



Enhancing University Operations: A Study of the Electronic Document Management Systems (EDMS) of One Higher Education Institution

John Vincent Aliazas*

Center for Innovative Technologies in Education, Laguna State Polytechnic University,
San Pablo City, 4000, Philippines
[*Corresponding author]

Ronnel Dela Cruz

Center for Innovative Technologies in Education, Laguna State Polytechnic University,
San Pablo City, 4000, Philippines

Neirro Ilagan

Information and Communications Technology Services, Laguna State Polytechnic University,
San Pablo City, 4000, Philippines

Abstract

The increasing reliance on technology and the growing need for efficient data management in higher education institutions have led to the widespread adoption of Electronic Document Management Systems (EDMS). This study explored the current state of EDMS and its benefits, challenges, and implementation strategies. Similarly, it explores the impact of EDMS on key operations (administrative processes, academic management, student services, and research activities) in one higher education institution in the Philippines based on the premise of the Technology Acceptance Model (TAM). The findings highlight a significant relationship among variables. Likewise, the study identifies benefits, challenges, and implementation strategies as key predictors of the behavioral intention to use the EDMS. Furthermore, key operations in terms of administrative processes significantly predict TAM components in terms of perceived usefulness, perceived ease of use and behavioral intention to use EDMS.

Keywords

Electronic Document Management Systems, State University, TAM

INTRODUCTION

In today's rapidly evolving digital age, universities continuously seek innovative ways to enhance their operations and streamline processes. Electronic data management is a significant aspect of a university's efficient functioning. With data's ever-increasing volume and complexity, universities must adopt robust electronic data management systems to facilitate seamless operations and improve overall productivity.

Electronic document management systems, or EDMS, provide universities with a comprehensive platform to store, organize, and analyze vast amounts of data (Justina et al., 2022). These systems offer a range of features and functionalities that enable universities to handle data from various sources, including student information, research data, administrative records, and financial data (Sambethbayeva et al., 2022). Universities can transform their data management processes by implementing EDMS, leading to several key benefits.

According to Sagir-Muhammad (2019), EDMS enables universities to centralize their data storage, eliminating the need for multiple disparate systems and reducing the risk of data duplication or loss. Authorized personnel can access relevant information quickly and efficiently with a centralized repository, enabling informed decision-making and enhancing collaboration across different departments (Shahmoradi et al., 2017).

Moreover, EDMS offers advanced search and retrieval capabilities, making it easier for university staff to locate specific data or documents within the system (Oladejo & Hadžidedić, 2021). This significantly improves efficiency and

reduces the time spent searching through physical files or multiple digital folders. Quickly accessing and retrieving data allows university administrators, faculty, and staff to focus more on their core responsibilities and spend less time on administrative tasks (Höchtel et al., 2016).

Another key advantage of EDMS is its improved data security and compliance (Guo et al., 2021). According to Omotunde and Ahmed (2023), these systems typically incorporate robust security measures, including encryption, access controls, and audit trails, to safeguard and protect sensitive information from unauthorized access or breaches. Additionally, EDMS often feature compliance features that help universities adhere to data protection regulations and privacy laws, such as the General Data Protection Regulation (GDPR) or the Family Educational Rights and Privacy Act (FERPA).

Furthermore, EDMS offers powerful data analytics capabilities, allowing universities to gain valuable insights from their data (Agasisti & Bowers, 2017). Universities can use data visualization and reporting features to identify trends, patterns, and correlations in their data, enabling evidence-based decision-making and strategic planning (Ray & Saeed, 2018). This analytical capability can be valuable for student enrollment and retention, academic performance analysis, and resource allocation (Colvin et al., 2015).

In addition to the operational benefits, EDMS contributes to sustainability efforts by reducing the reliance on paper-based documentation (Malekani, 2023). With electronic document management, universities can significantly decrease paper consumption, leading to cost savings, environmental conservation, and streamlined workflows (Martins et al., 2021).

The Technology Acceptance Model (TAM) is a widely used theoretical framework for understanding users' acceptance and adoption of new technology (Alomary & Woollard, 2015). TAM focuses on the user's perception of how technology can enhance job performance (Panergayo & Aliazas, 2023). In higher education, faculty, staff, and administrators might assess whether an electronic document management system streamlines student record-keeping, grading, or research data management tasks (Zaineldeen et al., 2020). If they perceive that the system makes these tasks easier or more efficient, they are more likely to accept and use it (Mugo et al., 2017).

According to Shah and Attiq (2016), the perceived ease of use refers to the user's perception of how easy or difficult it is to use the technology. This could involve user interface design, navigation, and integration with existing workflows (Abdullah et al., 2016). Users who find the system intuitive and user-friendly are likelier to adopt it (Revythi & Tselios, 2019). TAM also considers the user's general attitude toward technology use (Muchran & Ahmar, 2019). In the context of higher education, this could include factors such as the perceived impact on teaching, research, or administrative tasks (Fathema et al., 2015). If users believe the electronic data management system will positively contribute to their work, they are more likely to accept it (Justina et al., 2022).

As technology advances, universities can also explore emerging trends in electronic data management. For example, integrating artificial intelligence (AI) and machine learning (ML) can enhance data analysis and automate repetitive tasks, improving efficiency and accuracy (Ramachandran et al., 2022). Additionally, cloud-based EDMS offers scalability and flexibility, allowing universities to adapt to changing data requirements and seamlessly accommodate growth.

Lastly, universities must recognize the importance of robust electronic data management systems in today's digital age (Ribble, 2015). These systems provide a centralized, secure, and efficient platform for handling vast amounts of data, enabling seamless operations, informed decision-making, and improved productivity (Raj & Raman, 2017). Embracing EDMS and leveraging its advanced features allows universities to position themselves at the forefront of data-driven education and administration, benefiting students, faculty, and staff alike.

OBJECTIVES

This research study aimed to investigate Laguna State Polytechnic University's (LSPU) Electronics Document Management System (EDMS) and explore its potential for enhancing university operations. LSPU, a higher education institution in the Philippines, is currently a SUC Level III, ISO 9001:2015 certified, and Institutionally Accredited: Level 1 institution. LSPU has recognized the importance of effective data management and implemented an EDMS to handle the vast amounts of electronic data generated within the university. Understanding the strengths and weaknesses of the existing system is essential for LSPU to identify areas for improvement and make informed decisions regarding future enhancements.

The significance of this research lies in its potential to contribute to educational administration and technological advancement in university settings. Examining the EDMS of LSPU provides valuable insights regarding the challenges universities face in managing electronic documents and the impact of an effective EDMS on various aspects of university operations. The findings of this research can serve as a benchmark for other higher education institutions grappling with similar data management issues and guide them in making informed decisions to enhance their systems.

The research objectives are threefold: first, to assess the current state of the EDMS at LSPU, evaluating its benefits, challenges, and implementation strategies in managing electronic data; second, to explore the impact of the EDMS on key university operations, such as administrative processes, academic management, student services, and research activities. The third is to identify key predictors of the TAM based on the current state and impact of the implementation of EDMS in the university. Examining these objectives aimed to provide a comprehensive understanding of EDMS's role in enhancing university operations and identify potential areas for improvement.

MATERIALS AND METHODS

The research methodology used descriptive quantitative data collection and regression analysis techniques. Data was gathered from key stakeholders, including university administrators, faculty members, and staff, regarding their experiences with the EDMS. Surveys were distributed among the university administrators, faculty, and staff to obtain a broader perspective on the system's impact on various operations.

The research findings were analyzed using statistical analysis techniques for quantitative data. Mean and standard deviation were used to assess the respondents' perception of the study's key variables. Pearson-r was used to determine the significant relationship among variables. Multiple regression analysis was used to determine key predictors of TAM by evaluating the current state and impact of EDMS implementation. Through a comprehensive analysis of the collected data, the study aimed to identify patterns, trends, and recurring themes related to the EDMS's effectiveness and impact on university operations.

RESULTS AND DISCUSSION

Table 1 Mean, Standard Deviation, Cronbach's Alpha, and Correlations among the Study Variables

Variables	B	C	IS	AP	AM	SS	RA	PU	PEOU	BIU
Benefits (B)	-									
Challenges (C)	0.059	-								
Implementation Strategies (IS)	0.794**	0.087	-							
Administrative Processes (AP)	0.849**	0.061	0.891**	-						
Academic Management (AM)	0.351**	0.417**	0.370**	0.398**	-					
Student Services (SS)	0.258**	0.510**	0.287**	0.288**	0.787**	-				
Research Activities (RA)	0.295**	0.585**	0.315**	0.298**	0.603**	0.703**	-			
Perceived Usefulness (PU)	0.818**	0.065	0.847**	0.868**	0.382**	0.283**	0.314**	-		
Perceived Ease of Use (PEOU)	0.359**	0.435**	0.350**	0.388**	0.608**	0.597**	0.574**	0.352**	-	
Behavioral Intention to Use (BIU)	0.463**	0.194**	0.480**	0.520**	0.296**	0.339**	0.378**	0.461**	0.483**	-
Mean	4.70	3.28	4.61	4.65	4.20	4.08	3.82	4.69	4.29	4.51
SD	0.45	0.93	0.48	0.47	0.80	0.82	0.89	0.44	0.67	0.48
Cronbach's Alpha	0.922	0.784	0.903	0.911	0.921	0.926	0.881	0.898	0.940	0.876

Table 1 illustrates respondents' perceptions of the current state of the Electronic Document Management System (EDMS) and its impact on key operations within the university. The findings suggest that the EDMS, in terms of its benefits ($\bar{x} = 4.70$; $\sigma = 0.45$; $C\alpha = 0.922$), has positively affected productivity and efficiency within the organization. Additionally, the benefits of utilizing the EDMS exhibit significant correlations across all study variables related to key university operations and the Technology Acceptance Model (TAM) (IS = 0.794; AP = 0.849; AM = 0.351; RA = 0.295; PU = 0.818; PEOU = 0.359; BIU = 0.463). Specifically, EDMS has facilitated collaboration among team members through simplified document sharing and version control. EDMS streamlines administrative tasks by providing a centralized repository for storing, organizing, and retrieving documents, reducing paperwork and manual effort (Sagir-Muhammad, 2019). According to Sambethayeva et al. (2022), the EDMS system's automation capabilities, such as workflow management and document routing, significantly enhance the efficiency and productivity of administrative processes. In research activities, EDMS facilitates collaboration among researchers by enabling secure document sharing, version control, and remote access (Aliero, 2019).

Conversely, concerning challenges ($\bar{x} = 3.28$; $\sigma = 0.93$; $C\alpha = 0.784$), respondents concur that additional customization options are necessary to tailor the EDMS to specific organizational needs. Moreover, the complexity of the EDMS interface poses hindrances to efficient navigation and usage. Challenges exhibit a significant relationship only with key university processes related to academic management (AM = 0.417), student services (SS = 0.510), and research activities (RA = 0.585). TAM constructs concerning perceived ease of use (PEOU = 0.435) and behavioral intention to use (BIU = 0.194), the EDMS show associations with challenges.

According to Malekani (2023), adopting EDMS in academic management may face resistance from faculty accustomed to paper-based processes, requiring training and support. Student services may encounter data privacy and security challenges, necessitating compliance with regulations (Prinsloo & Slade, 2015). Research activities may face challenges related to complex data formats and integration with existing systems, demanding specialized tools and workflows (Liew et al., 2016). Addressing these challenges requires careful planning, stakeholder engagement, and tailored solutions to meet the specific needs of academic management, student services, and research activities (Höchtel et al., 2016).

Furthermore, regarding implementation strategies ($\bar{x} = 4.61$; $\sigma = 0.48$; $C\alpha = 0.903$), respondents strongly agree that the support provided during the EDMS implementation process was beneficial. The findings suggest that while EDMS offers significant advantages to the university, addressing customization possibilities can mitigate challenges and

enhance overall effectiveness. Additionally, EDMS implementation strategies are closely correlated with key university operations, as they directly impact the successful adoption and utilization of the system across various functional areas. (AP = 0.891; AM = 0.370; SS = 0.287; RA = 0.315; PU = 0.847; PEOU = 0.350; BIU = 0.480). According to Abdulkadhim et al. (2015), strategies providing support positively influence the successful integration of the EDMS, with clear communication about the implementation process being emphasized. Effective implementation strategies, including user involvement, training, and continuous improvement, ensure EDMS aligns with the specific needs of administrative processes, academic management, student services, and research activities (Ndebele, 2021). Engaging stakeholders from these areas helps identify and address unique requirements, leading to a tailored and user-friendly solution (Božić, 2023).

Respondents' perception of the impact of the EDMS on key university operations indicates a positive effect on administrative processes ($\bar{x} = 4.65$; $\sigma = 0.47$; $C\alpha = 0.911$) within the university. The EDMS has reduced paperwork and manual documentation efforts in administrative tasks. Similarly, administrative processes exhibit significant correlations with the study variables, except for challenges (B = 0.849; IS = 0.891; PU = 0.868; PEOU = 0.388; BIU = 0.520). The EDMS has streamlined administrative processes such as document routing and approval, ultimately improving collaboration and communication among university administrative staff (Sagir-Muhammad, 2019). Kalayou et al. (2020) indicated that comprehensive training and support programs enable users to develop necessary skills, promoting adoption and satisfaction.

On the construct of academic management ($\bar{x} = 4.20$; $\sigma = 0.80$; $C\alpha = 0.921$), respondents acknowledged that the EDMS has facilitated the timely dissemination of academic policies and updates to students and faculty. Moreover, it has enhanced collaboration among faculty members for curriculum development and academic planning. Furthermore, academic engagement demonstrates positive relationships across all study variables (B = 0.351; C = 0.417; IS = 0.370; PU = 0.382; PEOU = 0.608; BIU = 0.296). Accessing academic documents, such as syllabi and course materials, through the EDMS has notably improved efficiency, streamlining processes like course registration and enrollment. Integrating EDMS with existing systems requires careful planning and coordination for seamless data migration and interoperability (Mugo et al., 2017). According to Ramachandran et al. (2022), continuous improvement strategies optimize performance and adapt to evolving needs, such as system updates and user feedback incorporation.

Regarding student services ($\bar{x} = 4.08$; $\sigma = 0.82$; $C\alpha = 0.926$), the EDMS has bolstered the accessibility of academic documents such as student transcripts and certificates. This accessibility has facilitated timely and accurate responses to student inquiries. Moreover, student services exhibit significant relationships across all study variables (B = 0.258; C = 0.510; IS = 0.287; PU = 0.283; PEOU = 0.597; BIU = 0.339). The EDMS has enhanced the efficiency of student enrollment processes, with students finding the user interface intuitive and easy to navigate when accessing their documents. According to Revythi and Tselios (2019), TAM posits that user acceptance and adoption of technology are primarily determined by perceived usefulness and ease of use. When EDMS is effectively implemented in administrative processes, academic management, student services, and research activities, users are more likely to perceive the system as useful and easy to use (Abdulkadhim et al., 2015).

Furthermore, concerning university key operations regarding research activities ($\bar{x} = 3.82$; $\sigma = 0.89$; $C\alpha = 0.881$), using the EDMS has fostered collaboration among researchers and improved research data management efficiency. Notably, there is a significant relationship between research activities and the extent of EDMS implementation and TAM constructs (B = 0.295; C = 0.585; IS = 0.315; PU = 0.314; PEOU = 0.574; BIU = 0.378). The EDMS has streamlined the sharing and reviewing of research documents, enhancing access to research materials and literature. The successful integration of EDMS streamlines workflows enhances efficiency, and improves productivity in these critical areas, leading to higher perceived usefulness (Agasisti & Bowers, 2017). Moreover, a well-designed EDMS interface and comprehensive training and support can significantly enhance the perceived ease of use, making it more accessible and user-friendly for university staff and faculty (Aliero, 2019).

Respondents positively perceived the Technology Acceptance Model (TAM) when implementing the EDMS. TAM constructs regarding perceived usefulness ($\bar{x} = 4.69$; $\sigma = 0.44$; $C\alpha = 0.898$) indicated that the EDMS improves access to essential documents and information, enhances collaboration among team members, and increases faculty and staff productivity. Moreover, perceived usefulness exhibits significant relationships with the current state of the EDMS and its implementation on key university operations (B = 0.818; C = 0.065; IS = 0.847; AP = 0.868; AM = 0.382; SS = 0.283; RA = 0.314). Faculty and staff perceive the EDMS as a valuable tool for improving their efficiency in task performance. According to Alomary and Woollard (2015), as users experience the tangible benefits and convenience of using EDMS in their daily tasks, their attitude towards the technology becomes more positive, increasing their intention to use and adopt the system.

Similarly, the perceived ease of use of the EDMS ($\bar{x} = 4.29$; $\sigma = 0.67$; $C\alpha = 0.940$) makes navigation intuitive for faculty and staff, who find the interface user-friendly. The correlation between perceived ease of use, the current state of the EDMS, and its influence on key university operations is significant (B = 0.359; C = 0.435; IS = 0.350; AP = 0.388; AM = 0.608; SS = 0.597; RA = 0.574). Learning to operate the EDMS was easy for faculty, students, and staff, and searching and retrieving documents using the EDMS was straightforward.

Lastly, respondents' behavioral intention to use the EDMS ($\bar{x} = 4.51$; $\sigma = 0.48$; $C\alpha = 0.876$) was positively perceived, with respondents intending to use the EDMS regularly for document management tasks and expressing confidence in their ability to use its features effectively. There is a moderate relationship among variables (B = 0.463; C = 0.194; IS = 0.480; AP = 0.520; AM = 0.296; SS = 0.339; RA = 0.378). Using EDMS makes document management tasks

easier, with respondents perceiving it as useful for improving productivity in managing electronic documents (Fathema et al., 2015). Thus, the implementation of EDMS in key university operations directly influences the constructs of TAM, ultimately determining the success and long-term viability of the technology within the institution.

Table 2 Regression Coefficients, Standard Errors, and Model Summary for the Presumed Influence of the Current State of EDMS on Behavioral Intention to Use EDMS

Antecedent	Consequent								
	Perceived Usefulness			Perceived Ease of Use			Behavioral Intention to Use		
	β	SE	p	β	SE	p	β	SE	p
Constant	0.621	0.159	0.000	0.810	0.438	0.000	1.738	0.328	0.000
Benefits	0.385	0.054	0.000	0.493	0.088	0.000	0.240	0.107	0.026
Challenges	-	-	-	0.357	0.051	0.000	0.097	0.038	0.011
Implementation Strategies	0.490	0.051	0.000	-	-	-	0.288	0.100	0.004
	R ² =0.774; Adj R ² =0.772			R ² =0.301; Adj R ² =0.294			R ² =0.273; Adj R ² =0.262		
	F=339.388; (2, 198)			F=42.563; (2, 198)			F=24.654; (2, 198)		

A stepwise multiple linear regression was conducted with the construct of the Technology Acceptance Model (TAM) as the dependent variable and the current state of EDMS implementation as independent variables. The multiple regression analysis revealed that benefits and implementation strategies contributed significantly to the regression model $F(2, 198) = 339.388, p < .05$ and accounted for 77.4% of the variation in the perceived usefulness of the EDMS. The state of implementation of Electronic Document Management Systems (EDMS) plays a crucial role in determining the perceived usefulness of the system within an organization (Malekani, 2023). Balogun et al. (2019) indicated that the benefits of EDMS, such as improved efficiency, enhanced accessibility, better collaboration, and increased security, can be positive predictors of its perceived usefulness. When users experience these benefits firsthand, they are more likely to view EDMS as a valuable tool that streamlines their work processes and improves overall productivity (Martins et al., 2021).

According to Ndebele (2021), effective implementation strategies can significantly influence the perceived usefulness of EDMS. Involving end-users in the implementation process, providing comprehensive training and support, adopting a phased approach, integrating EDMS with existing systems, and continuously improving the system based on user feedback are all strategies that can positively impact the perceived usefulness of EDMS (AlShibly, 2014; John, 2023). According to Bhimdiwala et al. (2022), engaging users and addressing their needs throughout the implementation process helps organizations foster a sense of ownership and appreciation for the system, leading to higher perceived usefulness. The combination of tangible benefits and user-centric implementation strategies can create a positive feedback loop, where the perceived usefulness of EDMS drives its adoption and utilization, reinforcing its value to the organization (Alomary & Woollard, 2015; von Berg, 2020).

Likewise, the current state of EDMS implementation in terms of benefits and challenges contributed significantly to the regression model $F(2, 198) = 42.563, p < .05$. It accounted for 30.1% of the variation in the perceived ease of use of the EDMS. The benefits of EDMS, such as improved document organization, search capabilities, and automation of routine tasks, can significantly contribute to its perceived ease of use (Abacı & Medeni, 2022). When users experience a well-structured and intuitive interface that allows them to easily store, retrieve, and manage documents, they are more likely to perceive the system as user-friendly and effortless to navigate (Panergayo & Aliazas, 2021). The availability of features like full-text search, metadata tagging, and document templates can further enhance the perceived ease of use, as users can quickly locate and work with the documents they need without the need for extensive training or technical expertise (Masita, 2018).

According to AlShibly (2014), the challenges faced during the implementation of EDMS can also serve as positive predictors of its perceived ease of use, particularly when these challenges are effectively addressed. For instance, initial concerns about the learning curve associated with adopting a new system can be mitigated through comprehensive user training and support. Providing clear instructions allows tutorials and hands-on workshops, and organizations can help users become familiar with the EDMS interface and functionalities, thus increasing their confidence and perceived ease of use (Colvin et al., 2015; Abacı & Medeni, 2022). Similarly, system integration and compatibility challenges can be overcome by ensuring seamless integration with existing software applications and providing smooth data migration processes (Balogun et al., 2019). When users experience a well-integrated EDMS that works harmoniously with their other tools, they are likelier to perceive it as easy to use and adapt (Fathema et al., 2015; Aliero, 2019).

According to John (2023), the ongoing maintenance and updates of the EDMS can contribute to its perceived ease of use over time. Regular system enhancements, bug fixes, and the incorporation of user feedback can continuously improve the user experience and address any usability issues that may arise (Tseng, 2015; Martins et al., 2021). Actively listening to user concerns and making necessary adjustments makes organizations demonstrate their commitment to providing an intuitive, efficient, and user-friendly EDMS (Maki & Shea, 2023). This iterative approach to system improvement can reinforce users' perception of EDMS as an easy-to-use tool that adapts to their needs and preferences (Burner, 2015; Justina et al., 2022).

Furthermore, all constructs of EDMS implementation in terms of benefits, challenges, and implementation strategies contributed significantly to the regression model $F(2, 198) = 24.654, p < .05$ and accounted for 27.3% of the

variation in the behavioral intention to use EDMS. The perceived benefits of EDMS play a crucial role in shaping users' attitudes and intentions toward adopting and utilizing the technology. According to Balogun et al. (2019), when users recognize the advantages of EDMS, such as improved efficiency, enhanced accessibility, better collaboration, and increased security, they are more likely to develop a positive disposition towards the system. Ab Aziz et al. (2018) indicated that the realization that EDMS can streamline their work processes, save time, and enhance productivity can significantly influence their intention to embrace and actively use the technology in their daily tasks. Moreover, anticipating these benefits can create a sense of enthusiasm and motivation among users, driving them to explore and leverage the full potential of the EDMS (Alomary & Woollard, 2015; Božić, 2023).

However, the challenges encountered during the implementation of EDMS can also significantly impact the behavioral intention to use the system. When users need help adopting and utilizing EDMS, it can hinder their willingness to engage with the technology. According to Ab Aziz et al. (2018), challenges such as complexity, lack of user-friendliness, or inadequate training and support can lead to frustration and resistance among users. If these challenges are effectively addressed, they can create a positive perception of the EDMS and dampen the behavioral intention to use it (Abdulkadhim et al., 2015; Sagir Muhammad, 2019). Therefore, it is crucial for organizations to proactively identify and mitigate these challenges to ensure a positive user experience and encourage the widespread adoption of the EDMS.

The implementation strategies employed by organizations can also serve as positive predictors of the behavioral intention to use EDMS (Alomary & Woollard, 2015; Zaineldeen et al., 2020). According to Liew et al. (2016) and John (2023), effective strategies prioritizing user involvement, training, and support can significantly influence users' attitudes and intentions toward the system. Ramachandran et al. (2022) indicated that actively engaging users in the implementation process allows seeking their input and feedback and providing comprehensive training and ongoing support; organizations can foster a sense of ownership and empowerment among users. When users feel heard, supported, and equipped with the necessary skills to leverage EDMS effectively, they are more likely to develop a positive attitude toward the system and strongly intend to use it (Revythi & Tselios, 2019; Kalayou et al., 2020). Additionally, implementation strategies emphasizing seamless integration with existing systems, phased rollouts, and continuous improvement can further enhance users' confidence in the EDMS and their willingness to adopt it as an integral part of their work processes (Sambetbayeva et al., 2022).

Furthermore, the interplay between the benefits, challenges, and implementation strategies can synergistically affect the behavioral intention to use EDMS (Shah & Attiq, 2016; von Berg, 2020). According to Prinsloo and Slade (2015), when the perceived benefits outweigh the challenges and the implementation strategies effectively address user concerns and needs, it creates a positive overall perception of the EDMS. Panergayo and Aliazas (2023) indicated that this positive perception can significantly boost users' confidence in the system and their intention to utilize it to its fullest potential. Combining tangible advantages, well-managed challenges, and user-centric implementation approaches can create a compelling case for users to embrace the EDMS and make it an essential tool in their daily work routines (Ndebele, 2021; Malekani, 2023).

Table 3 Regression Coefficients, Standard Errors, and Model Summary for the Presumed Influence of the EDMS Implementation Addressing Key University Operations on Behavioral Intention to Use EDMS

Antecedent	Consequent								
	Perceived Usefulness			Perceived Ease of Use			Behavioral Intention to Use		
	β	SE	p	β	SE	p	β	SE	p
Constant	0.848	0.157	0.000	1.132	0.357	0.002	1.847	0.286	0.000
Administrative Processes	0.826	0.034	0.000	0.219	0.082	0.000	0.464	0.063	0.000
Academic Management	-	-	-	0.299	0.057	0.000	-	-	-
Student Services	-	-	-	-	-	-	-	-	-
Research Activities	-	-	-	0.233	0.049	0.009	0.132	0.033	0.000
	R ² =0.753; Adj R2=0.752			R ² =0.456; Adj R2=0.448			R ² =0.326; Adj R2=0.319		
	F=607.798; (1,199)			F=55.087; (3,197)			F=47.783; (2,198)		

A stepwise multiple linear regression was conducted with the construct of the Technology Acceptance Model (TAM) as the dependent variable and the implementation of EDMS in key university operations as independent variables. The multiple regression analysis revealed that administrative processes contributed significantly to the regression model $F = (1, 199) = 607.798, p < .05$ and accounted for 75.3% of the variation in perceived usefulness of the EDMS. Implementing Electronic Document Management Systems (EDMS) in key university operations, particularly in the administrative process, can be a significant positive predictor of the perceived usefulness of the system. The university administrative process involves many document-intensive tasks, such as student admissions, course registration, grade management, faculty hiring, and financial aid processing (Bhimdiwala et al., 2022). Implementing EDMS in these critical areas allows universities to streamline administrative workflows, reduce paperwork, and improve efficiency (Aliero, 2019; Abaci & Medeni, 2022).

According to Agasisti and Bowers (2017), automating repetitive tasks, such as data entry and document routing, can significantly reduce the time and effort required to complete these processes. Moreover, Burner (2015) and Malekani (2023) indicated that the centralized storage and easy retrieval of documents through EDMS can greatly enhance accessibility and collaboration among administrative staff, faculty, and students. These benefits can lead to a positive

perception of EDMS as a valuable tool that simplifies administrative tasks, improves productivity, and enhances service delivery (Muchran & Ahmar, 2019).

Furthermore, implementing EDMS in the administrative process can improve decision-making and compliance with regulatory requirements (Omotunde & Ahmed, 2023). The system's ability to provide a complete audit trail, version control, and secure access to documents can ensure the integrity and confidentiality of sensitive information (Mugo et al., 2017; Zaineldeen et al., 2020). This can be particularly important for universities that comply with various legal and accreditation standards (Omotunde & Ahmed, 2023). The EDMS can also facilitate data analysis and reporting, allowing administrators to make data-driven decisions and identify areas for improvement (Ribble, 2015; Ray & Saeed, 2018). These advantages can further reinforce the perceived usefulness of the EDMS as a strategic tool that supports effective governance and risk management in the university setting (Aliazas et al., 2021).

Likewise, EDMS implementation in key university operations in terms of administrative processes, academic management and research activities contributed significantly to the regression model $F = (3, 197) = 55.087, p < .05$. It accounted for 45.6% of the variation in the perceived ease of use of the EDMS. EDMS provides a user-friendly interface and intuitive features that simplify document storage, retrieval, and sharing in the administrative domain. The ability to easily search for and access documents, automate workflows, and track progress can greatly enhance administrative staff's perceived ease of use.

According to Aliero (2019), EDMS offers a streamlined platform for faculty and staff to manage course materials, student records, and assessment data in academic management. Panergayo and Aliazas (2023) indicated that the system's ability to integrate with learning management systems and provide templates for course planning and curriculum development could make it easier for users to adopt and utilize the technology effectively. In research activities, EDMS provides a centralized and organized repository for storing and managing research-related documents, such as grant proposals, data sets, and publications (Höchtel et al., 2016; Ab Aziz et al., 2018).

The system's features, such as metadata tagging, version control, and collaboration tools, can make it more convenient for researchers to work with their documents and collaborate with colleagues. The ease of use in these key university operations can significantly influence users' willingness to adopt and engage with the EDMS (Liew et al., 2016; Omotunde & Ahmed, 2023). According to Mugo et al. (2017), when users find the system intuitive, efficient, and aligned with their specific needs, they will perceive it as easy to use and integrate it into their daily work processes. This positive perception of ease of use can encourage widespread adoption and foster a culture of digital proficiency across the institution (Muchran & Ahmar, 2019).

Furthermore, constructs of EDMS implementation on key university operations in terms of administrative processes and research activities contributed significantly to the regression model $F = (2, 198) = 47.783, p < .05$. They accounted for 32.6% of the variation in the behavioral intention to use EDMS. When EDMS is successfully integrated into administrative workflows, it streamlines tasks such as document storage, retrieval, and sharing, increasing efficiency and productivity. The system's ability to automate processes, reduce paperwork, and enhance collaboration can create a positive user experience that motivates administrative staff to embrace and rely on the technology (Sagir Muhammad, 2019; Aliero, 2019).

According to Abdullah and Ahmed (2016), as users recognize EDMS's tangible benefits and time-saving capabilities in their daily administrative duties, their intention to use the system consistently and extensively grows. Similarly, Kalayou et al. (2020) indicated that in research activities, EDMS provides a centralized platform for managing and organizing research-related documents, such as grant proposals, data sets, and publications. The system's features, including version control, metadata tagging, and collaboration tools, can significantly simplify research processes (Fathema et al., 2015; Muchran & Ahmar, 2019).

When researchers experience the convenience and efficiency of using EDMS to store, access, and share their work, they are more likely to develop a strong behavioral intention to use the system regularly (Panergayo & Aliazas, 2021). EDMS's perceived usefulness and ease of use in these key university operations can greatly influence users' attitudes and intentions toward adopting and utilizing the technology (Omotunde & Ahmed, 2023). As users witness the positive impact of EDMS on their administrative and research tasks, their confidence in the system grows, leading to a higher likelihood of continued and expanded use (Raj & Raman, 2017). This behavioral intention to use EDMS can foster a culture of digital adoption and drive the successful implementation and long-term utilization of the technology across the institution.

CONCLUSION

Based on the findings, the study concludes that Electronic Document Management Systems (EDMS) are crucial in enhancing university operations. The research reveals high success in implementing EDMS within the university setting. The current state of EDMS, evaluated in terms of benefits, challenges, and implementation strategies, was thoroughly observed and analyzed. The study highlights the significant advantages of EDMS, such as improved efficiency, enhanced accessibility, and better collaboration, while acknowledging the challenges encountered during implementation, such as resistance to change and technical complexities. The implementation strategies employed, including user involvement, training, and continuous improvement, effectively promoted the successful adoption of EDMS.

Moreover, the study emphasizes the importance of key university operations in implementing EDMS. The findings indicate that integrating EDMS in administrative processes, academic management, student services, and

research activities significantly contributes to the overall success and effectiveness of the system. The participants deemed the streamlining of administrative tasks, simplifying academic processes, and enhancing research collaboration through EDMS.

Furthermore, the study employs the Technology Acceptance Model (TAM) to assess university stakeholders' acceptance and adoption of EDMS. The respondents manifested the constructs of TAM, namely perceived usefulness, perceived ease of use, and behavioral intention to use. The results suggest that users perceive EDMS as a useful tool that improves their productivity and efficiency. Additionally, the system's user-friendly interface and intuitive features contribute to its perceived ease of use, making it accessible to users with varying technical skill levels. Consequently, the positive perceptions of usefulness and ease of use lead to a strong behavioral intention to use EDMS consistently and extensively.

The study also reveals a moderate to strong relationship between the variables investigated. The current state of EDMS and its key university implementation were significant positive predictors of TAM constructs. The benefits, challenges, and implementation strategies associated with EDMS and its successful integration into key university operations directly impact users' perceived usefulness, perceived ease of use, and behavioral intention to use the system.

In conclusion, the study provides compelling evidence for the vital role of EDMS in enhancing university operations. The successful implementation of EDMS, characterized by its benefits, challenges, effective strategies, and integration into key university functions, contributes to users' positive perceptions and strong intentions to adopt and utilize the technology. The findings underscore the importance of considering the current state of EDMS and its implementation in key university areas as critical factors influencing the acceptance and long-term success of the system. Leveraging the insights gained from this study, universities can make informed decisions and develop targeted strategies to optimize the implementation and utilization of EDMS, ultimately leading to improved efficiency, productivity, and collaboration across the institution.

REFERENCES

1. Abacı, K., & Medeni, I. T. (2022). Efficiency of electronic document management systems: a case study. *Sci. Educ. Innov. Context Mod. Probl*, 5, 75-86.
2. Ab Aziz, A., Mohammad Yusof, Z., Mokhtar, U. A., & Jambari, D. I. (2018). Electronic document and records management system implementation in Malaysia: A preliminary study of issues embracing the initiative. In *Transforming Digital Worlds: 13th International Conference, iConference 2018, Sheffield, UK, March 25-28, 2018, Proceedings 13* (pp. 585-591). Springer International Publishing.
3. Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. *Computers in human behavior*, 63, 75-90.
4. 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.
5. Agasisti, T., & Bowers, A. J. (2017). Data analytics and decision making in education: towards the educational data scientist as a key actor in schools and higher education institutions. In *Handbook of contemporary education economics* (pp. 184-210). Edward Elgar Publishing.
6. Aliasaz, J. V., Panoy, J. F., Del Rosario, A. L., & Madrideo, J. (2021). Critical Success Factors of the Flexible Learning Delivery as Organizational Innovation of One State University in the Philippines. *International Journal of Educational Management and Development Studies*, 2(3), 61-77.
7. Aliero, S. M. (2019). *Strategic approaches to address the challenges faced in using electronic document management system: a case of staff of Kebbi State University of Science and Technology Aliero, Nigeria* (Doctoral dissertation, Kampala International University).
8. Alomary, A., & Woollard, J. (2015). How is technology accepted by users? A review of technology acceptance models and theories.
9. AlShibly, H. H. (2014). The effects of characteristics of electronic document management systems on their acceptance: An empirical study in Jordan. *Business And Management*, 6(4).
10. Balogun, N. A., Raheem, L. A., Abdulrahman, M. D., & Balogun, U. O. (2019). Adoptability of electronic document management system in Ilorin businesses. *Nigerian Journal of Technology*, 38(3), 707-715.
11. Bhimdiwala, A., Neri, R. C., & Gomez, L. M. (2022). Advancing the design and implementation of artificial intelligence in education through continuous improvement. *International Journal of Artificial Intelligence in Education*, 1-27.
12. Božić, V. (2023). Artificial intelligence as the reason and the solution of digital divide. *Language Education and Technology*, 3(2).
13. Burner, M. (2015). *User Adoption of SharePoint Document Management System* (Master's thesis).
14. Colvin, C., Rogers, T., Wade, A., Dawson, S., Gasevic, D., Shum, S. B., ... & Fisher, J. (2015). Student retention and learning analytics: A snapshot of Australian practices and a framework for advancement.
15. Fathema, N., Shannon, D., & Ross, M. (2015). Expanding the Technology Acceptance Model (TAM) to examine faculty use of Learning Management Systems (LMSs) in higher education institutions. *Journal of Online Learning & Teaching*, 11(2).
16. 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.
17. Höchtl, J., Parycek, P., & Schöllhammer, R. (2016). Big data in the policy cycle: Policy decision making in the digital era. *Journal of Organizational Computing and Electronic Commerce*, 26(1-2), 147-169.

18. John, D. R. (2023). *Factors Influencing the Adoption and Use of the Electronic Document and Records Management System in Saint Vincent and the Grenadines' Public Sector Using the Technology Acceptance Model* (Master's thesis, ProQuest University (Demo)).
19. Justina, I. A., Oyekan, E. A., & Orogbemi, O. M. (2022). A Secured Cloud-Based Electronic Document Management System. *International Journal of Innovative Research and Development*, 11(12).
20. Kalayou, M. H., Endehabtu, B. F., & Tilahun, B. (2020). The applicability of the modified technology acceptance model (TAM) on the sustainable adoption of eHealth systems in resource-limited settings. *Journal of multidisciplinary healthcare*, 1827-1837.
21. Liew, C. S., Atkinson, M. P., Galea, M., Ang, T. F., Martin, P., & Hemert, J. I. V. (2016). Scientific workflows: moving across paradigms. *ACM Computing Surveys (CSUR)*, 49(4), 1-39.
22. Maki, P. L., & Shea, P. (Eds.). (2023). *Transforming digital learning and assessment: A guide to available and emerging practices and building institutional consensus*. Taylor & Francis.
23. Malekani, A. W. (2023). Examining the efficacy of Electronic Document Management System and Employees' Perceptions of its Usefulness at Sokoine University of Agriculture. *University of Dar es Salaam Library Journal*, 18(1), 112-133.
24. Martins, P., Lopes, S. I., Rosado da Cruz, A. M., & Curado, A. (2021). Towards a smart & sustainable campus: An application-oriented architecture to streamline digitization and strengthen sustainability in academia. *Sustainability*, 13(6), 3189.
25. MASITA, C. M. (2018). *An Investigation Into How The Use Of Electronic Document Management Systems Improves File Management In Organizations (A Case Study Of Kenya Literature Bureau)* (Doctoral dissertation, MUA).
26. Muchran, M., & Ahmar, A. S. (2019). Application of TAM model to the use of information technology. *arXiv preprint arXiv:1901.11358*.
27. Mugo, D. G., Njagi, K., Chemwei, B., & Motanya, J. O. (2017). The technology acceptance model (TAM) and its application to the utilization of mobile learning technologies.
28. Ndebele, I. (2021). Management's support and implementation of electronic document and records management systems in government departments (Doctoral dissertation).
29. Oladejo, B., & Hadžidedić, S. (2021). Electronic records management—a state of the art review. *Records Management Journal*, 31(1), 74-88.
30. Omotunde, H., & Ahmed, M. (2023). A Comprehensive Review of Security Measures in Database Systems: Assessing Authentication, Access Control, and Beyond. *Mesopotamian Journal of CyberSecurity*, 2023, 115-133.
31. Panergayo, A. A. E., & Aliazas, J. V. C. (2021). Students' Behavioral Intention to Use Learning Management System: The Mediating Role of Perceived Usefulness and Ease of Use. *International Journal of Information and Education Technology*, 11(11).
32. Panergayo, A. A., & Aliazas, J. V. (2023). Google Classroom Adoption as Learning Management System in Senior High School Using Technology Acceptance Model. *Jurnal Pendidikan Progresif*, 13(2), 871-883.
33. Prinsloo, P., & Slade, S. (2015, March). Student privacy self-management: Implications for learning analytics. In *Proceedings of the fifth international conference on learning analytics and knowledge* (pp. 83-92).
34. Raj, P., & Raman, A. C. (2017). *The Internet of Things: Enabling technologies, platforms, and use cases*. Auerbach Publications.
35. Ramachandran, K. K., Mary, A. A. S., Hawladar, S., Asokk, D., Bhaskar, B., & Pitroda, J. R. (2022). Machine learning and role of artificial intelligence in optimizing work performance and employee behavior. *Materials Today: Proceedings*, 51, 2327-2331.
36. Ray, S., & Saeed, M. (2018). Applications of educational data mining and learning analytics tools in handling big data in higher education. *Applications of Big Data analytics: Trends, issues, and challenges*, 135-160.
37. Revythi, A., & Tselios, N. (2019). Extension of technology acceptance model by using system usability scale to assess behavioral intention to use e-learning. *Education and Information technologies*, 24, 2341-2355.
38. Ribble, M. (2015). *Digital citizenship in schools: Nine elements all students should know*. International Society for technology in Education.
39. Sagir Muhammad, A. (2019). *Strategic approaches to address the challenges faced in using electronic document management system: a case of staff of Kebbi State University of science and Technology Aliero, Nigeria* (Doctoral dissertation, Kampala International University, School of Computing and Information Technology).
40. Sambetbayeva, M., Kuspanova, I., Yerimbetova, A., Serikbayeva, S., & Bauyrzhanova, S. (2022). Development of intelligent electronic document management system model based on machine learning methods. *Eastern-European Journal of Enterprise Technologies*, 1(2), 115.
41. Shah, H. J., & Attiq, S. (2016). Impact of technology quality, perceived ease of use and perceived usefulness in the formation of consumer's satisfaction in the context of e-learning. *Abasyn J. Soc. Sci*, 9(1), 124-140.
42. Shahmoradi, L., Safadari, R., & Jimma, W. (2017). Knowledge management implementation and the tools utilized in healthcare for evidence-based decision making: a systematic review. *Ethiopian journal of health sciences*, 27(5), 541-558.
43. Tseng, S. M. (2015). Exploring the intention to continue using web-based self-service. *Journal of Retailing and Consumer Services*, 24, 85-93.
44. von Berg, S. (2020). *The business model cycle: A dynamic and user-centric perspective on business model design and change*. Cuvillier Verlag.
45. Zaineldeen, S., Hongbo, L., Koffi, A. L., & Hassan, B. M. A. (2020). Technology acceptance model' concepts, contribution, limitation, and adoption in education. *Universal Journal of Educational Research*, 8(11), 5061-5071.