Features and Benefits of Document Management Systems

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ARTICLE INFO	ABSTRACT
	As technology advances, businesses are turning to specialists for assistance with complex data management challenges. One solution that can significantly improve organisational efficiency is document management software. Document Management Systems (DMS) are engineered to handle unstructured data, including files, spreadsheets, text, images, multimedia data, and compound documents. They function like a library or catalogue, providing businesses with an efficient and organised way to manage their documents. This comprehensive document is organised into sections covering various aspects of DMS. The introduction briefly overviews DMS, highlighting its key definitions and features and how it can effectively address organisational challenges. Section Two goes into greater detail about the critical elements that constitute DMS. It begins with the process of converting physical documents into digital formats. In Section Three, LogicalDOC, an open-source DMS, is presented, highlighting its key features: enhanced efficiency and productivity, streamlined communication and collaboration, and automation capabilities, resulting in significant time-saving.

1. Introduction

Most organisations still have to deal with physical documents, such as contracts, photographs, and written reports, often stored in boxes and file cabinets. Locating these documents takes months or even years after creation and can be time-consuming if they can be found at all.

Before the digital age, a document was "a written or typed text, inscription, or other evidence used to recognise a real fact or from the past" (Mehedintu, 2007). For many, a document is simply a paper containing necessary information.

In the modern era, we have an array of advanced technologies at our fingertips, including the innovative concept of digital documents. These documents are comprised of information that necessitates using a computer or electronic device for interpretation, display, and processing. Examples of digital documents include those generated by software, stored on magnetic or optical media, and transmitted through electronic mail or data interchange.

IDC (International Data Corporation) estimates that nearly 20% of an employee's workday is spent searching for information in hardcopy documents, with a 50% chance of not finding what they need. However, a document management solution can significantly streamline this process, enabling knowledge workers to concentrate on meeting and acquiring customers' needs. By implementing a DMS (Document Management System), staff can utilise their time more productively rather than wasting hours searching for information or filing documents.

De Sutter's (2004) definition emphasises the essential functions of a DMS: A software application known as a DMS store manages and retrieves unstructured data. This data can include different file types, such as text, spreadsheets, images, multimedia data, sound clips, and compound documents.

Think of it as a catalogue or library of documents, where each document's details, such as the author, content, access permissions, and version history, are recorded. Managing and auditing these details is crucial for sharing documents internally and externally, as it helps businesses comply with regulations and annual audit requirements.

Five fundamental components are essential to ensure effective document management, including tools for capturing and importing documents, storing and archiving records, indexing and retrieval capabilities, distributing tools for exporting documents, and security features to safeguard sensitive data from unauthorised

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access. DMSs help organisations manage document creation and flow by providing a centralised repository. When selecting a DMS, finding one that integrates easily into your IT infrastructure is essential.

2. Theory fundaments

The efficient management and control of electronic documents have become vital for organisations, and to achieve this, document management systems are increasingly being adopted.

Document management systems provide various advantages which can boost productivity and promote teamwork. According to Lawton's (2021) research, these systems offer central storage for arranging and storing digital documents, aiding in the effective organisation and retrieval of documents. Document management systems provide various capabilities and advantages that enable organisations to enhance their document management and retrieval, promote collaboration, strengthen security measures, automate processes, maintain regulatory compliance, support disaster recovery and business continuity, and integrate with other systems. Furthermore, these systems offer features like version control, document sharing, and real-time collaboration.

In the fast-moving landscape of modern businesses, document management systems are now crucial tools for organisations wanting to simplify document processes and enhance efficiency. Implementing a document management system can lead to various benefits like enhanced document sorting and retrieval, heightened collaboration, upgraded security and control, streamlined workflow automation, compliance with regulations, disaster preparedness, and seamless integration with other systems. Businesses can improve their competitiveness in the market by leveraging these advantages to reduce time wasted, lower expenses, and improve overall productivity. Furthermore, document management systems can support better decision-making through convenient access to up-to-date and precise information. These systems can enhance adherence to industry regulations and standards by ensuring proper storage, organisation, and document access. (Abbasova, 2020).

Document management systems provide a variety of advantages that extend beyond an organisation's current requirements. These systems can adapt and grow with a business as it changes without causing significant interruptions or needing extra resources. Due to technological progress, document management systems are consistently enhancing and incorporating new functions to meet the changing needs of companies. (Document Management Systems Market, 2020)

Document management systems offer many benefits and yield cost savings by minimising dependence on paper-based processes and decreasing expenses related to storage and printing. The first step is to comprehensively assess current document management practices to identify areas that could benefit from adopting such a system. (Lawton, 2021)

The initial stage of document management involves transforming physical documents and records into digital formats. Although paper may suffice for small amounts of data, it becomes both expensive and inefficient when handling large quantities. This conversion process typically entails three stages: scanning paper documents, storing the resulting digital records, and retrieving them when necessary.

For any document management system to be effective, it should comprise five essential components. These include tools to capture and import documents, methods for storing and archiving documents, tools to index and retrieve documents, workflow tools for exporting documents, and security measures to prevent unauthorised access. These components align with the six phases of an information lifecycle: creation, storage, usage, sharing, archiving, and destruction, as illustrated in Figure 1.
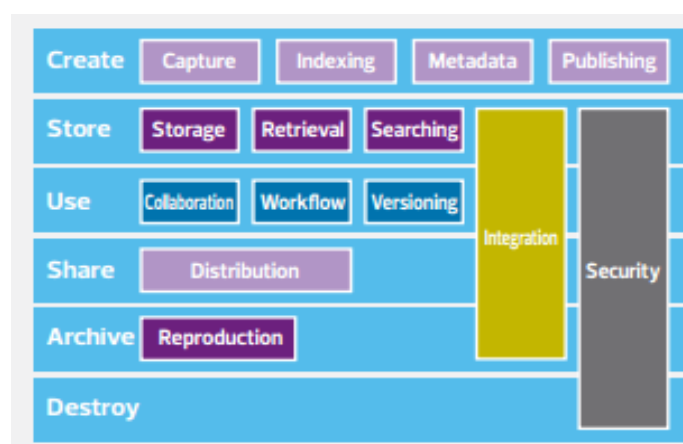

Figure 1. Aligning the information lifecycle with DMS components
Source: The Principles of Document Management [White paper]

Document management components can be easily mapped to an information lifecycle. The document scanning and capture process primarily involves transforming physical paper documents into digital format.

On the other hand, digital documents that are created natively are made available online, classified, and labelled with relevant metadata. Once created, documents are moved to a document management storage system that integrates with retrieval functionality for easy access. This system has security modules that provide an underlying platform for secure document workflows.

The permissions set within the DMS determine how users interact with information. Multiple permission levels are available, including department, system, group, and user. Group-level security is the most efficient way to manage permissions for multiple users with a single setup.

Efficient document management is vital for seamless operations, enabling easy handling of a large volume of documents and quickly retrieving necessary files in seconds. This practice also facilitates secure document sharing with colleagues while protecting confidential information. Document management enables access to documents, ensuring work is never interrupted, whether on the move or travelling. Beyond this, it also supports backing up files and records to enable quick disaster recovery.

After the assessment, organisations should develop a clear implementation plan that outlines the deployment strategy, user training programs, and migration of existing documents to the new system. User acceptance testing and feedback collection are vital components of the implementation process to ensure that the document management system effectively meets the organisation's and its employees' needs.

3. Case study

The research has two parts. The first part analyses the DMS' characteristics for businesses and the educational environment. The second part highlights some features of LogicalDoc, a very efficient and effective DMS applied at the university.

3.1 Choosing the right document management system

Some questions arise when we think about choosing such software. Here they are:

Q1: How do we select a DMS?

Q2: Are DMS features suitable for the universities?

Usually, the characteristics you should check out to make the right choice are:

a) Centralized document repository: It is essential to verify that the software offers modular solutions and can be implemented in different ways, for example, as a shared server accessible from all workstations or by providing a Cloud service.

b) Version Control: Keeping track of different versions of documents and changes is only possible with adequate control mechanisms. DMS should solve this problem by automatically saving multiple document iterations and a timestamp indicating when each version was created or modified; after each modification, the document's previous versions must remain available for consultation and comparison, while the most recent is the one automatically proposed for operations.

c) Secure data storage: The chosen system must integrate adequate measures, such as historical password control, security policies on menus and folders, two-factor authentication, file encryption, access geolocation, firewall and external access authentication. All measures ensure that sensitive information remains protected from unauthorised access or breaches.

d) Access Control: The system should provide granular access control capabilities that allow administrators to determine who can view, edit, or delete each document based on defined permissions.

e) Efficient Search Feature: It is crucial that you can perform full-text searches by indicating words or parts of text contained in the document or its metadata, such as title, keywords and tags. The most advanced management systems also allow you to preview and work on documents already on the search screen without opening additional windows (significantly improved productivity).

f) Collaboration tools: Users can work simultaneously on shared documents, eliminating version conflicts or unnecessary email communications. Functions such as Check-in and Check-out procedures, integrated contact books, reading confirmation, and integrated calendars facilitate collaboration and limit the possibility of errors. Also, collaborative features like annotation, comments, and document tracking make it easier for teams to provide feedback and track changes in real-time.

g) Automation: Automation features that streamline processes, save time, and reduce manual errors are needed. Administrators must be able to quickly create, manage, import or export even sophisticated workflow models, capable of performing numerous operations in series or parallel. This way, many tasks traditionally performed manually, such as file organisation, naming conventions, file conversions, reminder scheduling, and notifications, are performed mechanically with workflow automation, allowing

employees to engage in higher-value activities. The software must allow for multiple outgoing transactions, time-outs on activities, and customised notification messages.

h) Integration: This integration ensures seamless data flow between systems, improving productivity and efficiency.

i) Mobile Access: Ideal document management systems should provide mobile access capabilities without compromising security. It is preferable to include offline working functions (you only sometimes have a reliable connection) that allow you to consult, modify and re-enter documents into the system. The flexibility of accessing documents on the go improves productivity and collaboration no matter where you are.

Document management software (DMS) has become increasingly important in the academic world as schools transition to electronic resources and students become more technologically savvy. By creating, scanning, storing, and controlling documents, DMS provides numerous benefits, such as improved speed, ease of access, collaboration, and data backup, all enhanced when information is digital.

A DMS solution can address the specific needs of universities, from managing student records to handling administrative paperwork. We compiled some practical applications in university environments that a DMS should address:

- Student Enrollment Management: The enrollment process uses digitised application forms, transcripts, and identity verification documents. A DMS enables quick retrieval and processing of these documents, ensuring a smoother enrollment experience for students and staff.

- Academic Records: Academic records, including grades, coursework, and degree certifications, are stored and managed.

- Research Project Documentation: A DMS manages different grant applications, research proposals, and project reports, enhancing collaboration and ensuring compliance with funding requirements.

- Library Archives Management: A DMS helps digitise and categorise library archives, making it easy for students and faculty to access rare books, research papers, and historical documents online.

- Event and Facilities Management: A DMS manages documents related to campus events, facility rentals, and maintenance records, streamlining the coordination and documentation of university events and facilities usage.

- Legal and Compliance Documentation: A DMS holds up the storage and management of legal documents, policy manuals, and compliance reports, guaranteeing that the university complies with educational standards and legal requirements.

- Alumni Records and Engagement: The DMS maintains alumni records, facilitating outreach and engagement initiatives such as newsletters or event invitations.

3.2 LogicalDOC characteristics

According to Financesonline Review (A fast-growing platform for online reviews of B2B and SaaS products), LogicalDOC is a reliable and user-friendly document management system (DMS) that caters to the needs of small businesses, large enterprises, and various organisations (LogicalDOC Reviews: Pricing & Software Features 2024 - Financesonline.com, 2024).

What sets LogicalDOC apart are its essential capabilities, such as seamless collaboration, top-notch document and information security, and a comprehensive archive of past documents and modifications. The system also boasts a complete audit trail that allows for easy tracking and management of all events within the document system. Moreover, LogicalDOC can efficiently index and archive a variety of data sheets, product briefs, drawings, manuals, and other materials in a shared environment, resulting in a clutter-free and paperless office (Home - LogicalDOC Documentation, n.d.).

LogicalDOC offers a range of valuable features, including access control, versioning after every change, discussion forums, and robust policy security, among others. These powerful features make LogicalDOC the ideal choice for efficient document management, setting it apart from the competition.

a) Creating discussion on a document.

Users can add comments to a document. Upon selecting this option, a list of prior discussions related to the chosen document and specific topic will appear at the top of the page. To start a new conversation, input the topic and text, then click the "Start a Discussion" button below. It is worth noting that the topic in the discussions list is clickable and will direct you to the details page of the discussion.

b) Utilize the Check-out/Check-in Feature

Collaborate easily and maintain organisation while safeguarding shared work using the check-out/check-in feature (Figure 2).

Figure 2. The item checkout

As soon as documents are submitted, revision control automatically records the most recent modifications and generates a fresh file version, while preserving all prior versions in the database. Stay updated on the status of your documents and identify whether they are being revised or ready for editing. Checking in and out can be executed via Microsoft Windows or the web browser companion interface, and the files will instantly open in their native application upon checkout.

c) Find Information with Search

Quickly gain access to the information you need with the search function. Optimise your search efficiency by utilising full-text search for documents. (Figure 3)

Figure 3. Search engine

d) Workflows

Defining, executing, and automating business procedures is what is referred to as workflow. Tasks, information, and documents are transferred from one participant to another during this process in line with a set of procedural guidelines. By using workflows, organisations can effectively coordinate tasks between individuals and synchronise information between systems, ultimately improving efficiency, responsiveness, and profitability. The effectiveness of an organisation is mainly dependent on the efficiency, speed, and functionality of its workflows (Stoica, 2005).

The workflow feature is a tool for the document's life cycle that assigns a business process for a collection of documents. The administrator creates and adds a workflow template based on the organisation's business processes. Any user of the system may be involved in a document workflow. Some documents, such as a purchase order, can have complex workflows involving many people within the organisation.

For example, we will create a workflow for the request re-evaluation skills of a student (Figure 4).
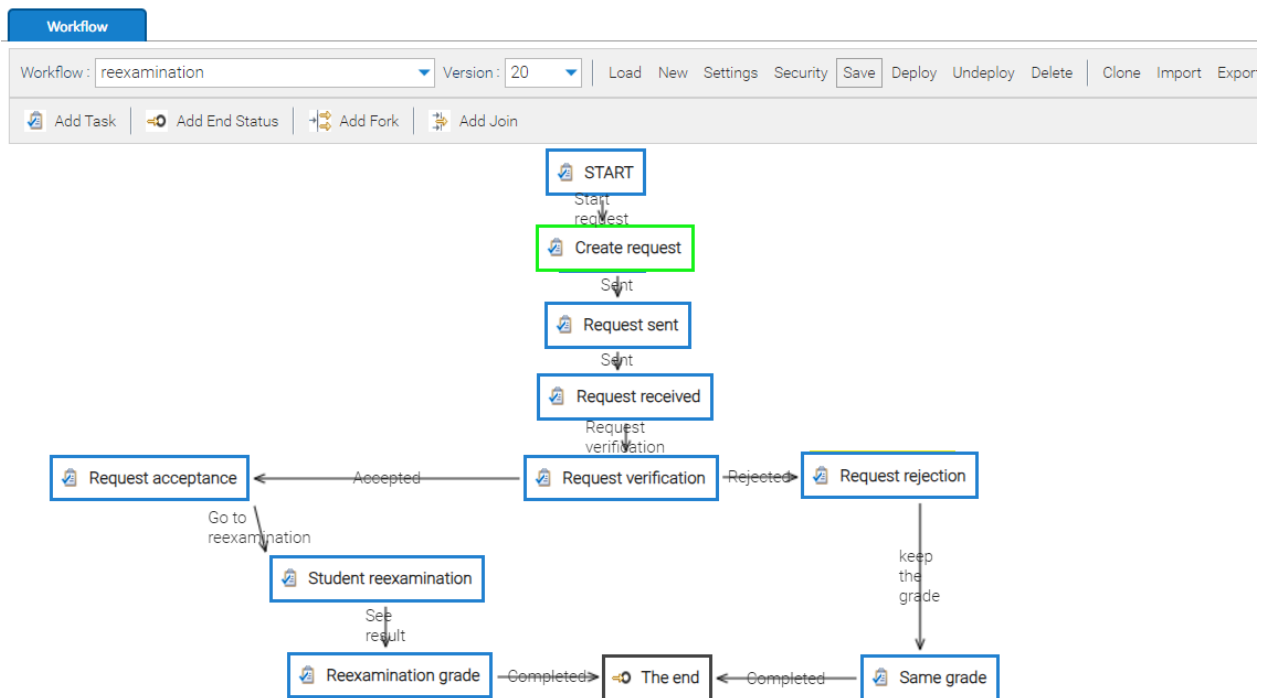
Figure 4. Workflow for a request reevaluation of skills of a student

e) Protecting Files with Security Measures

It is imperative to safeguard specific files from unauthorised modifications in certain situations. This requires locking the file so that it cannot be altered by anyone other than the owner or administrator. Once locked, a padlock icon will appear (as shown in Figure 5).

Alternatively, password protection can limit access to the file, ensuring that only those with knowledge of the password can view or edit it (as demonstrated in Figure 5).
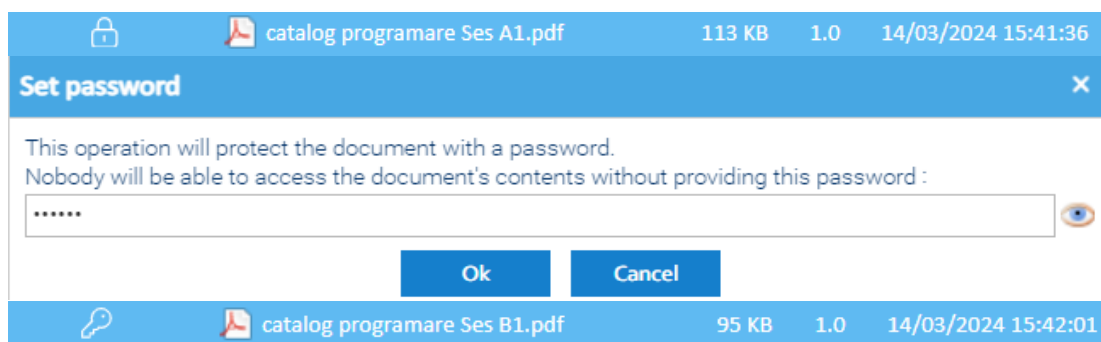

Figure 5. Lock and Password options

The Lock function prevents content modifications but still allows users to access it. Password Protection, however, restricts access without the correct password.

Access privileges are granted to groups and users through security policies. Each user inherits the access permissions of all the groups they are part of. The system administration is responsible for creating users and groups; each can belong to multiple groups. Security policies are always framed in terms of groups instead of individual users.

Upon adding a user to the database, the administrator must fill out several fields, and the user will receive a welcome email with their username and system-generated password. The "Password expires" checkbox can set an expiration date for the user's password (as shown in Figure 6).

Figure 6 Settings for password

Groups in LogicalDOC are used as a structural element to assign access privileges.

4. Conclusions

A Document Management System (DMS) offers various benefits, including time-saving, enhanced efficiency, productivity, improved communication and collaboration between departments and organisations, and automated processes.

However, organisations must assess their current situation and select the best solution, considering these systems require a significant financial and staffing investment. While implementing a DMS may entail some initial expenses, it will ultimately result in long-term savings. Ultimately, reduced costs and augmented revenue will translate into greater profitability and business value.

LogicalDOC provides an efficient solution for companies transitioning from physical archives to electronic versions via automatic importation. The software features a full-text search function that facilitates rapid document location while ensuring document security by preventing unauthorised access. The platform boasts a user-friendly, innovative, next-generation web interface, allowing for creating, co-authoring, and sharing multiple documents while maintaining top-notch security.

The automation abilities that come with DMS help the educational environment in many ways: a) the paper amount is reduced; b) the documents are more accessible to be retrieved; d) the document security is increased with permission-based access; the processes are automated (with automated workflow and optical character recognition of documents).

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