

# Review on an integrated archives electronic document and records management systems

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## Abstract

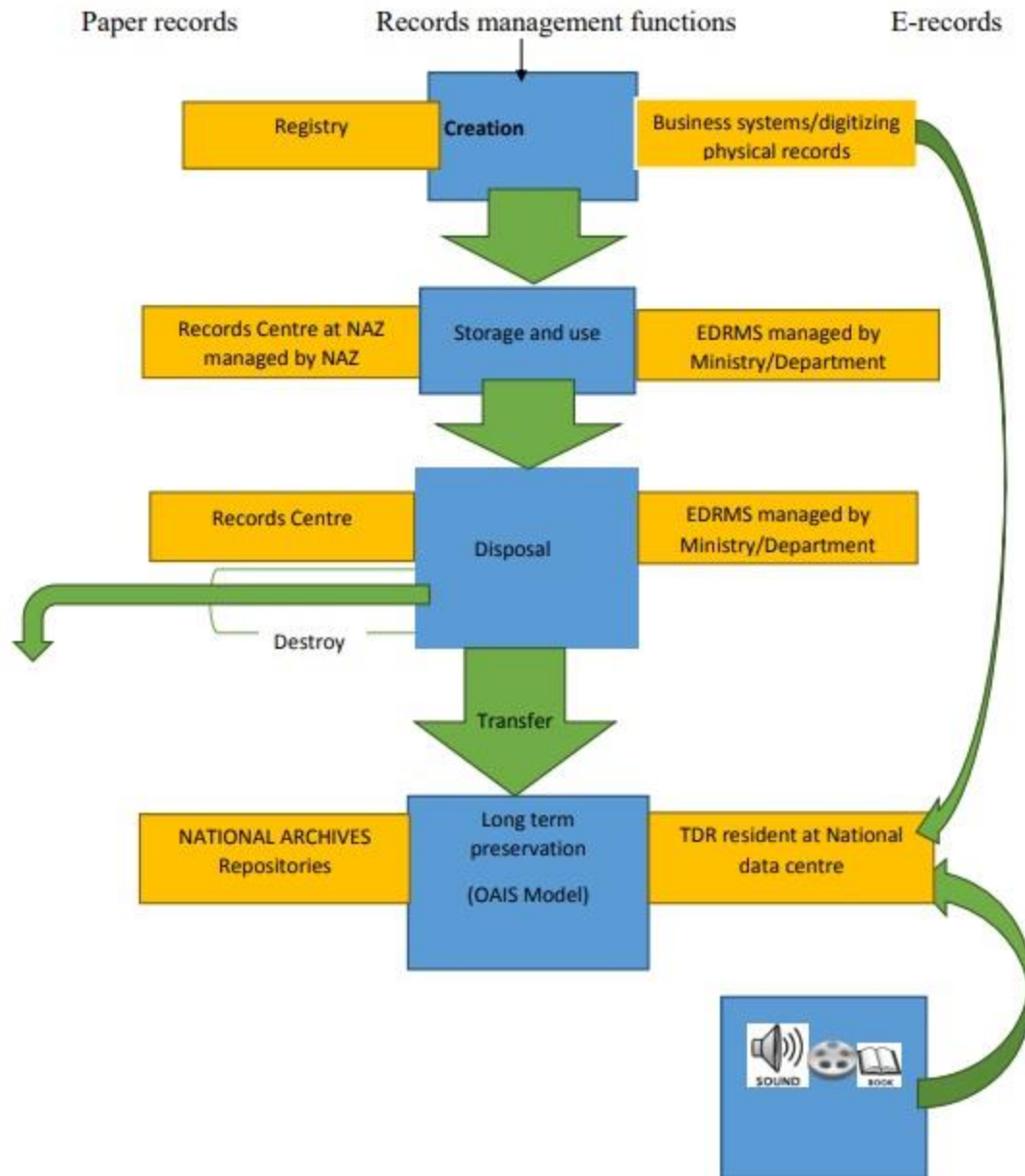
*This paper covers an outline of major writings and other sources on electronic documents and Records Management Systems (EDRMs) in different University setups. The main focus is to get an outline of how the records have been integrated electronically so an evaluation of the current systems used at the Chinhoyi University of Technology was included. The current record systems work independently, there is no integration at all so their individual weakness are highlighted in this paper. Literature from other authors who wrote about integration of electronic records and the advancements in that technology are also part of the discussion. Some of the integrated records management systems analysed are namely Zoho Docs, Logical Doc, Microsoft SharePoint and M-Files DMS, they are currently the most popular and widely used e-records management systems. The methodology of the proposed system is discussed at length stating the benefits of such a system for CUT over the current independent ones being used.*

**Keywords:** Archives, Architectural records management design, Chinhoyi University of Technology, Electronic record system, Record management system (RMS), System integration, University records system

## i. Introduction

According to (Iwhiwhu, 2005) university records support the institution's administrative and educational research, and the university's goal is to support teaching, research, and services. Despite the fact that universities are constantly being pressed to operate in a business-like manner in order to be self-sustaining and competitive, they fail to recognize the enormous benefits that proper records management practices could contribute to the achievement of their goals. An educational organization must keep complete, accurate and timely information about its students and staff. Efficient systems must be implemented for maintaining and using records so that effective decisions can be made for the benefit of all those involved within the organization. Electronic records systems are becoming increasingly favourable over paper records as technology advances globally. Electronic records are those records that have been created or stored using electronic systems.

This chapter will provide an overview of major writings and other sources on Electronic Documents and Records Management Systems (EDRMs). The researchers will evaluate the current systems used at CUT, including their purpose and what they lack. Other systems that will also be evaluated are Zoho Docs, LogicalDoc, Microsoft SharePoint and M-Files DMS as they are currently the most popular e-records management systems. According to the Public Sector Digital Records Management Framework (National Archives of Zimbabwe, 2018), all digital records management decisions and system design should be guided by the digital records model. The model draws some parallels between physical records and digital records and constitutes the philosophical foundation for the Framework. Below is a diagrammatic representation of the Framework:



*Figure 1: Digital Records Management Framework (National Archives of Zimbabwe, 2018)*

The aim of this project is to create an EDRM that adheres to the guidelines of the Public Sector Digital Records Management Framework.

## **ii. Benefits of automated records system**

Benefits of automated records systems were outlined (Clements & Barbara, 2000) :

Cost savings and cost avoidance – A well-designed and implemented automated student record system can reduce the costs associated with record keeping paperwork. Even if such a system is initially costly and no actual reductions in current costs are realized, it is justified in terms of future savings and efficiency. Nonetheless, in order to maximize the cost-saving benefits of an automated system, system developers and implementers must address two major concerns. For starters, it is sometimes assumed that automated data systems do not produce actual savings. To be sure,

there are costs associated with the purchase of computers as well as the personnel required to maintain the system. These costs, while not insignificant, should cover themselves with the reduced time spent on data retrieval. Organizations frequently make the mistake of automating a paper system rather than completely redesigning a system that takes advantage of the computer's capabilities as they exist now while also considering future possibilities. Reconceptualising a system that contains almost no paper allows for the avoidance of redundant activities such as data entry. However, if you simply automate the paper system, you may achieve fewer savings than if you created a new automated system.

Quicker response – When information from a student record is requested, it is usually required as soon as possible. A well-designed student record system allows for the timely retrieval of necessary information in a variety of situations. This would be more efficient than a paper-based record-keeping system. Accuracy – A well-designed student record system relies on high-quality data. The use of clearly defined data elements on a consistent basis promotes data quality. Paper records have traditionally been thought to be accurate, if not always complete or accessible. A well-designed system maintains data quality while information is shared, analysed, and reported. Accuracy is critical at every stage, from data collection to data entry to system maintenance. Accuracy gives users the confidence they need to rely on a student record system. Getting the needed information – An effective automated student record system should provide the necessary information on demand, easily, and without the need for time-consuming trial-and-error searching. The queries that will follow are anticipated and accommodated from the beginning of the system's design. A student record system's adequacy is often judged by how much time and effort is required to find and retrieve information, similar to an office filing system. As a result, the process for access, retrieval, and reporting is an important part of the design of a student record system.

Moving data among different education agencies – A well-designed automated student record system allows for the simple and efficient transfer of student records between levels of the educational system using standard formats. For example, when a student transfers from one school within the same district to another, or from one district to another, the information can be extracted, prepared, and transferred electronically. The school that receives the electronic record can download the student record, eliminating the need for re-entry. Electronic data can also be received more quickly than paper documents, allowing for faster decisions about the student. A system like this can also be used to send student records to a state education agency that collects individual student records. It can also be used to send student transcripts to postsecondary institutions where a student wishes to enrol.

### **iii. Current electronic records management systems at the Chinhoyi University of Technology**

CUT currently uses a combination of manual systems and automated systems for different processes conducted by the institution. The issue lies with the record archive system, where all the records that have been used and processed by the other departments in the institution are stored. These records are received in hard copy form and stored in areas where bay and shelf numbers are used to locate the records. The purpose of this system is to retain records for as long as they might be useful, without affecting the daily activities that occur within the institution. For this reason, these archived records are stored at a remote location away from the main campus. Due to it being a physical system with physical records, the current security methods are nothing more than doors locked with keys and protective screens.

According to (Chiwota, 2021), the records manager of CUT, the shortcomings of the manual system are related to storage space, security, and time consumption. As the records increase, more space is needed to store the records and more papers are printed, which is a waste of resources. In the event of storage space running out, some records would have to be discarded before they reach that stage of their life cycle. The current security system leaves much to be desired as anyone can break in and access sensitive records. There is a lot of time consumed in retrieving the records when needed, as they have to be searched for manually amongst heaps of other papers. These issues make the current system not as efficient in fulfilling its purpose as it should be.

### **iv. Current information on EDRMS**

Document classification, according to (Youn & McLeod, 2007), is the process of selecting the appropriate subject from the classification system and assigning the subject identifier to a specific document. In this manner, all documents in the classification system are associated with a subject. This should ideally be a task for the end user. The (National Archives of Australia, 1998) stated that if end users send documents to the repository without first classifying them,

the systems administrator/records manager will have to review and classify all documents sent to the repository in order to create proper records. Documents that are supposed to be linked together and read in context will not be able to be retrieved as a single unit if they are not assigned subjects. As a result, powerful retrieval tools exist that allow records to be retrieved using keyword searches. However, practical experience has shown that if the correct key word is not used, records are not retrieved. Furthermore, the results of key word retrieval are so massive that it takes a long time to page through everything to find the documents that belong together. Documents that are supposed to be linked together and read in context will be unable to be retrieved as a single unit if they are not assigned subjects. As a result, powerful retrieval tools exist, allowing records to be retrieved using keyword searches. However, practical experience has shown that if the correct key word is not used, records are not retrieved. The results of the key word retrieval are so massive that it takes a long time to page through everything to find the documents that belong together.

According to (Khumalo & Chigariro, 2018), Electronic records management has transformed the field of records and archives management. Traditional records and archives management work procedures, methods, theories, and principles have been called into question, and new schools of thought have emerged. The management field has also pursued research on e-records management. The developments can be seen in research interests and output within a country or region, and thus an examination of such research output in the Eastern United States and the International Council on Archives' Southern African Regional Branch (ESARBICA) region reflects its progress.

With the advent of the personal computer, an increasing number of people are directly responsible for creating and filing our own documents without the benefit of training within the records management process, resulting in insufficient institutional control over the creation and maintenance of records (Swift & Chute, 2014). Other issues related to EDRMs are as follows:

- The documents and records we now create are dependent upon technology to interpret them, and more often than not, they are dependent upon specific hardware and software system combinations, some which are proprietary and unique.
- There are a lack of institutional policies and guidelines addressing the management of electronic records.
- There is a lack of affordable tools to appropriately and effectively manage electronic records.
- Without effective tools and/or institutional policies and guidelines for filing and managing records, the usability, ability to be located and accessibility to the records may be compromised.
- The low cost of electronic storage does not encourage individuals to manage their records by disposing of records whose lives have expired.
- There is a greater risk for potential security breaches and damage via virus attacks.
- There are significant risks of records loss or damage due to instability of storage media.
- The unmanaged proliferation of copies, even in paper, means that while they provide redundancy from a backup point of view, they can ultimately wreak havoc with completing a final disposition process.
- The changes in the Federal Rules of Civil Procedure (FRCP) specifically identifies electronic records, including backups and unknown copies, as discoverable.

#### **v. Zoho Docs**

Zoho Docs is an Online Document Management system where files can be stored securely in a centralized location and can be accessed from anywhere and from any device. It allows users to upload, store, create, edit, share, and view any type of file like documents, spreadsheets, presentations, pictures, music, videos, etc. Zoho Docs has advanced collaboration tools such as Shared Folders, Tasks and Groups that will provide a collaborative environment. It allows real-time collaboration on documents, which is useful when working as a team.

It's difficult to organize the folders and all files in the storage. The free cloud storage is only 5GB which is not enough for an institution of higher learning, creating an additional cost for cloud storage. If multiple individuals have made changes to content but only one has to be undone, Zoho Docs does not have a feature to reverse editions made by a certain user and the undo feature only works according to time the changes were made. Although the platform offers great benefits, has an excellent intuitive system, and offers comprehensive solutions, it does not do all the work, therefore it is necessary to hire personnel in the area of accounting and administration to develop more detailed tasks.

## **vi. Logical Doc**

LogicalDOC is a web based proprietary document management system that is designed to handle and share documents within an organization. LogicalDOC is a content repository, with Lucene indexing, Activity workflow, and a set of automatic import procedures. The system was developed using Java technology. Current web browsers that have been tested for compatibility with Logical Doc include: Firefox, Internet Explorer, Safari, and Google Chrome. The web interface is built using Google Web Toolkit. The system manages personal documents or business documentation, making it easier to find a previous document version. It enables searching by content, using document content indexing. LogicalDOC can be set up to support distinct full-text indexes for each of the 15 supported languages in order to apply specific indexing algorithms tailored to a particular language or variant. The LogicalDOC architecture is based on the following technologies: Apache Tomcat Application Server, Java J2SE, GWT (Google Web Toolkit - Ajax), Lucene and Spring Framework. Due to its lightweight architecture, LogicalDOC can work on a wide set of devices and can be used to implement Cloud/SaaS document management. Data can be stored in a RDBMS (MySQL, Oracle, Microsoft SQL Server, PostgreSQL, etc.)

The cost of LogicalDOC is perhaps its most significant disadvantage. LogicalDOC, unlike most open-source document management software, is not free. There are two LogicalDOC editions available: the less expensive Business edition and the more expensive Enterprise edition. You'll have to pay for licensing as well as a per-user fee. One notable LogicalDOC limitation is that, while the software works with Microsoft Office on Windows PCs, it does not work on Macs. This may result in slower performance when using the software on a Mac. LogicalDOC differs from the majority of other open-source document management software providers in that it provides in-house customer support. However, if you require technical or product support, you can only contact the service team via email.

## **vii. Microsoft SharePoint online**

SharePoint is a web-based collaborative platform that integrates with Microsoft Office. In (Oleson, 2007)'s documentation of the history of SharePoint, it is stated that it was launched in 2001 and is primarily sold as a document management and storage system, but the product is highly configurable and its usage varies substantially among organizations. Microsoft SharePoint Standard builds on the Microsoft SharePoint Foundation in a few key product areas:

- Sites – Audience targeting, governance tools, secure store service, web analytics functionality.
- Communities – 'MySites' (personal profiles including skills management, and search tools), enterprise wikis, organization hierarchy browser, tags and notes.
- Content – Improved tooling and compliance for document & record management, managed metadata, word automation services, content type management.
- Search – Better search results, search customization abilities, mobile search, 'Did you mean?', OS search integration, Faceted Search, and metadata/relevancy/date/location-based refinement options.
- Composites – Pre-built workflow templates, Business Connectivity Services (BCS) profile pages.

SharePoint Standard licensing includes a CAL (client access license) component and a server fee. SharePoint Standard may also be licensed through a cloud model. SharePoint Online has the advantage of not needing to maintain one's own servers, but as a result lacks the customization options of a self-hosted installation of SharePoint. It is limited to a core set of collaboration, file hosting, and document and content management scenarios. Missing capabilities include:

- Some search & UI customizations
- Many web publishing capabilities
- Service Application administration options
- Many customization/solution types will not run
- No ability to read error (ULS) logs
- No ability to share a Site Page (ASPX) to external anonymous visitors; only documents (Word, Excel, Picture) may be shared as such.

## **viii. M-Files DMS**

M-Files uses Intelligent Information Management to allow users to find, manage and share documents and other information such as cases, quality deviations and audit findings across all systems and repositories. The system offers the benefits of information management without the strain and cost of a migration project. It offers an easy to use and common user interface. M-Files is accessible by Desktop, Web, or mobile Client and makes use of virtual folders. It automatically saves version history every time you update something, and you can easily roll back to an earlier version. Allows for collaboration with colleagues as documents can be edited simultaneously or commented on and annotated. The system offers security by sharing documents through sending recipients a public link rather than file attachments, minimizing accidental access to secret documents. Access rights are managed automatically. The system supports multiple file types, including e-mails which can be managed along with documents. It can be accessed on any device even offline when there is no connection. It creates synchronization problems in places where the internet connection is not reliable and there may be version problems. Files may be difficult for users to find as they need keywords that can easily be forgotten. The documentation and user support on the system is limited.

## **ix. Proposed Solution**

The proposed solution was to come up with an EDRM that is customized to the institution's functions and fulfils the stated objectives. A web based application was proposed, to allow it to be accessed anywhere for people who have the necessary credentials. This is an essential feature during a pandemic where a lot of people work from home. The application will be made with Django and MySQL, additionally HTML, CSS and RESTFUL API. A search algorithm will be implemented to allow faster searching through the documents.

## **x. Methodology**

### **INTRODUCTION**

The procedures or strategies used to find, select, process, and evaluate information concerning electronic documents and records management systems are detailed in this section. It teaches the reader how researchers plan a study in a systematic way to assure accurate and trustworthy results that address the study's goals and objectives (Jansen & Warren, 2020). This chapter outlines all of the approaches, tactics, and justifications for these methods, as well as the data analysis process and method chosen for constructing the desired system.

### **DATA COLLECTION METHODS**

The data collection methods used were qualitative with quantitative measurements. Qualitative methods were chosen due to being able to allow a special depth into the framework that is difficult to pick up from closed-question techniques. The quantitative measurements helped us with the perspectives of the data that ought to be measured to fully understand the magnitude of the issue. The studies were conducted on a small sample of the population due to the time-consuming nature of subjective research (Patton, 1990). The collection methods used are questionnaires, observation, and interviews. Each of these methods is explained below:

#### **Questionnaires**

They are data collection methods used to collect important information about the population. It is designed and developed to meet the goals, research questions, or hypotheses of the study. The researcher needs to consider the above when designing a questionnaire and must also know how information obtained was analysed (Mugenda, 1999). They contain open-ended questions that collect the staff's views on the systems in place and changes they would like to see. Closed-ended questions were also to assess the satisfaction of the staff members with the system. Questionnaires were distributed to a small number of CUT staff that make use of the record system. The total number of respondents selected to fill the questionnaires for this study was 30 (thirty). They were selected because they always interact with the system in their day-to-day activities. However, only 25 filled and returned the questionnaires. The

benefits of using a structured questionnaire are that the researcher gets easier time to analyse data since they are in an immediately usable form, it is easier to administer because each item is followed by alternative answers, lastly, it is economical to use in terms of time and money.

### **Interviews**

According to Myers and Newman (2006), defined qualitative interview as it grants us to see that which is not customarily on view and examines them which is looked at but rarely seen. As Kvale (1996) contends, the qualitative research interview looks to describe the implications of central subjects within the life world of the subjects. The main reason for interviewing was to get the meaning of what the interviewees said. Researchers as interviewers managed to come with in-depth data around the topic. Interviews were utilized since they are valuable as follow-ups to certain respondents to questionnaires. Interviews make it possible for the researcher to obtain information required to meet specific objectives of the study and it guards the researcher against confusing the questions since the interviewer can clarify the questions thereby helping the respondent give relevant responses. Within the current study, semi-structured in-person interviews were used. This choice was taken after considering the need to develop a system that is user-friendly and provides every module that the EDRMS can possess. The group of participants was randomly selected within CUT.

The interviews were recorded after the permission that was taken from the participants according to the informed consent form that was given to them to sign. We recorded them with a mobile phone and then used the recordings and after listening to them we transcribed the material to keep them in paper form. To ensure the research does not take too much time and effort, a small sample of the staff that works directly with the records system took part in the research. The group of participants consists of four individuals that are using the EDRMS at CUT. Dr. Chihota, (chief records officer), Ms. Kiwa (lecturer), Kudzaisho Munemo (student), and Engenes Dean. In addition, a maximum of 20 students were interviewed to check for feedback on the system. There were no specific criteria for the selection of the sample but it was necessary to examine persons that use the current EDRMS to present exact opinions. The interviews' duration was about 15-20 minutes and the procedure took place in their working environment. Sampling users from both students and staff allowed the researchers to observe the parties that are most affected by the shortcomings in the system.

### **Observations**

The supplementary method that was also used as a method to collect data is observation. Observation is another qualitative method that allows the researcher to get a better understanding of the situation that is examined. Through the perception, the researcher can interact with the members by observing the case. Participant observation implies the strategy in which the spectator partakes within the existence of the individuals under study, either transparently, within the part of the researcher or secretly in few disguised duties, watching things that happen, tuning in to what is said and addressing individuals, over a few lengths of time (Becker 1957). In observation, the researcher acts as an observer or as a participant. In this way, during the normal regular work of the workers, the convenience of an overhauled EDRMS was observed. It was observed the way that the administration encourages their work and it moreover observed how the system works.

The difference that exists in observation is that as observers, the researcher remains outside of the case and only observes and documents the situation while when he acts as a participant, he takes an active role in the process and he participates. The observational method involves the researchers taking part in the data collection process by observing the system and how it affects us and our usage of it. We were able to give detailed views of the system from the user end. In the specific observation, we acted as an observer. The observation took place at CUT where we observed Dr. Chihota. The procedure lasted three days, 2 hours each day. We observed how he behaved at those hours and how the current EDRMS affected his activities. It was tried to avoid influence on his working activities. Our attitude was neutral to avoid manipulating him. The participant was encouraged to act as it was a simple and usual day to get true and clear results. During the process, notes were taken to record the whole situation and to have a detailed observation. After the procedure, a narrative was created to expand the notes and to offer a better understanding of the process and the examined situation. The two factors that are examined in the data collection section are the efficiency and how it is affected by an EDRMS and the costs that are decreased by the adoption of an updated EDRMS. As it is rational, in observation of 3 days it is not possible to observe the impact on the costs but we observed to what extent the efficiency is affected.

## **Case Study**

A Case study is a technique where the researcher is doing an experimental request to investigate a phenomenon in its characteristic setting by utilizing numerous sources of evidence. For the most part, a case study is an observational examination that investigates a current phenomenon in profundity and inside its genuine life setting particularly when the boundaries between phenomenon and setting are not apparent (Yin, 2009, p.18). A case study answers research questions such as "How" and "Why". The choice was taken because, for instance, the grounded hypothesis could be a strategy that is supportive of profundity examination. The reason behind using a case study was because we aim to induce a more profound understanding of the concept of the current EDRMS and our purpose is to add strength to the existing research and to present the desired system. Our study is an experimental request and investigates the application and the impacts of EDRMS. We looked at the case study of 4 individuals that are users of the system at CUT and the experiences were examined and presented. The intention to examine a specific group of persons and to get a better understanding of the concept of EDRMS led us to conduct qualitative research to interpret the experiences of the participants and not to present only numerical data.

## **Chosen Methodology**

As researchers, we chose to make use of design science methodology. This method will be explained below:

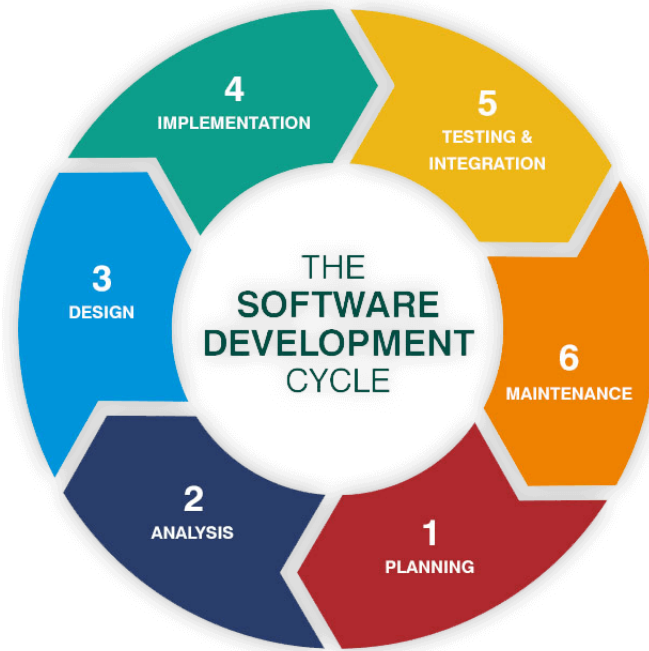
### **Design Science Methodology**

Design science research is a focal point or set of engineered and explanatory methods and viewpoints (complementing positivist, interpretive and basic viewpoints) for performing an investigation. This method ordinarily includes the creation of an artifact and or design hypothesis as a means to make strides in the current state of practice, as well as existing research information (Baskerville, 2018). Design science research that centers on the advancement of artifacts includes two essential activities to progress and understand the behavior of viewpoint: the creation of modern information through the design of inventive artifacts (things or forms) and the examination of the artifacts utilized and or execution with reflection and abstraction. We chose design science because it allows us to come up with great designs which move forward our lives through inventive, maintainable items and services and diminish the negative unintended results of innovative deployment. In design science, product and system plan is tended to by combining investigation and blend and drawing from numerous logical disciplines. Design science methodology consists of different architectures but based on our project we mainly focused on the development of the electronic document management system.

## **Development**

There are numerous shapes of artefacts that can be created that run from design speculations to concepts, models, or instantiations (Gregor and Jones, 2007). The procedures for usage will, of course, shift depending on the artifact to be created. An algorithm may require the development of a formal confirmation to show its rightness. An expert system exemplifying novel suspicions about human cognition in a zone of intrigue will require software development, likely employing a high-level bundle or device. The execution itself can be exceptionally pedestrian and require not to include oddity beyond the state of practice for the given artifact; the novelty is basically within the plan, not the development of the artifact.

The development of the software took the processes outlined in the software development cycle. According to Elliott (2004), the systems development life cycle (SDLC) can be considered to be the oldest formalized methodology framework for building information systems.



*Figure 2: Software Development Cycle (Elliot, 2004)*

The stages under the development of the Electronic Document and Records Management System are explained below:

### **Planning**

Under this phase, we identified and listed all the activities to be undertaken by the developers which include: collecting information about the current EDRMS at CUT, designing the database for the system, identifying hardware and software requirements for the system to be developed, how to design an EDRMS which is user friendly, change instant reflection and improve response time. All the tasks were allocated resources to it such as time and to individual researchers who were responsible to perform the tasks. This allowed us to know the time to be taken in developing the system.

### **Analysis**

After allocating resources to each task, we then analysed every task, to make sure that it must not exceed the time limit given to it. We analysed that some of the tasks required more time than allocated, these tasks include coding the system or developing the backend of the system and documentation. We adjusted the time for these tasks.

### **Design**

Before implementing the system, we designed the layouts and interfaces of the system. The designs include data flow data diagrams, flow charts, workflows, use cases, sequence diagrams, and database diagrams. These designs helped us in developing the system, we used them as our guidance in creating front ends of the systems such as forms.

### **Implementation**

We used the evolutionary prototype which is one of the models of the software development prototype. It was implemented to test the software functionalities against the requirements. The software can run on windows only since it is a desktop system that allows anyone with authorization to access it and it contains a user interface as well as backend technology. The following technologies and IDEs were used for implementation: Django (Python framework), SQLite (database), Visual Studio Code, Xampp, Restful API, HTML and CSS.

- Django – a Python framework used to build the backend of the system.

- SQLite – the default Django database used to store data in tables.
- Visual Studio Code – an IDE that supports hundreds of languages used to write and edit the code for the system.
- Xampp – the environment used to test our locally hosted databases before deployment.
- Restful API – used to implement http protocols to secure the transfer of data.
- HTML and CSS – used for the design and structure of the system's frontend.

## **Testing**

After the solution is implemented, the evolutionary prototype contains a stage that involves testing and evaluation. This was conducted through a study that determines if the software solution has met its objectives. Users were asked to test the software and provide feedback on their experience through interviews. We conducted a lot of testing which includes, acceptance testing, usability testing, unit testing, validation, and verification. Many test cases were listed down to make sure that the functionalities of the system meet the users' requirements.

## **Maintenance**

The EDRMS needs to be maintained frequently to ensure its security and updated version. Security control -This function controls which users have access to which information. The EDRMS must be able to protect not-public records. Version control- The EDRMS should allow users to add documents to the system and designate a document as an official government record. It should also automatically assign the correct version designation.

## **Ethical Considerations**

During the research, we were in a difficult position to come up with methods that are appropriate to take what we want. A crucial part of this method that must be secured is ethical considerations. Ethical issues occur during the selection of the sample of research, by respecting the rights of the participants, proper use of acquired data, ensuring their validity and reliability, avoiding plagiarism and giving proper citations. A popular one is the following: ethics refers to the codes and principles of moral behaviour, norms, and beliefs (Hart, 2005). As it was said above, to have ethical research the researcher is obliged to respect the participant's values and rights (Creswell, 2009).

As researchers, we protected the participants and their data. We explained to them the reason for the interview and told them that the data will be safe and will be used only for the specific Master's thesis. We developed a relationship of trust and by giving them the informed consent form they were informed about the aim of the study, about the benefits that will occur, and finally ensured them about the authenticity and credibility of the research report. We used their real experiences and the interviews were used properly.

## **Data Analysis**

Focusing on the data analysis, the data were analysed using thematic analysis for qualitative data. Thematic analysis (TA) is a popular strategy for analysing qualitative data in many areas and fields. It is one of a cluster of methods that focus on identifying uniform meaning across a dataset (Braun and Clarke, 2019). The data was sorted and tabulated to draw meaningful information from it. This allowed us to closely examine the common themes in the problems presented with the record systems currently in place.

## **xi. Evaluation and Conclusion**

The paper highlights the attributes of the current EDRMS used at the Chinhoyi University of Technology including the drawback backs of using independent systems. The literature reviewed showed that document management is an important part of any organization and crucial to their core functions. For that reason many document management systems are constantly in development with more research looking into what these systems still lack and how those issues can be mitigated. It is therefore crucial to maintain some standards by which documents and records can be managed electronically and for new innovators to adhere to those standards in order to allow multiple users from different organizations to manage their documents and records with ease. Researchers presented the study methodology in this paper. Further elaboration was done on data collected, presented, analysed, and interpreted. The chosen methodology was very effective as it assisted in the creation of an artefact of the system. The development of

ERDMS was made possible through the use of this strategy and using data collection methods such as questionnaires and interviews

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