H6: Federated search and retrieval have a significant positive relationship with information systems effectiveness.

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Collaboration tools in EDMS allow a team to communicate remotely and make collaborative changes to documents. Lomas et al. (2008) stated that today's collaboration tools enable persistent micro-interactions or sharing almost trivial updates between collaborators. This study used an information system to build a collaborative website with document management, task management, electronic system notification, and other functionalities. EDMS, with collaboration tools, provides the ability to work faster on document changes and makes it easy to create and edit documents directly within the system. It also allows the user to create, upload and categorize new documents without leaving a certain interface. This study suggests the following hypotheses: H7: Collaborative Tools has a significant positive relationship with information systems effectiveness.

Hierarchical file indexing and classification provide an intellectual framework for organizing a business unit's records within a hierarchy. In EDMS, indexing allows the speed of information retrieval with a sorted list of keywords. Classification is a file classification scheme that classifies, titling, accessing, and retrieves records with this method. Hierarchical structures enable the use of EDMS, resulting in higher efficiency and accuracy. Therefore, this study suggests the following hypotheses:

H8: Hierarchical file indexing and classification have a significant positive relationship with information systems effectiveness.

Storage and archival method functions allow the system to store documents within the EDMS or centrally manage the adjunct storage system. Archival method storage is a records management process that ensures protection, maintenance, and accessibility. This variable seeks to address the following issues: enable the user to save the document into archival, change the status from open file/document to closed file/document folder, copy the document/file to another medium, do documents/records inventories, and include the file/document into the retention schedules. Therefore, the hypothesis that will be tested is that:

H9 storage & archival method has a significant positive relationship with information systems effectiveness.

Automated workflow is defined by the set of actions involved in performing a task and the logic constraints that govern how such actions may be executed concerning each other automatically. The back-end automation ranges from workflows that automatically create folders and file new documents to advanced alerts that loop in end users at essential stages of internal business processes (Bae & Kim, 2002). EDMS has multiple roles of storage, archiving, management, approbation, and flow-control documents to facilitate organizational workflows (Pho & Tambo, 2014). Therefore, this study suggests the following hypotheses:

H10: Automated workflow has a significant positive relationship with information systems effectiveness.

Security and Audit Trail. According to Groenewald (2004), EDMS ensures the security of electronic documents through version control, audit trails for each document, and controlling access to

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

documents via various security levels. Access is regulated by users' position or department, and audit trails automatically monitor how information is accessed. EDMS also ensures the organization's awareness and stores all records needed during an emergency, creating an unbreakable audit trail for accountability (Chaudhry et al., 2016). Therefore, the hypothesis that will be tested is that:

H11: Security & Audit Trail has a significant positive relationship with information systems effectiveness.

Support administers compliance in EDMS is complying with all requirements from the legal and regulatory environment, business, and organization's expectations. Prior research has shown that EDMS automatically tracks modifications to documents and metadata, forming a history of documents used to maintain compliance with governance standards. EDMS can maintain ongoing compliance with regulatory bodies and requires easy-to-follow audit trails, strict document authorizations, and ISO standards that strict document version control. This variable aims to address the following questions: Does the EDMS enable researchers to identify and manage regulatory risk, design and implement controls to protect an organization from those risks, monitor, and report on the effectiveness of risk controls, resolve compliance difficulties, and impose rules and controls of risks. It can therefore be assumed that:

H12: Support Administer Compliance has a significant positive relationship with information systems effectiveness.

3. Research Methods

After considering the nature and objectives of the study, the methodological approach taken in this study is a quantitative survey with data being gathered via the online survey. Using quantitative studies is a well-established approach to information system success or effectiveness. The population for this study consisted of EDMS users in the Sarawak government agencies. The government agencies in Sarawak use six main systems. However, only CACTUS is the only system that has the feature of Document Management Services in EDMS. Only 209 agencies are active users of CACTUS. Only responses from those who had previously used EDMS were included to ensure that the survey measures were based on direct EDMS experiences. The design of the questionnaires was based on a self-administered questionnaire to measure the study variables. The questionnaires were pre-tested and distributed to four professionals in the faculty and four professionals from the government of Sarawak agencies who are in the information systems area of specialization and users of the EDMS. The respondents were asked to critically evaluate the questionnaire regarding its objective, contents, clarity, and ease of completion. They also recommended translation and validating the Malay version of the survey, which was distributed to EDMS users. After the pre-testing stage, a modified questionnaire was developed to conduct a pilot study. The final questionnaire was used to obtain data across eight dimensions consisting of:

(1) Automated Information Capture; (2) Federated Search and Retrieval; (3) Collaborative Tools; (4) Hierarchical File Indexing and Classification; (5) Storage and Archival Method; (6) Automated Workflow; (7) Security and Audit Trail; and (8) Support and Administer compliance. Each dimension was a construct related to the independent and dependent variables of the study. The structure of questionnaire consisted of three sections. The first section obtained demographic information about the

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

respondents. The second section consisted of 60 questions obtaining data in document management services and information system effectiveness in the EDMS system. The questionnaire was designed using a 7-point Likert scale. Respondents are asked to score their level of agreement with statements on a Likert scale that ranges from strongly disagree to strongly agree. The respondent is given a clear basis for giving their concerns using the Likert scale without the researcher's intervention or interpretation. According to Punch (2013) Likert scale is commonly used in social research and provides data in a form like an interval scale. Thus, it was selected as the survey instrument for this study. In the consent part, the participants were informed that participation was entirely voluntary and that their responses would be held in the strictest confidence.

4. Findings

4.1. Demographic Profiles

Table 1 presents the demographic profile of the respondents. A total of 293 respondents were involved in this study; out of this number, just over half the sample, 189 (64.5%) were female, of whom 104 or 35.5% were males. In terms of the age group, the majority belong to the age group between 26 to 33 (32.4%) while minority (4.1%) reported to be aged 18 to 25. In terms of experiences using EDMS, the majority indicated they have been using EDMS for about less than five years (34.8%). The rest have indicated to have been using EDMS for about five to ten years (33.1%), eleven to fifteen years (19.1%), sixteen to twenty years (10.9%), more than twenty-five years (1.4%), and twenty-one to twenty-five years (0.7%).

Table 2 shows that over 34.8% of the respondents had used EDMS for less than 5 years, indicating a significant proportion of new users. The percentage of individuals with 5 to 10 years of experience is 33.1%, indicating an important number with a moderate level of familiarity. The group of users aged 11 to 15 years (19.1%) and 16 to 20 years (10.9%) demonstrates a decrease in occurrence, indicating a progressive decline in the percentage of users with sustained involvement overt time. Significantly, individuals who have been using EDMS for 21 to 25 years and above 25 years represent decreased proportions, specifically 0.7% and 1.4% respectively, showing a decrease in the number of users with long EDMS experience.

Table 1. Variance age of respondents for this study

Characteristic	Value	Frequency	Percent%
Age	18 – 25 years	12	4.1
	26 – 33 years	95	32.4
	34 – 41 years	79	27
	42 – 49 years	87	29.7
	50 – 57 years	20	6.8

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Table 2. Demographic profiles for number of using EDMS and frequency of usage by respondents.

		Frequency	Percentage (%)
Number of years using EDMS	< 5 years	102	34.8
	5 to 10 years	97	33.1
	11 to 15 years	56	19.1
	16 to 20 years	32	10.9
	21 to 25 years	2	0.7
	Above 25 years	4	1.4

4.2. Measurement Model

In this study, Compositite Reliability (CR), Average Variance Extratced (AVE) and Cronbach's Alpha were assessed to address the convergent validity of measures. The results as shown in Table 3 indicate that all the AVE surpassed the recommended value of 0.5, while the Cronbach's Alpha exceed the recommended value of 0.7.

Table 3. Assessment of Convergent Validity.

	Cronbach' s Alpha	rho_A	Composite e Reliability	Average Variance Extracted (AVE)
Automated Information Capture	0.854	0.855	0.901	0.695
Automated Workflow	0.931	0.932	0.948	0.784
Collaborative Tools	0.886	0.896	0.916	0.685
Federated Search & Retrieval	0.889	0.890	0.923	0.750
Hierarchical File Indexing & Classification	0.921	0.925	0.941	0.760
Information Quality	0.954	0.956	0.965	0.846
Information System Effectiveness		1.000		
Perceived Usefulness	0.975	0.976	0.980	0.890
Satisfaction	0.957	0.958	0.969	0.887
Security & Audit Trail	0.925	0.928	0.941	0.726
Storage & Archival Method	0.904	0.914	0.928	0.721
Support & Administer Compliance	0.958	0.958	0.967	0.855
System Quality	0.929	0.936	0.946	0.780

Table 4. Assessment of Discriminant Validity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Automated Information Capture	0.834												
Automated Workflow	0.686	0.886											
Collaborative Tools	0.700	0.781	0.828										
Federated Search & Retrieval	0.742	0.720	0.709	0.866									
Hierarchical File Indexing & Classification	0.721	0.757	0.772	0.722	0.872								
Information	0.6	0.80	0.69	0.80	0.70	0.92							

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Quality	81	3	8	0	1	0							
Information System Effectiveness	0.717	0.848	0.741	0.809	0.725	0.936							
Perceived Usefulness	0.671	0.778	0.696	0.717	0.660	0.809	0.939	0.943					
Satisfaction	0.670	0.803	0.746	0.758	0.686	0.842	0.963	0.926	0.942				
Security & Audit Trail	0.622	0.817	0.729	0.639	0.777	0.675	0.711	0.648	0.690	0.852			
Storage & Archival Method	0.579	0.734	0.704	0.609	0.787	0.590	0.617	0.560	0.581	0.811	0.849		
Support & Administer Compliance	0.554	0.791	0.721	0.606	0.737	0.671	0.722	0.669	0.708	0.773	0.735	0.925	
System Quality	0.685	0.813	0.674	0.779	0.683	0.882	0.957	0.855	0.898	0.666	0.591	0.676	0.883

As illustrated in Table 4, discriminant validity can be assumed because the square root of the AVE is greater than the correlation value among other constructs (Note: The square root of AVE is italicized).

4.3. Structural Model

Following the measurement model assessment, the structural model assessment was carried out (Figure 2). The assessment results showed that the path analysis result was substantial because the R2 of the outcome variables ranged between 0.8 and 0.974 (Table 5). Cohen (1988) suggests that R2 should be about 0.35 or greater18, while Falk and Miller (1992) recommended 0.10 or above19. The R2 for Information System Effectiveness was 0.8, while for Information Quality, Perceived Usefulness, Satisfaction, and Systems Quality were 0.859, 0.974, 0.952, and 0.898, respectively. As shown in Table 4, four hypotheses were rejected and eight were supported. The highest regression weight (β) was between Automated Workflow and Information System Effectiveness (0.466) followed by between Federated Search & Retrieval and Information System Effectiveness (0.357) and between Support & Administer Compliance and Information System Effectiveness (0.147).

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

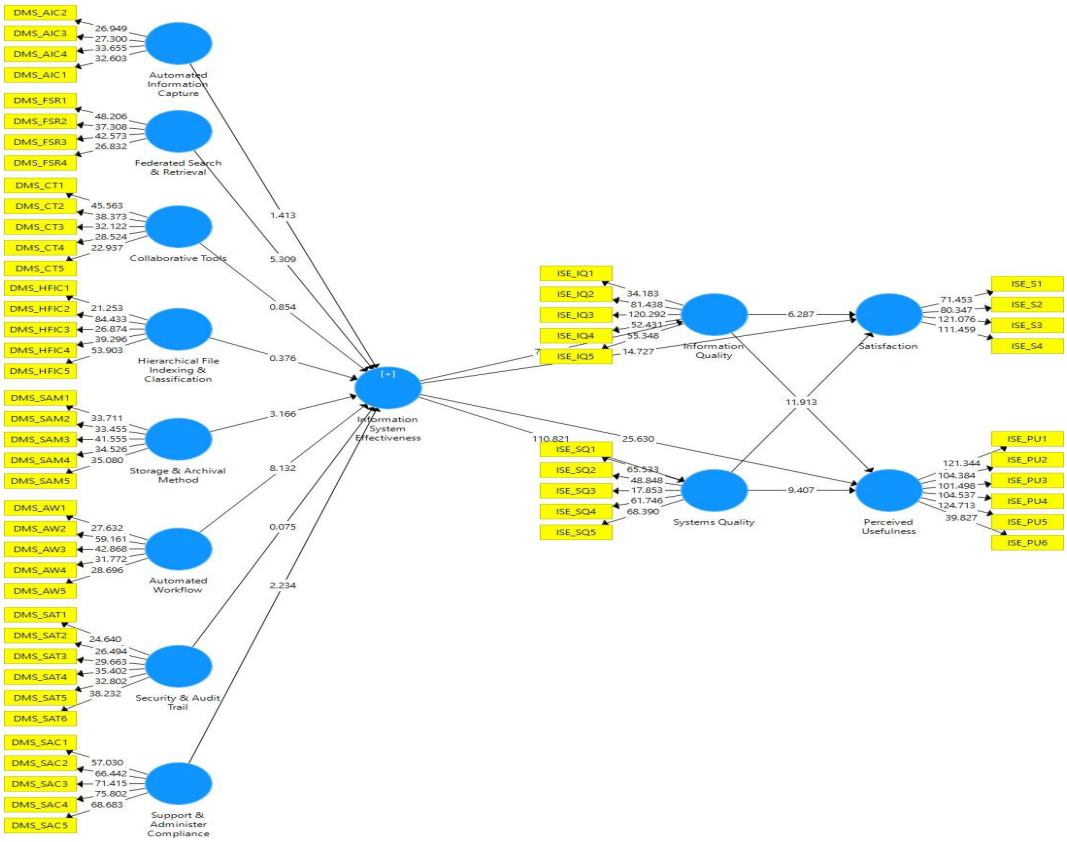

Figure 2. SmartPLS output of the measurement model

Table 5. Results of Path Coefficients of the Structural Model

Hypothesis		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
H5	Automated Information Capture -> Information System Effectiveness	0.083	0.089	0.059	**1.413**	0.158	Rejected
H10	Automated workflow -> Information System Effectiveness	0.466	0.464	0.057	**8.132**	0	Supported
H7	Collaborative Tools -> information System Effectiveness	0.059	0.06	0.069	**0.854**	0.393	Rejected
H6	Federated Search & Retrieval -> Information System Effectiveness	0.357	0.341	0.067	**5.309**	0.000	Supported
H8	Hierarchical File Indexing & Classification -> Information System Effectiveness	0.024	0.031	0.063	**0.376**	0.707	Rejected
H2	Information Quality -> Perceived Usefulness	-0.528	-0.532	0.044	**11.913**	0.000	Supported

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

H1	Information Quality -> Satisfaction	-0.37	-0.366	0.059	**6.287**	0.000	Supported
H11	Security & Audit Trail -> Information System Effectiveness	0.005	0.022	0.064	**0.075**	0.940	Rejected
H9	Storage & Archival Method -> Information System Effectiveness	-0.171	-0.172	0.054	**3.166**	0.002	Supported
H12	Support & Administer Compliance -> Information System Effectiveness	0.147	0.136	0.066	**2.234**	0.026	Supported
H4	Systems Quality_ -> Perceived Usefulness	-0.469	-0.473	0.05	**9.407**	0.000	Supported
H3	Systems Quality_ -> Satisfaction	-0.143	-0.138	0.072	**1.989**	0.047	Supported

However, the findings of bootstrapping for all rejected hypotheses were supported when these unsupported hypotheses were tested individually, as shown in Table 6.

Table 6. Path Coefficient of unsupported Hypotheses result after the bootstrapping run individually

Hypothesis		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistics (|O/STDEV|)	P-Values	Decision
H5	Automated Information Capture -> Information System Effectiveness	0.713	0.715	0.042	16.88	0	Supported
H7	Collaborative Tools -> Information System Effectiveness	0.74	0.744	0.039	18.881	0	Supported
H8	Hierarchical File Indexing & Classification -> Information System Effectiveness	0.718	0.722	0.038	18.678	0	Supported
H11	Security & Audit Trail -> Information System Effectiveness	0.704	0.707	0.046	15.389	0	Supported

https://doi.org/10.15405/epsbs.2024.05.50
Corresponding Author: Dayangku Horiah Awang Gani
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

5. Discussion

In line with the researcher's expectation, Automated Workflow (= 0.466, $p < 0.001$), Federated Search & Retrieval (= 0.357, $p < 0.001$), and Storage & Archival Method (= - 0.171, $p < 0.001$) Support & Administer compliance (= 0.147, $p < 0.001$) was found to have a significant positive relationship with information systems effectiveness. This finding is related to the study by Pho and Tambo (2014) as he mentioned that automated workflow in EDMS could enhance processes description, distribution of official documents, leveraging of information silos, and promoting collaboration and communication that contribute to the effectiveness of the information system. This will keep users captivated by EDMS in the organization. Federated search techniques can provide parallel search over multiple collections in the EDMS. With the effectiveness of the federated search and retrieval functionality in the EDMS, would the users be persistent in using EDMS? Storage and archival method in EDMS are a repository that stores collections of digital records to preserve and provide long-term access to the document. The preservation of storage and archival methods ensures the authenticity and protection of documents and electronic records. The effectiveness of the information system in the document storage in EDMS allows users to collect various electronic documents (e.g., PDFs, images, and other media).

Information Quality (= -0.37, $p < 0.001$) and Systems Quality (= -0.143, $p < 0.001$) were also found to have a significant positive relationship with satisfaction. The value that a service involves in EDMS is not only fit customer needs and expectations to complete their task but also through the opportunity for customer satisfaction. The satisfaction by users of EDMS can be portrayed through an emotional attitude that pleases and loves their work. Information Quality (= -0.528, $p < 0.001$) and Systems Quality (= -0.469, $p < 0.001$) were also found to have a significant positive relationship with perceived usefulness. Research results indicate that overall perceived usefulness affects user satisfaction (Machdar, 2019). The effectiveness of EDMS in terms of information quality and system quality is to change the perception of users about system usefulness with an effort to maximize user performance achievement.

Finally, the results also showed unsupported hypotheses, Automated Information Capture (= 0.083, $p < 0.001$), Collaborative Tools (= 0.059, $p < 0.001$), Hierarchical File Indexing & Classification (= 0.024, $p < 0.001$), and Security & Audit Trail (=0.005, $p < 0.001$) was found not to have a significant positive relationship with information systems effectiveness.

6. Conclusion

This article examines the relationship between EDMS functionalities, and the dimensions of information systems success measured in terms of information quality, systems quality, perceived usefulness, and user satisfaction. The constructs of this study are automated information capture, federated search and retrieval, collaborative tools, hierarchical file indexing and classification, storage and archival method, automated workflow, security and audit trail, and support and administer compliance. The analyses found that eight out of twelve hypotheses were supported, while another four were rejected. This study contributes to the literature by highlighting the significance of EDMS functionalities in enhancing overall effectiveness, strengthening the relationship between them and the

information system effectiveness model, and providing practical applications to assess the effectiveness of EDMS implemented in government agencies. This study was limited by government agencies using the EDMS, and future studies should consider extending the population's scope to include the community that uses the e-government service.

References

Abdulkadhim, H., Bahari, M., Bakri, A., & Hashim, H. (2015). Exploring the common factors influencing Electronic Document Management Systems (EDMS) implementation in Government. *ARPN Journal of Engineering and Applied Sciences*, *10*(23), 17945-17952.

Alsaleh, S., & Haron, H. (2016). The Most Important Functional and Non-Functional Requirements of Knowledge Sharing System at Public Academic Institutions: A Case Study. *Lecture Notes on Software Engineering, 4*(2), 157-161. https://doi.org/10.7763/lnse.2016.v4.242

Alshibly, H., Chiong, R., & Bao, Y. (2016). Investigating the Critical Success Factors for Implementing Electronic Document Management Systems in Governments: Evidence from Jordan. *Information Systems Management, 33*(4), 287-301. https://doi.org/10.1080/10580530.2016.1220213

Ambira, C. M., Kemoni, H. N., & Ngulube, P. (2019). A framework for electronic records management in support of e-government in Kenya. *Records Management Journal, 29*(3), 305-319. https://doi.org/10.1108/rmj-03-2018-0006

Asogwa, B. E. (2012). The challenge of managing electronic records in developing countries: Implications for records managers in sub Saharan Africa. *Records Management Journal, 22*(3), 198-211. https://doi.org/10.1108/09565691211283156

Bae, H., & Kim, Y. (2002). A document-process association model for workflow management. *Computers in Industry, 47*(2), 139-154. https://doi.org/10.1016/s0166-3615(01)00150-6

Burtylev, I. N., Mokhun, K. V., Bodnya, Y. V., & Yukhnevich, D. N. (2013). Development of electronic document management systems: Advantage and efficiency. *Science and Technology*, *3*(2A), 1-9.

Chaudhry, A., Yuan, L., Hu, J., & Cooke, R. A. (2016). What matters more? The impact of industry and organizational factors on organizational culture. *Management Decision, 54*(3), 570-588. https://doi.org/10.1108/md-05-2015-0192

Cho, V. (2008). A study of the effectiveness of electronic document management systems. *International Journal of Information Technology and Management, 7*(3), 327. https://doi.org/10.1504/ijitm.2008.017608

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Erlbaum Associates.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319. https://doi.org/10.2307/249008

DeLone, W. H., & McLean, E. R. (2016). Information Systems Success Measurement. *Foundations and Trends® in Information Systems, 2*(1), 1-116. https://doi.org/10.1561/2900000005

Dillon, A. (2001). User acceptance of information technology. *Encyclopedia of human factors and ergonomics, 1*, 1105-1109.

Eichhorn, B. R. (2014). *The impact of user involvement on information system projects.* Cleveland State University.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*: University of Akron Press.

Forcada, N., Matheu, N. F., Casanova, M. C., & Construcció, U. P. d. C. D. d. E. d. l. (2005). *Life Cycle Document Management System for Construction*. Universitat Politècnica de Catalunya.

Groenewald, T. (2004). Electronic Document Management: A Human Resource Management Case Study. *SA Journal of Human Resource Management, 2*(1). https://doi.org/10.4102/sajhrm.v2i1.29

Guo, F., Jahren, C. T., & Turkan, Y. (2021). Electronic Document Management Systems for the Transportation Construction Industry. *International Journal of Construction Education and Research, 17*(1), 52-67. https://doi.org/10.1080/15578771.2019.1685612

Gupta, K. P., Bhaskar, P., & Singh, S. (2017). Prioritization of factors influencing employee adoption of e-government using the analytic hierarchy process. *Journal of Systems and Information Technology, 19*(1/2), 116-137. https://doi.org/10.1108/jsit-04-2017-0028

Kaaki, F., Rayner, C., & Alshamrani, M. (2013). *Female Users' Acceptance of the Electronic Document Management System* (EDMS). 2013 European Modelling Symposium. https://doi.org/10.1109/ems.2013.54

Kalankesh, L. R., Nasiry, Z., Fein, R., & Damanabi, S. (2020). Factors Influencing User Satisfaction with Information Systems: A Systematic Review. *Galen Medical Journal, 9*, e1686. https://doi.org/10.31661/gmj.v9i0.1686

Laserfiche. (2020). *Learn: Electronic Document Management System* (EDMS). https://www.laserfiche.com/what-is-edms/

Lojonon, B. G., & Alfred, R. (2021). Factors Affecting Government Employees' Acceptance of EDMS: A Systematic Review. *Lecture Notes in Electrical Engineering*, 339-354. https://doi.org/10.1007/978-981-33-4069-5_28

Lomas, C., Burke, M., & Page, C. L. (2008). Collaboration tools. *Educause learning initiative*, *2*(11).

Machdar, N. M. (2019). The Effect of Information Quality on Perceived Usefulness And Perceived Ease Of Use. *Business and Entrepreneurial Review, 15*(2), 131-146. https://doi.org/10.25105/ber.v15i2.4630

Minnesota State Archives, M. H. S. (2012). *Electronic records management guidelines, Version 5.* https://www.mnhs.org/preserve/records/electronicrecords/eredms.php

Moturi, C., & Mbiwa, P. (2015). An evaluation of the quality of management information systems used by SACCOs in Kenya. *The TQM Journal, 27*(6), 798-813. https://doi.org/10.1108/tqm-05-2015-0065

Paganelli, F., & Pettenati, M. (2005). A Model-driven Method for the Design and Deployment of Web-based Document Management Systems. *JoDI: Journal of Digital Information, 6*(3), 6.

Petter, S., DeLone, W., & McLean, E. R. (2013). Information Systems Success: The Quest for the Independent Variables. *Journal of Management Information Systems, 29*(4), 7-62. https://doi.org/10.2753/mis0742-1222290401

Pho, H. T., & Tambo, T. (2014). Integrated management systems and workflow-based electronic document management: An empirical study. *Journal of Industrial Engineering and Management, 10*(1). https://doi.org/10.3926/jiem.846

Punch, K. F. (2013). Introduction to social research: Quantitative and qualitative approaches: sage.

Sezgin, E., Medeni, T. D., Önaçan, M. B. K., Kömürcü, R., Dalbay, Ö., & Medeni, İ. T. (2013). The perception of electronic document management systems (EDMS) as a transformational information and communication technology (ICT) for public institutions in Turkey. In *Public Administration Reformation* (pp. 279-300). Routledge.

Shokouhi, M., & Si, L. (2011). Federated Search. *Foundations and Trends® in Information Retrieval, 5*(1), 1-102. https://doi.org/10.1561/1500000010

Sprague, R. H. (1995). Electronic Document Management: Challenges and Opportunities for Information Systems Managers. *MIS Quarterly, 19*(1), 29. https://doi.org/10.2307/249710