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Hierarchical Document Approval System

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Abstract: ***The goal of a Hierarchical Document Management System (HDAS) is to accept, store, coordinate, and regulate E-documents. With the incorporation of E-documents, there is a move toward digital office operations and data transfer via approved systems. By implementing HDMS as a critical tool to handle the growing flow of data, a company may achieve an efficient, time-saving, and straightforward method of reporting, examining, and managing a document.***
The main advantage of the HDAS is document flow automation, which allows for the automatic transfer of files for approval. The purpose of this review is to look into and implement an E-document circulation system, while also considering the importance of HDAS in an organization. The stages of a document's lifespan are formation, storage, access, reassignment, distribution, preservation, and disposal.
Keywords: hierarchical, document, approval, automation, manage, paperless, circulation, storage, disposal.

I. INTRODUCTION

A HDAS refers to the distribution of documents automatically in a predetermined path. For instance, in a company when a user has a file that needs approval. The officers that must approve it are typically more than one and they must approve it step by step from lower to higher roles.
Firstly, System files are uploaded for approval, the exchange of papers is the main procedure in these systems, where only a selected number of people will have access to critical information.
The suggested system enforces protection by allowing access to only designated users inside the firm. The efficiency and accuracy of processing are significantly increased as compared to the old systems. The content to be communicated might be in text, audio, or video formats, but the most basic distribution unit is a document.
Some businesses may transmit sensitive information as a file. This sensitive-content should only be accessible to a small number of people, and unlawful access should be prevented. The document management system allows the user to track the progress of the document during the approval process. Various apps are used to communicate information in a business context.
The information owner uploads information in the form of a document and sends it to authorized people, who accept, reject, or comment on delivered content. As the first step toward meeting this security and confidentiality need, we suggest an enforced confidential exchange system that also regulates the flow according to the organization's structure and grants access through designations. Through the notion of HDAS.
When many human procedures are automated, it is seen as a natural part of modern life. Practically every industry uses automated systems to some extent, from the manufacturing of microprocessors to the building of nuclear-powered ships, from transport logistics to personal control, from agricultural work to ready meals. Automated systems differ in complexity and functionality.

A. Electronic Document Management Features

Documentary support for management has significantly changed during the last few decades, moving from paper to digital document transit. Electronic information circulation is the preparation, storage, retrieval, processing, and transfer of electronic information via data carriers and channels of communication while maintaining the privacy and validity of the information they contain. It is a combination of legal, methodological, and regulatory documents, standards, and technologies.
Without a doubt, advances in IT, the use of AI in document logistics, and the decrease of user operations will eventually lower the number of individuals in charge of document execution, but not the degree of responsibility. Additionally, a fresh approach to working with papers is emerging. The habits of both content production and consumption will alter, according to Forrester research experts.
Structured data will become increasingly prominent in papers, which will make it easier to process massive amounts of transactional records.

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B. System For Sharing Confidential Documents

Six components make up the multiuser secret documents management system. The User Authentication Server locates and confirms users. Only when the user has been authenticated should user document key sharing be enabled. Users with access to secret documents are specified by Policy Manager, along with user privacy settings. If necessary, Security Manager can use Policy Manager to audit authenticated users, decrypted documents, and encrypted documents.

The Policy Database contains the user account and privileges that the Security Manager has assigned. A server called a key management server keeps an encryption key that can be used to decrypt documents that have been encrypted. Only the authenticated user is given access to this encryption key.

II. LITERATURE SURVEY

Information is typically described as a piece of paper or a collection of records, such as a note or a letter. The main idea behind the E-document is that it should be easily shared, preserved, and analyzed as a whole. Everything is done manually at the institutions, and all records are kept offline. As a result, preserving records in departments is difficult, as is ensuring that documents are examined by workers.

The existing system is repetitive, time demanding, less adaptable, and has a very hectic work schedule. The probability of record loss is fairly significant, and locating records is quite difficult. The system's upkeep is tremendously costly and time probable. The result processing is stalled due to paperwork and staffing needs. Paper-based records management results in non-traceability, likely loss, information fragmentation, and data inaccessibility.

Furthermore, the rapid expansion of data production and distribution via electronic mail systems has exacerbated challenges with document security, management, tracking, and approval. DMSs were designed and are still being manufactured to provide a library and repository where files may be created, managed, and stored for simple access by departments and users within an organization. The dynamic functionality embedded in E-document management is really what makes document storage appealing as process management tools.

The digital era has transformed the development and use of documents all across the world. In the current system, a user can create an E-version on a computer without creating a paper document. The Internet, Intranet, and Web may all be used to search, access, and save electronic documents. To transmit data, the business must generate the document, issue it, prepare the message, register, forward the data to the addressee, accept, check, and update the receivers.

A single E-document may be processed and shared to others on networks at the same workplace or even to users around the world online. Companies must automate their processing as business operations are complicated. The process of inputting, distributing, storing, receiving, and classifying data is critical. Organizing papers, both paper-based and electronic, is now a problem in each organization.

The goal of developing and researching a DMS is to regulate and coordinate their many approval-based papers, when there is a lack of coordination or information exchange within the firm. Slow project information processing and retrieval transpired, and in order for an organization to meet their objectives and overcome this lack of control and coordination regarding the approval, they analyzed their existing flow model and identified significant problems in information supply.

After recognizing these issues, they created a system with significant features such as electronic transfer, role-based document access, and a notification procedure. Work synchronization across sectors, processing simplicity, increased employee productivity, lowering response-time, efficiency gains for processing and searching for documents, greater data access, and the ability to distinguish access privileges.

It is feasible to improve the efficiency of complicated organizational operations. Enterprises are increasingly depending on automated, dependable solutions to guarantee that their information is safe and available for successful management.

A DMS is a computer-based system for tracking and storing electronic documents. DMSs are designed from the bottom up, to assist organizations in managing the generation, preservation, access, and expiration of information. Because DMS material is frequently self-contained, a well-designed DMS facilitates discovering and transmitting content.

Users can generate files for forwarding. Users may study specific information on their sent documents, such as the document's current position, the path to transfer, and other vital information. The security of documents stretches well beyond who really has access to the system. Using the online document repository, users may be granted access to certain publications.

As a result, the most crucial papers may be protected for certain personnel who require access to this information. It is possible to go even farther by permitting certain users access to all of these documents whereas others only have access to a section of them.

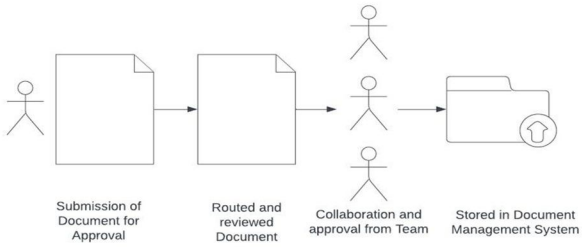
The scope of DMS in an organization is determined by the requirements, frequency of usage, application challenges and opportunity for standardization.

III. OBJECTIVES

The goals of HDAS are as follows:

1) Examine and evaluate the present document management system (DMS).
2) To put in place a paperless DMS.
3) Establish a role-based mechanism for hierarchical file approval.
4) To reduce the possibility of data leaks by automating the document distribution process and confining data flow to a straight channel.
5) To notify the user when a document requiring approval is received.
6) Improving operational efficiency and workflow by transferring papers quickly from a lower-level employee to a higher-level employee.
7) To assure data integrity and regulate information access.

IV. PROPOSED METHODOLOGY



A HDAS must incorporate all essential technologies to set up the working environment, such as creating a login and registration form based on distinct roles, establishing a database with normal forms, implementing a HDAS, and ultimately achieving operational efficiency while improving workflow. Circulation refers to the office files from the draft submitted to the approval of the step-by-step transfer throughout departments. Users can produce files, and the drafting process can run along the direction of the created track to monitor in real-time.

The project's goal is to offer a web-based online DMS that handles company-wide content submission/distribution electronically and automatically. The new solutions are intended to replace the present paper-based procedures, which are not just costly but also becoming overwhelming due to the increasing number of records.

The DMS must efficiently locate and send files, as well as manage documents and data regardless of source system or format. A HDAS must be able to incorporate a computerized approval process that has authority over accessibility and circulation for validation**.** Implemented in accordance with the design of the private DMS for multi-user provided in this study.

The approval procedure works as follows: A client signs up to use the approval procedure. After being authenticated, the user can engage in processes. After enrolling, a user can send an approval request and upload a document for evaluation. When a user receives a notice, he can inquire for and receive an approval task, as well as react to the request. The document information is shown in the browser for review and then the user can accept or reject. Security should be intrinsically linked with the system, enabling different levels of access rights inside the system. As a result, it is evident that the automated processing of documents to permit movement of the business's information flows, as well as all others operating in enterprise, may be incorporated with DMS.

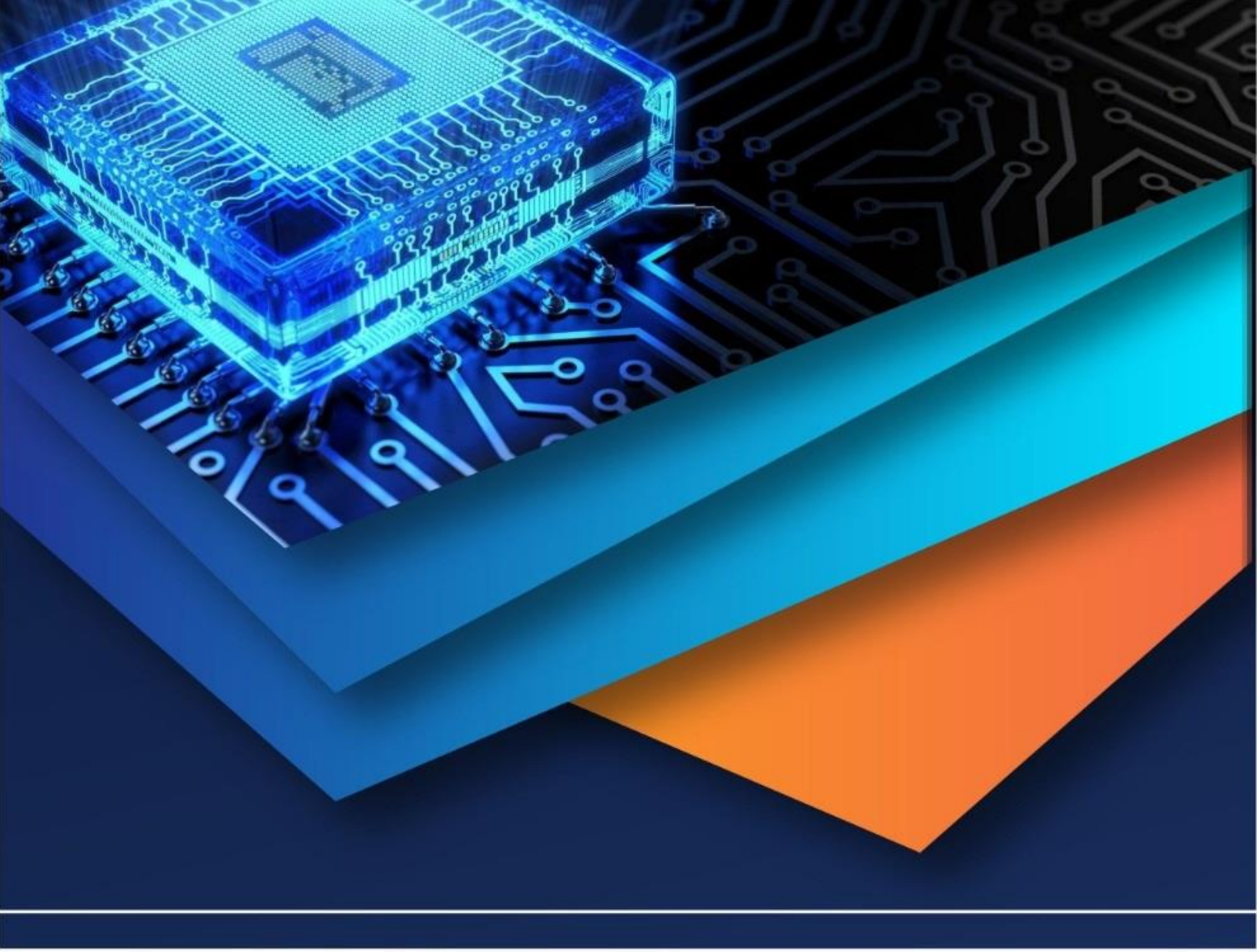
V. CONCLUSION

Despite majority of papers in a corporation being in E-Format, a competent DMS is still essential. DMS is a highly productive solution for managing paper in large organizations. The use of a restricted flow of route for a document, enhances security. As a result, HDAS is a notably appropriate method for managing data in large businesses. This research proposes a more secure DMS which is efficient, time-saving, and easy to report, inspect, and regulate the flow of a document. User interface, storage, receive annotation, dissemination, workflow, security, and system integration are all elements of the HDAS.

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