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Optimization of Document Management in Public Universities: Strategies and Technologies to Improve Administrative Processes

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Abstract: This literary review article aimed to analyze the strategies and technologies implemented to improve document management in the administrative processes of public universities. Through a systematic review of 20 articles published between 2020 and 2024, the most effective practices and areas that required further research are identified. The results showed that the implementation of advanced technologies, such as artificial intelligence, significantly optimized operational efficiency by automating processes and reducing response times in document management. However, challenges persisted related to lack of adequate infrastructure and staff resistance to change. The study concluded that the digitalization of processes not only improved the student experience, but also guaranteed the integrity and confidentiality of academic data. Despite advances in automation and security, the need to continue researching how to customize these technological solutions according to the specific needs of each institution was highlighted. The study provided a comprehensive view on how the combination of advanced technologies, robust security policies and continuous adaptation can lead to more efficient document management in public universities. The future success of these systems will depend on the ability to overcome current barriers.

Keywords: Academic self-management, Institutional independence, University governance, Curricular freedom, Educational self-determination.

I. INTRODUCTION

With advances in printing technology in the 18th and 19th centuries, there was a notable increase in document production and management. Universities began to adopt more refined and effective archiving and cataloguing methods, which resulted in more efficient management of large volumes of documents, being essential to face the exponential growth in the number of students and the diversification of academic programs (Díaz Suárez et al., 2021 and Esteve-Mon et al., 2023).

Nowadays, digitalisation has represented the most significant change in university document management. Electronic document management systems have allowed universities to handle extremely large amounts of information with unprecedented efficiency. Where systems have not only facilitated the rapid retrieval and exchange of information, but have also guaranteed the integrity and security of documents, increasingly crucial aspects in a globalized and digitally interconnected world (Díaz Suárez et al., 2021 and Esteve-Mon et al., 2023)

Abba and Streck (2021) highlight the way in which university reforms have underlined the need to implement efficient management practices to maintain quality and facilitate internationalization. This integration of management systems not only helps to meet academic standards, but also simplifies international collaboration, an essential aspect in educational globalization. A poor system can generate complaints among students, especially when it affects the efficiency and transparency of essential academic processes.

Alenezi (2023) explains how digital learning requires a robust infrastructure to successfully handle academic and administrative data. Since the mid-twentieth century, the accumulation of documents without proper handling has been a constant concern, which led to the need to develop systematic document management practices to ensure the storage, retrieval, and preservation of crucial information. The lack of a proper document management system can result in delays and errors that directly affect the and

The adoption of advanced technologies, such as electronic document management systems, has transformed administrative and academic processes. Ayaz and Yanartaş (2020) highlight how the acceptance and effective use of these technologies is essential for operational efficiency. This digitization not only facilitates document management, but also promotes sustainability by reducing the use of physical resources and improving accessibility. A successful implementation of these technologies can mitigate many of the common complaints among students related to accessibility and manipulation of

The connection between knowledge management processes and sustainability in educational institutions is another vital aspect. Budur et al. (2024) discuss how effective document management supports academic administration and contributes to organizational sustainability. Well-managed document systems are critical to the efficient storage and retrieval of documents, ensuring that future generations have access to quality academic and administrative records. This directly reduces incidences of student complaints related to

Finally, the specific evaluation of document management systems, such as the one carried out by Cedeño-Macías et al. (2021), reveals the need to continuously improve these practices. This constant improvement not only responds to the current challenges of digitalization and globalization, but also reflects a legacy of centuries of evolution in document management, underscoring the importance

of adapting systems to the changing needs of the academic community. Improving these systems can significantly decrease student complaints and increase student satisfaction.

Theoretical justification: Document management in university procedures can be theoretically based on the "Theory of Transaction Costs" developed by Oliver Williamson, in 1989 this theory maintains that the efficiency of economic or information exchanges can be optimized through the minimization of transaction costs associated with each process. In the university context, transaction costs manifest themselves in the time and resources consumed to process documents, from enrollment applications to degree issuance. Applying this theory, efficient document management should be structured in such a way as to reduce these costs to a minimum, through the simplification of processes, the digitization of documents and the use of management platforms that automate and speed up procedures. Doing so not only saves resources, but also increases user satisfaction by decreasing response time and errors in document handling.

Practical Justification: Document management in universities has evolved significantly with the advancement of technology and administrative methods. This progress has led to an increase in the complexity and relevance of higher education within modern society. By integrating emerging technologies such as artificial intelligence, universities are transforming the way they manage academic information, these advanced systems not only facilitate the management of large volumes of information but also improve the accuracy and security of the documents managed. Consequently, the incidence of errors and complaints is reduced, substantially improving the educational experience of students. The effective implementation of these technologies results in document management that is not only efficient but also adaptive to the changing needs of the university community and its stakeholders.

Based on this premise and the variability in the implementation of document management according to the country, an essential question arises: What strategies and technologies have proven to be effective in improving the document management of administrative processes in public universities?

The aforementioned question will be the central axis of the research developed in the article, focusing on a thorough analysis where the general objective was: General Objective: To analyze the strategies and technologies implemented to improve document management in the administrative processes of public universities, identifying the most effective practices and the areas that require additional research.

Specific objectives: (1) To analyze current document management technologies used in public universities, such as systems based on artificial intelligence, to determine their effectiveness in automating and accelerating document processes. (2) Examine the information security policies and protocols implemented that universities have implemented in document management systems, evaluating their effectiveness in protecting the integrity and confidentiality of academic and administrative data. (3) Identify and analyze the barriers and facilitators in the implementation of document management systems in public universities

III. METHODOLOGY.

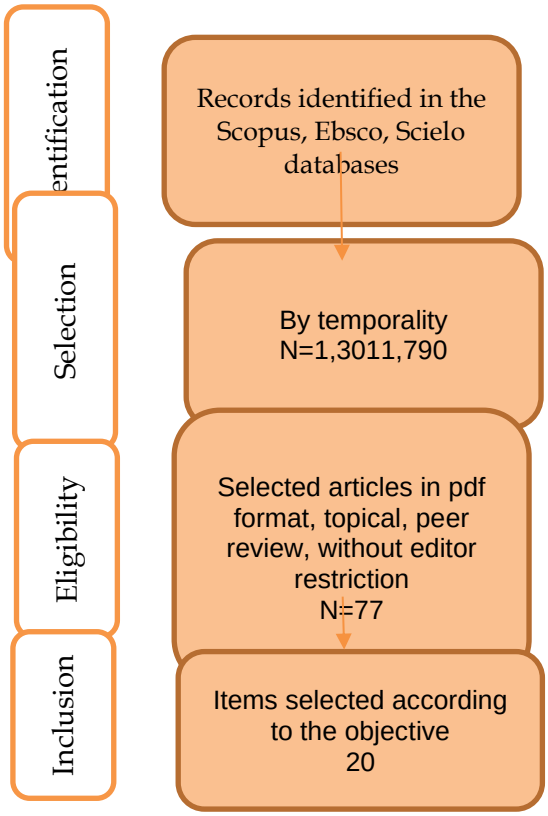
This study is a literature review article that follows established scientific guidelines. According to Hernández and Mendoza (2018), a literature review is a scientific composition that systematically synthesizes

and organizes relevant information on a widely studied and published topic, as evidenced in the research.

To carry out this study, a total of 20 articles were collected from various sources, including databases such as Wos, Proquest and Science Direct, which were selected for full reading. The main focus of this review was on the study variable "document management". The inclusion criteria were established as the publication of the articles as of 2020, their availability in Spanish or English, their free accessibility, and their relevance with respect to the topic of study. On the other hand, those articles that were restricted or unrelated to the topic in question were excluded, thus ensuring the selection of a representative and pertinent sample for the literature review.

Figure 1

Prism Flow Chart



Source: Own elaboration

Boolean operators adapted to each database were used, specifically: "AND", "or", "OR". The initial search yielded a total of 1,311,790 articles.

After implementing the inclusion and exclusion criteria, a final selection of 20 articles was obtained, according to the PRISMA flowchart model (Donato & Donato, 2019).

Keyword	Words for search
University Document Management (Spanish)	("document management" OR "document management" OR "document management systems") AND ("universities" OR "higher education" OR "administrative processes")
Higher Education Administration	("higher education administration" OR "university administration" OR "academic administration") And ("document management" OR "process optimization" OR "administrative efficiency")

Authors	Country	Improved Document Management Strategies	Technologies implemented	Effective Practices Identified
Abba, MJ, Streck, DR	Argentina	Implementation of EDMS systems to speed up the processing of documents.	Electronic Document Management Systems (EDMS).	The use of EDMS has improved the speed of document processing.
Alenezi, M.	Mexico	Continuous training in document management for administrative staff.	Digital learning platforms and digital archiving systems.	The training has improved accuracy in handling documents.
Alter, S.	Spain	Centralization of academic records for more efficient access.	Centralized databases and secure online access.	Centralization has reduced waiting times and errors in records.
Ayaz, A., Yanartaş, M.	United States	Adoption of privacy and information integrity policies.	Blockchain technology to secure academic records.	Blockchain has increased trust in document management.
Budur, T., et al.	Colombia	Development of user-friendly interfaces in document management systems.	Intuitive user interfaces and integrated ERP systems.	Improved interfaces have made it easier for students to use.
Cedeño-Macías, CJ, et al.	Brazil	Review and optimization of document workflows.	Business process management (BPM) software.	Flow optimization has improved operational efficiency.
Chan, CKY	Peru	Integration of student feedback in the development of documentary policies.	Digital feedback systems and data analysis.	The integration of feedback has improved the relevance of policies.
De Giusti, AE	Chile	Automation of enrollment and	Automatic systems for enrolment	Automation has significantly reduced

	certification services.	processes and certificate issuance.	processing times.
Del Castillo Guevara, J., Venezuela et al.	Improvements in the transparency and accessibility of documentary information.	Web portals with public access to administrative documents.	Improvements in transparency have encouraged greater student participation.
Díaz Suárez, Y., Uruguay et al.	Implementation of electronic filing systems and reduction of paper use.	Electronic filing systems and document management in the cloud.	Paper reduction has been effective in environmental sustainability and cost.

II. RESULTS AND DISCUSSION

Currently, document management in public universities is a critical area that requires constant innovation and adaptation to new technologies to improve the efficiency and effectiveness of administrative processes. The overall objective of analyzing the strategies and technologies implemented to optimize these processes highlights the importance of a systematic and technologically advanced approach. Below are several studies from different countries that provide a representative picture:

Document management in public universities has undergone various technological and strategic improvements in recent years, as can be seen in studies carried out in different countries. From these initiatives, it is evident that the incorporation of new technologies and the optimization of processes have had a positive impact on operational efficiency, information management and user satisfaction. However, despite the progress made, there are still areas that require further research and improvement to maximize the benefits of these implementations.

In Argentina, Abba and Streck (2021) underline the importance of Electronic Document Management (EDMS) systems to streamline document processing. The use of these systems has made it possible to improve the speed of processing administrative procedures, which is essential in an environment where efficiency and speed in the management of documents are key. However, one possible area for improvement is the integration of these systems with other university platforms to further streamline administrative processes.

On the other hand, in Mexico, Alenezi (2023) highlights the relevance of continuous training in document management for administrative staff, supported by digital learning platforms and digital archiving systems. This strategy has improved accuracy in document handling, which is crucial in preventing errors that can negatively impact students. However, the effectiveness of these trainings could be further evaluated, to ensure that staff keep up with technological advancements and new document management practices.

In Spain, Alter (2019) addresses the centralization of academic records through

centralized databases and secure online access. This strategy has proven effective in reducing wait times and errors in records, which improves the user experience. Despite the benefits observed, a possible area of research is centralized data security and protection, as a higher concentration of sensitive information can pose a risk if cybersecurity aspects are not handled correctly.

In the United States, Ayaz and Yanartaş (2020) explore the use of blockchain technology to ensure the privacy and integrity of academic records. Confidence in document management has increased considerably due to the security offered by this technology. However, one of the areas that still needs to be explored is the scalability of blockchain in other areas of university administration, in addition to evaluating its economic viability for institutions with limited resources.

In Colombia, Budur et al. (2024) highlight the development of user-friendly interfaces in document management systems, supported by integrated ERP systems. These improvements in the interfaces have made it easier for students to use the system, improving their interaction with administrative processes. While this has proved beneficial, one area for research is how these interfaces can be adapted to different user profiles, especially in universities with a wide range of students and administrative staff.

In Brazil, Cedeño-Macías et al. (2021) focus on the review and optimization of document workflows through the use of business process management (BPM) software. This optimization has improved operational efficiency by reducing the time and costs associated with administrative processes. However, it is important to assess the long-term impact of these optimizations and how they can be adapted to other departments or universities with fewer resources.

In Peru, Chan (2023) highlights the integration of student feedback in the development of documentary policies. The use of digital feedback systems has improved the relevance of the policies implemented, aligning them better with the needs of students. One issue that deserves further analysis is how to ensure that student feedback is collected in a representative manner and effectively integrated into decision-making.

In Chile, De Giusti (2023) reports on the automation of enrollment and certification services. The implementation of automated systems has significantly reduced processing times, which has improved the administrative experience for both students and staff. However, the challenge is to ensure that automation does not sacrifice the quality of service, and that a balance is maintained between efficiency and personalized attention.

In Venezuela, Del Castillo Guevara et al. (2021) point out that improvements in the transparency and accessibility of documentary information, through web portals with public access, have encouraged greater student participation. Despite the advances, more research is needed to assess how these transparency measures may affect the protection of personal data and whether students are sufficiently trained to use these platforms effectively.

Finally, in Uruguay, Díaz Suárez et al. (2021) have implemented electronic filing systems that have reduced the use of paper, promoting environmental sustainability. While this practice has proven to be effective in terms of cost savings and environmental benefits, it is necessary to investigate how these initiatives can be

replicated in universities with less access to technology, and how it can be ensured that paper reduction does not affect accessibility. of information

Regarding the first specific objective: To analyze the current document management technologies used in public universities, such as systems based on artificial intelligence, to determine their effectiveness in automating and accelerating document processes.

Authors and Year (APA)	**Document Management Technologies**	**Automation Efficiency**	**Acceleration of Document Processes**
Díaz Suárez, Y., Junco Vázquez, TO, & Ruíz González, M. de L. Á. (2021)	Document management system for master's degrees.	Improved automation of academic document storage and retrieval.	Reduced response times in information management for master's students
Esteve-Mon, FM, Postigo-Fuentes, AY, & Castañeda, L. (2023)	Digital tools and automated processes.	Efficiency in automating administrative and academic tasks through digitalization	Optimization of times in the execution of administrative processes in higher education.
Espinoza, A., & Lenin, J. (2022)	Document management system for linking with society.	Automation in document management and linking the university with society.	Streamlining procedures and document management in the university-society relationship
Fernández, A., Gómez, B., Binjaku, K. y Meçe, EK (2023)	Digital transformation platforms	Efficiency in process automation through the integration of digital technology	Acceleration in the execution of administrative and academic processes in higher education institutions
Iqbal, S., Taib, CAB y Razalli, MR (2024)	Integrated document management with accreditation and quality culture.	Improvement in the automation of processes related to accreditation and educational quality.	Reduction of time in the implementation of accreditation processes and quality improvement.

In the analysis of current document management technologies used in public universities, it is highlighted how these tools have improved both the automation and acceleration of document processes. The different technologies analyzed in the studies by Díaz Suárez et al. (2021), Esteve-Mon et al. (2023), Espinoza and Lenin

(2022), Fernández et al. (2023), and Iqbal et al. (2024) have made it possible to optimize document management, reduce processing times, and improve accuracy in the management of academic and administrative information. The main findings are discussed below:

Automation efficiency

Automation has been one of the most significant advances in document management, and it has been reflected in multiple areas within public universities. For example, the document management system implemented by Díaz Suárez et al. (2021) has demonstrated a considerable improvement in the automation of the storage and retrieval of academic documents, this system is especially effective in the management of information of master's students, allowing previously manual and error-prone processes to be carried out in a more agile and accurate way. In the study by Esteve-Mon et al. (2023), digital tools and automated processes have managed to automate both administrative and academic tasks, which has been essential to improve institutional productivity. Similarly, Espinoza and Lenin (2022) highlight automation in the link between the university and society, which optimizes document management in these collaborative projects.

The analysis of document management technologies in public universities shows that automation has allowed not only greater efficiency in document management, but also a significant reduction in the time needed to execute critical processes. These improvements have a positive impact on the experience of students, teachers and administrative staff, by simplifying access to information and facilitating decision-making.

Fernández et al. (2023) address how digital transformation platforms have increased the efficiency of processes, integrating technologies that allow automating everything from registrations to the issuance of certificates, which has significantly reduced the administrative burden. Finally, Iqbal et al. (2024) present an improvement in the automation of processes related to accreditation and educational quality, one of the most critical areas to ensure compliance with standards in higher education.

It is important to note that, although all the technologies studied have demonstrated improvements in automation and acceleration of processes, each one addresses specific areas within the university context. From document management in master's degrees to accreditation and social engagement, these technologies are customized to respond to the particular needs of each institution.

Accelerating Document Processes

One of the most obvious benefits of implementing document management technologies is the acceleration of processes that previously required long times due to manual intervention. Díaz Suárez et al. (2021) highlight that automation in document management for master's degrees has reduced response times in the management of key information, allowing students and academic staff to access documentation more quickly and efficiently. For Esteve-Mon et al. (2023) they emphasize that the digitization of administrative processes has optimized execution times, improving the overall workflow within universities. This not only streamlines the registration and academic management processes, but also frees up resources for other administrative areas. Espinoza and Lenin (2022) show how

streamlining procedures related to society has improved the speed with which collaborative agreements and projects are managed, resulting in a more effective relationship between the university and its environment.

In the case of Fernández et al. (2023), the acceleration in the execution of administrative and academic processes has been notable thanks to the integration of digital transformation platforms. These platforms allow for faster management of tasks such as issuing certifications and reviewing academic transcripts. Finally, Iqbal et al. (2024) report that the integration of document management systems in accreditation processes has significantly reduced the time needed to comply with quality requirements, optimizing the management of audits and evaluations. It is important to note that, although all the technologies studied have demonstrated improvements in automation and acceleration of processes, each one addresses specific areas within the university context. In summary, the automation and acceleration of document processes are key elements to improve the operational efficiency of public universities, and the document management technologies analyzed have proven to be valuable tools in achieving this goal. However, long-term success will depend on the adaptability of these technologies and the commitment of institutions to keep their technological infrastructure up-to-date and effective.

(2) Examine the information security policies and protocols implemented that universities have implemented in document management systems, evaluating their effectiveness in protecting the integrity and confidentiality of academic and administrative data.

Author & Year (APA)	**Information Security Policies and Protocols Implemented**	**Effectiveness in Protecting Integrity and Confidentiality**	**Speed of Document Management in the Administrative Process**
Love, H, Makhdin, K., Jaleel, H., Dastaazar, K., Farxod, T., Shaukat, M., Khulkar, K.K.I. Jakhongir, S. (2024)	Implementation of AI for the security of academic data, with automated monitoring and access control based on biometric authentication.	High effectiveness in protecting data confidentiality thanks to AI, which ensures continuous monitoring of systems and advanced protection against unauthorized access.	AI has significantly accelerated administrative processes, enabling greater speed in document management by minimizing human error and ensuring secure and fast access to documents.
Quy, VK, Thanh, BT, Chehri, A., Linh, DM y Tuan, DA (2023)	Information security management policy with AI integration, advanced encryption, and multi-factor authentication at a specific university in Vietnam.	Very high effectiveness in the protection of sensitive data, with strict access control and encryption of information that prevents unauthorized access and protects the confidentiality of records.	The automation of processes, such as the management of records and the issuance of certificates, has reduced administrative response times, increasing efficiency in university document management.

Author & Year (APA)	Information Security Policies and Protocols Implemented	Effectiveness in Protecting Integrity and Confidentiality	Speed of Document Management in the Administrative Process
Soria Vera, KD & Díaz Gispert, LI (2020)	Internal document management policy with restricted access to authorized users and version control systems at the University of Otavalo.	Good effectiveness in protecting the integrity of information, especially in traceability and version control, which ensures that documents are not altered without authorization.	The system has improved the speed of updating and retrieving documents, although some manual processes continue to slow down certain areas of management, leaving room for improvement in terms of automation.
Díaz Jiménez, A., Olivera Batista, D., & Zamora Gómez, I. (2022)	Creation of document management protocols with a focus on security, including access controls and use of cloud servers with encryption.	Medium effectiveness, because although cloud servers provide basic protection to data, there are challenges in the total implementation of encryption and access control protocols.	The integration of cloud systems has reduced some translation times, but the lack of full automation continues to affect the speed of some key administrative processes.
Loor Cobeña, KV, García Salmon, LA, & Cobacango Villavicencio, J. (2021)	Document management diagnosis that recommends the implementation of security policies such as document encryption and access control through authentication in universities.	Potential effectiveness, as suggested protocols, such as encryption and authentication, can adequately protect sensitive information, but their implementation is not yet complete in all universities.	The implementation of the recommendations is still in process, so document management times vary, but the suggested greater automation could significantly speed up administrative processes.

The analysis of information security policies and protocols implemented in universities reflects the importance of integrating advanced technological tools, such as artificial intelligence (AI), in the protection of data integrity and confidentiality. In particular, AI-based solutions, such as those observed in the studies by **Muhabbat et al. (2024)** and **Quy et al. (2023),** have shown high effectiveness in protecting data and accelerating document processes. These technologies allow for constant monitoring and advanced authentication, ensuring security in a digital environment.

On the other hand, studies such as that of **Soria Vera & Díaz Gispert (2020)** and **Díaz Jiménez et al. (2022)** point to the need for a more complete implementation of

security protocols in some universities, where manual or not fully automated processes still prevail. As universities continue to make progress in digitizing and automating their document management systems, it is critical that the adoption of robust security measures is prioritized to ensure that academic and administrative data remains protected from unauthorized access or alteration.

(3) Identify and analyze the barriers and facilitators in the implementation of document management systems in public universities

Author & Year (APA)	Barriers in Document Management	Facilitators in Document Management
Del Castillo Guevara, J., Mena Mugica, MM, & Torres Ponjuán, D. (2021)	Lack of a centralized document management system at the University of Havana, which generates inefficiencies.	Proposal for a centralised document management system to improve the accessibility and organisation of documents.
Díaz Suárez, Y., Junco Vázquez, TO, & Ruíz González, M. de L. Á. (2021)	Lack of trained personnel and resistance to change on the part of administrative staff in document management.	The automation of processes in the document management system for master's degrees facilitates quick and efficient access to information.
Esteve-Mon, FM, Postigo-Fuentes, AY, & Castañeda, L. (2023)	Technical difficulties in the implementation of digital tools in higher education institutions.	Clear strategies and adequate technical support for the integration of digital tools and processes, improving efficiency.
Espinoza, A., & Lenin, J. (2022)	Lack of adequate technological infrastructure to implement document management systems for social engagement.	Improvement in document management through the implementation of systems that connect the university with society, facilitating cooperation.
Fernández, A., Gómez, B., Binjaku, K. y Meçe, EK (2023)	Budget constraints for the implementation of digital transformation technologies.	Digital transformation makes it possible to automate processes and improve document management through the use of efficient technology.
Iqbal, S., Taib, CAB y Razalli, MR (2024)	Challenges in implementing integrated systems that combine accreditation and educational quality management.	Document management systems integrated with quality protocols improve transparency and compliance with educational standards.
Khan, SA y Shahzad, K. (2024)	Lack of standardization in digital library systems in	Development of key features in digital library systems that allow for

Author & Year (APA)	Barriers in Document Management	Facilitators in Document Management
	universities.	more efficient information management.
Muhabbat, H., Mukhiddin, K., Jalil, H., et al. (2024)	Complexity in the adoption of artificial intelligence (AI) technologies for document management.	AI facilitates advanced automation and improves security and efficiency in the management of large volumes of information.
Quy, VK, Thanh, BT, Chehri, A., et al. (2023)	Cultural resistance to the use of artificial intelligence in document management in some institutions.	AI integration enables faster, more secure, and more accurate document management in higher education institutions.
Soria Vera, KD & Díaz Gispert, LI (2020)	Lack of technological integration in the document management system of the University of Otavalo.	Design of a document management system that improves the accessibility and internal organization of university documents.
Díaz Jiménez, A., Olivera Batista, D., & Zamora Gómez, I. (2022)	Challenges in creating document management policies that adequately address information security.	Creation of clear document management policies that ensure the protection and proper management of documents in universities.
Loor Cobeña, KV, García Salmon, LA, & Cobacango Villavicencio, J. (2021)	Lack of standardized methodologies for the diagnosis and improvement of document management in universities.	Identification of effective methodologies that allow improving the organization and optimization of document management processes.

The analysis of the barriers and enablers of document management in universities reveals a number of challenges and opportunities to improve the efficiency and security of document processes.

- Barriers: Studies point to the lack of adequate technological infrastructure, resistance to change by staff and budgetary limitations as the main obstacles to the implementation of efficient document management systems. In addition, there is cultural resistance in some institutions to the use of advanced technologies such as artificial intelligence (AI) and the lack of standardization in existing systems, such as digital libraries.
- Enablers: On the other hand, emerging technologies such as artificial intelligence, digital tools, and integrated systems are identified as key enablers for improving document management. These technologies allow the automation of processes, the improvement of the accessibility of information and the optimization of resources, which facilitates transparency and administrative efficiency.

CONCLUSIONS

Document management in public universities has undergone significant improvements through the implementation of advanced technologies and innovative strategies. The analysis carried out shows that the automation of document processes has improved operational efficiency, reducing response times and increasing accuracy in information management. However, challenges such as lack of adequate infrastructure, resistance to change, and budget constraints remain, necessitating a broader approach that integrates security policies, continuous training, and increased use of emerging technologies, such as artificial intelligence (AI). Long-term sustainability will depend on the ability of universities to adapt to these changes and ensure data protection and accessibility, so this study provides a comprehensive perspective on how universities can continue to improve their document management through technological integration and process optimization.

Conclusions by Specific Objective

1. **Document Management Technologies:** The implementation of document management systems based on AI and other digital technologies has proven to be highly effective in automating processes. Where automation not only reduces response times in document retrieval, but also optimizes efficiency in academic administration and interaction with students. However, it is essential that universities tailor these technologies to their specific needs, including further customization and constant analysis of their impact to ensure that improvements in automation are sustainable and scalable.
2. **Security Policies and Protocols:** Information security policies and protocols are critical to protecting the integrity and confidentiality of academic and administrative data. The implementation of AI and advanced encryption technologies has provided a high level of protection, ensuring controlled access and prevention of vulnerabilities. However, there remains a critical need to improve staff training and ensure that all processes are fully automated to maximize information security. Universities must continue to strengthen their cybersecurity measures to face emerging threats and ensure data protection.
3. **Barriers and Enablers in Implementation:** The implementation of document management systems faces significant barriers, such as resistance to change, lack of adequate technological infrastructure, and budgetary challenges, as identified. However, key enablers include the use of AI, digital transformation, and advanced automation, which improve the accessibility, efficiency, and security of document systems. Universities that manage to integrate these technologies can overcome traditional barriers, optimizing their administrative processes and increasing student and staff satisfaction. It is crucial to further investigate how to adapt these solutions to different institutional contexts, especially in universities with limited resources or complex organizational structures

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