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Electronic Records and Traditional Archival Values in Digital Era

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Abstract: *The changes in technology has widely replaced physical records systems to electronic records systems which in turn has raised the concern for accuracy and integrity of information archived. The retention costs for electronic records are higher than to maintain physical records due to compliance with specified retention requirements when e-data of different sizes and types is shared or stored on multiple devices at any given time. The archival systems needs repository that can deal with transition until the collection process is on. The development in archival techniques, e-records and digital preservation have created new challenges for archivists.*

Digital media needs the right set of hardware and software to function. The collection may have different formats from text files to videos, images and many more with lots of information regarding about how or when they were created or whether they have been altered in any ways. It is one of the biggest challenge to acquire a born-digital record collection and deciding what the records include how to set up files, what is plan to manage and preserve them and how researchers will be able to access them securely. It is very crucial to have archival information management system that provides a repository for metadata, file management system and advanced digital preservation features. Digital records can be manipulated in many different ways. It is possible to reorder the manipulated data according to search terms and difficult to determine the original source. It is very important to ensure that the digital records are not being manipulated or misrepresented by third parties.

Keywords: Digital records, traditional archives, digital preservation, enhancement, recordkeeping, electronic records, restoration, , digitization

Introduction: The digitization process goes through different phases. First, there is the cost of getting a specialist or consultant who will advise on how the digitization process should be undertaken. This could either be an in-house consultant or sourced from outside. Often in-house specialists may have limited exposure but will cost much less than someone from outside. The specialist appointed should be well versed in the needs of the archives and the resources at the institution's disposal and be able to identify a most appropriate system using an acceptable methodology, e.g. cost benefit analysis. Then comes the cost of the technology. This includes both hardware (such as workstations, servers, cabling and storage media) and software, which includes database programs, operating systems and network managers. With technology comes the constant challenge of maintaining and upgrading in order to avoid obsoleteness. One also has to consider the issue of technology dependence, where digitized records created using particular hardware and software may be wholly dependent on that technology to remain functional. Since the late 1980s, with the introduction of OS standards (which advocate for interoperability of technology), manufactures adhering to the standards are required to have their products allowing lateral (i.e. with similar ones) and backward (with older versions) compatibility. One of the highest costs is often that of manpower training and continuous education. This usually includes the human and financial resources expended in reconfiguring the working practices of the institution's staff. Management consultants have noted that during change, the greatest obstacle to success is often the human factor. It is therefore imperative that education and training programmes be cost effective, well designed and critically evaluated to ensure that they meet the desired goals. There are also issues of maintaining records and ensuring that they remain functional over a long period

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of time. This comes with the fact that electronic records also deteriorate depending on the kind of storage media used. The scary thing is that since they are machine-readable, unlike paper records, the preservation and restoration methodology used on them is radically different. They may require particular climatic conditions otherwise their destruction is very immediate. They may also require migration in cases where the storage medium used has lived out its life time, or the hardware or software has become obsolete. The digitization process must be deemed absolutely necessary, be carefully planned and executed and only then can the institution reap its benefits.
Digitization has various benefits. These include:

- Reduced time of retrieval. Using retrieval tools such as

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- **Reduced time of retrieval:** The retrieval tool such as databases and indices, it possible to have faster access to the information than the traditional eye-on-paper scrolling through a hard-copy finding aid.
- **Multiple access points:** Retrieval tools also increase the number of ways one can approach a record; e.g. using a database one could search for a record using a creator's name, file name or date of creation.
- **Preservation of fragile hard copy records:** A digitized electronic copy could be made available to users as many times as necessary, allowing fragile paper copies of records to remain safely in the institution's custody under ideal environmental conditions.
- **Enhancement:** It is the benefit to have enhanced digital copies of hard copy records. Example of this is what has been done at the United States National Archives and Records Administration, where the nation's most important document, the Declaration of In-dependence has, in its digitized form, been significantly enhanced allowing a much clearer image of an otherwise deteriorating document from the 18th century.

Raas [13] stated that on how traditional records management software developer to create an electronic recordkeeping system is combining practices with electronic document management components. In this article author stated that TRIM is a management tool that designed to manage all records including scanned images, word documents, emails and physical files within an organization. It is to ensure that from a single interface there is a single database of accessible of information. The entire organization including finance, legal, human resources and investments is continuously being taken off.

Johnston and Bowen [14] summarized three sets of benefits from implementing an electronic recordkeeping, which is for individual users, organization and society as a whole. The benefits for individual users are availability of information when required, greater quality, efficiency and effectiveness and availability of evidence for what they were asked to do and what they did.

The benefits for organization are less effort in completing a task that is required, more quickly work will be done, improves the quality of processes and their outcomes, improved the cash flow and laws and regulations is achieved and demonstrated for compliance. The benefits for society as a whole are processes organizational are open and can be understood and monitored, laws and regulations that organizations must comply, improved the quality of life and the record of historical is accessible and reliable.

U.S. National Archives and Records Administration [15] stated that records management policy is a foundation of successful management of records in an organization. A policy that reflects [19] an organization needs, start with a good record management.

The ARMA International Glossary of Records and Information Management Terms (2013) defined records management (also known as records and information management), as an organizational function devoted to the management of information in an organization throughout its life cycle, from the time of creation or inscription to its eventual disposition. This includes identifying, classifying, storing, securing, retrieving, tracking and destroying or permanently preserving records. The International Standard Organization ("ISO 15489-1: 2001") defined records management as "[the] field of management responsible for the efficient and systematic control of the creation, receipt,

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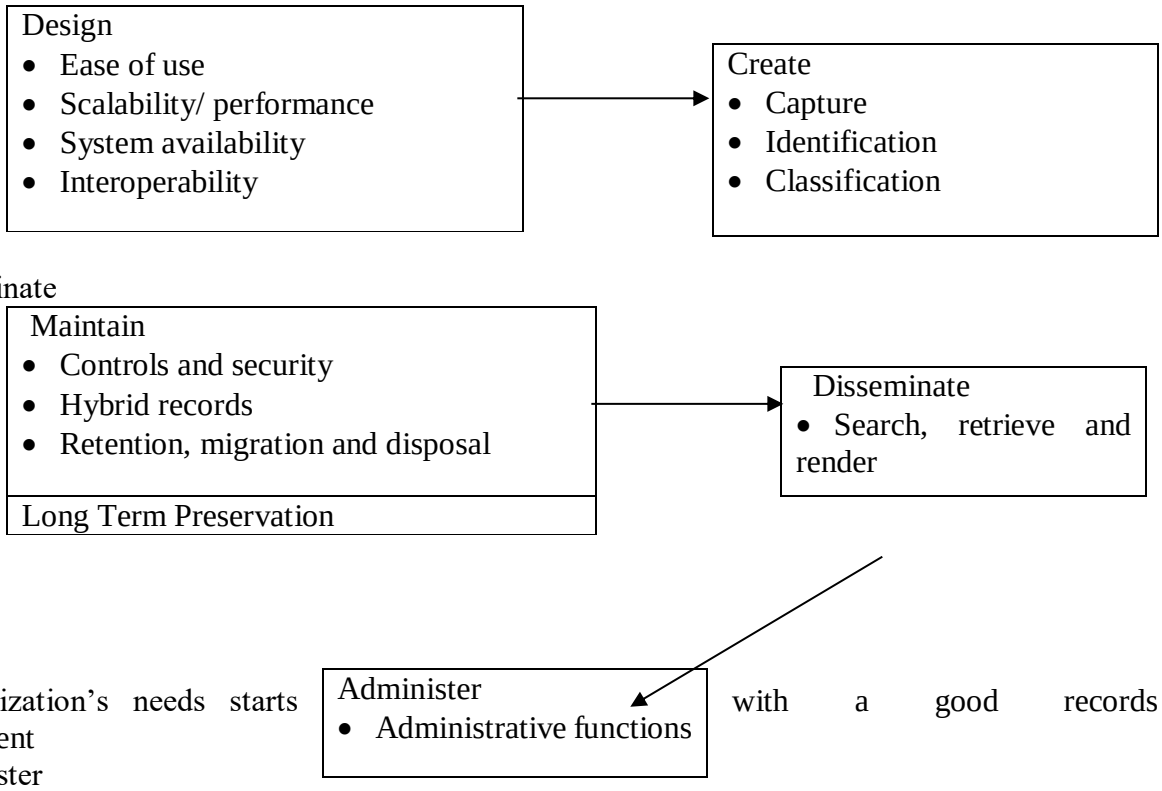
maintenance, use and disposition of records, including the 2 processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records"
According to the National Archives and Records Administration [NARA] (2015) in their article on "open source tools for records management, the use of tools and technology in automating records management tasks could assist individuals and organizations in their records management processes. This will not only reduce the burden of records management responsibilities on individuals, but will make organizational records and information easier to access because they are more consistently managed.
International Records Management Trust (2009), the benefits associated with the use of new technologies in managing electronic records include widespread access; flexibility; efficiency and effectiveness; economic benefits; general business opportunities; and auditing capabilities for regulatory compliance. Traditionally, archives have been used to preserve documents and other materials that are not meant to be edited or changed. However, the digital world has changed this idea. Digital archives provide a way for people to access and search through content that is constantly changing. Electronic records contribute to cost savings by reducing the need for physical storage space and mitigating expenses associated with paper, ink, and printing equipment. Moreover, the move towards digital records aligns with sustainable practices, promoting a paperless environment.
Create



- Disseminate

an organization's needs starts with a good records management

- Administer

Figure-1- Model for Electronic Records Management System

Create: According to ISO 16175[25] stated that functional requirements apply to records regardless of the media in which they were creat-ed or stored. Electronic records management systems particularly capture, classify and identify records to ensure that their content, structure and context of creation are settled in time and space.

- Maintain

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Maintain: In order to ensure the records accessibility continued, the records capture must be actively maintained in electronic records management systems. Records captured also must be prevent from unauthorized person from alteration of metadata.

Disseminate: Searching is the process of identifying records or aggregations through user-defined parameters so that the records management metadata can be retrieved. Rendering is the procedure of a human-readable portrayal of a record, for the most part to a visual display screen or in printed version design.

Administrator: The system administrator needs to embrace system maintenance and other support functions such as maintenance of access groups
and updating of the business classification system.

Machine Dependence

Digital media requires hardware and software, which have changed dramatically throughout the years. A collection may have several different formats, with no information about how or when the records were created and not necessarily a way to find out.

Long Term Preservation

Once an archives makes the commitment to acquire a collection containing born-digital records and determines what the records contain, how the files are set up, how they will manage and preserve them, and how they will make them accessible to researchers, they also must commit to keeping them usable over time. To do so requires a significant amount of investment in hardware and software, equipment, skill, and labour.

Manipulability

Digital records are easily manipulated. Manipulability is a double-edged sword. On the one hand, it increases the ability to use the data as it can be rearranged according to search terms. On the other, it is not always possible to determine its original form.

Traditional Archival Values

Traditional archival remains relevant in the digital world. Archivists care about how records were created: the levels of activity within an organization, importance of that activity, uniqueness of information, the usability of information, and relationship to other records, as well as research value. These factors help archivists appraise records and make selection decisions.

In a digital environment, traditional archivists will always be needed. In other words, paper is not going away, but archivists now must be able to meld approaches for both–sometimes in the same collection.

Retention costs for electronic records are higher than for physical records in every respect, the only exception being the actual space it takes to store digital materials. The electronic records allow for the presentation and retrieval of information in ways that have not been possible in an analog world. Electronic records can be safeguarded through encryption, access controls, and secure backup systems. This enhances data security by minimizing the risks of loss, theft, or unauthorized access commonly associated with physical records.

The critical point is that any record series is likely to shift from an analog to a digital format, so the repository will have to deal with the transition unless the decision is made to stop collecting something. Collaboration is streamlined with electronic records as they can be easily shared and edited in real-time. This fosters seamless teamwork, enabling multiple users to contribute to and access information simultaneously. Electronic records can be edited, updated, and annotated without compromising the integrity of the original document. Collaboration tools enable multiple users to work on the same document simultaneously, fostering efficient teamwork. To ensure data integrity and availability, electronic records are regularly backed up. In the event of data loss or system failure, organizations can recover records from backup systems, minimizing downtime and potential data loss.In some cases, a digital record series will incorporate what on paper was several different record series, so teasing out the information required for appraisal decisions becomes more complex. Archivists grapple with issues and concerns about selecting and appraising electronic

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records and try to explain how they apply in different institutional environments, types of collections, and what this means for being an archivist in the future.

Electronic records are opaque, difficult to investigate by topic, and the emphasis must be on provenance and context. The archivists have moved into a digital era. An argument exist taking sufficient interest in the long-term preservation and access to their records, the fact that records do not become noncurrent according to the same life cycle means that more interaction with records creators is crucial at least in an institutional environment. The advantage of a digital approach is that if the information is essential to the records creators, they will maintain the systems to keep it accessible. The emphasis shifts attention away from the traditional archival functions of gathering, arranging, and describing records. Instead, it moves us towards how society (and its individual and institutional members) record, use, store, describe, and dispose of information. That translates into recordkeeping and helps us understand how the systems are being set up. [1-5]

Records have three components: content, context, and structure. All three components also exist in analog files but with more transparency. The complications for appraisal in an electronic environment include not having records stored in one physical location; the content may not be all together, but stored in different places and logically imported into documents or attachments; the form and content are not constant; software changes can alter how the system works, and can alter data values and relationships. The advantage to figuring all this out is the value-add that archivists can provide by understanding these relationships and the information world within an organization.

Records are preserved and are reduced in sizes to smaller bits when placed in electronic formats. With the aid of computer technology, individuals and organizations have seen the need to migrate their documents and records into formats that are durable, portable, flexible and transferable. Records are managed in electronic formats which prevent the loss of data and important organizational documents thereby creating room for longevity of records.

The introduction of information technologies has also affected the way government and private organizations preserve and make available records in their custody. Computers allow organizations to create large and complex databases and make huge amounts of data available electronically. Databases containing personal financial records, for instance, may be extremely useful to the individuals themselves. But without proper security protections, that information may also be accessed by others, threatening the privacy of the owners of that information. People have an inherent right to privacy that can be violated, intentionally or by accident, in an electronic environment.

The constant changing nature of software applications and computer hardware has led to what is generally known as “technological obsolescence”. As new innovations in computer technology appear, old systems become obsolete and are no longer supported by thecomputer industry. Electronic records depend on technology. They are created and managed by computer hardware and software. Therefore, electronic records require mediation in order to be accessed. It is not possible to hold a computer disk up to the light and read it, as onecan read a paper document or even, with the aid of a magnifying glass, a frame of microfilm. Because information technologies keep changing, and because electronic records cannot be used without the necessary technologies, individuals and organisations can quickly become dependent on technologies for their essential information. Hardware and software have to be upgraded regularly to ensure continuing access to information and records. As technology changes, records need to be moved to new systems –migrated – so that they can be used. Once created or captured, electronic records are stored in digital repositories, which can be on-premises or cloud-based. These repositories are organized through file structures, metadata, or database systems, facilitating efficient retrieval. Authorized users can access electronic records using authentication credentials. Retrieval is rapid and can be achieved through search functionalities, allowing users to locate specific records based on keywords, dates, or other criteria. Some of the popular digital records portal / digital platforms for academics are :

S.No.	Digital portal/platforms	Type

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1.	GEM- Government e-marketing portal	Public procurement
2.	National Digital University	Public
3.	E-gyankosh	Public
4.	Krishikosh	Public
5.	Shodhganga	Public
6.	Shodhsindhu	Public
7.	DOAR	Public
8.	ROAR	Public
9.	OCLC Worldcat	Public
10.	E-gyankosh	Public
11.	Swayam	Public

A digitized elec-
Digital preservation and archiving stand as grand challenges of the first decade of the 21st century. Our cultural heritage, modern scientific knowledge, and everyday commerce and government depend upon the preservation of reliable and authentic electronic records and digital objects. Issues such as software and hardware obsolescence, media fragility, expensive metadata creation, and intellectual property rights place all of these materials at risk. The archival and computer science professions must come together to solve the complex technical, conceptual, social, legal, and economic challenges that endanger the longevity of all digital objects. Basic archival principles must be built into information creation and management software and information creators must recognize the need to exert responsible custody over the digital information objects they manage. Archiving, and the preservation tools to facilitate it, must become ubiquitous if society is to preserve its memory in the digital age.[6-8]

The costs of hardware and software can be very high. Costs are incurred not only when acquiring technology in the first place but also, more importantly, when upgrading equipment and systems, which is essential in order to keep pace with changing technologies. For organizations like the library with limited resources to tackle other problems, this ongoing cost poses a serious challenge. When considering the acquisition of computer equipment or the implementation of an electronic records management system, most organizations focus on the initial budget requirements: hardware; software; licenses; supplies; and staff time to develop and install the equipment. But annual and unexpected costs also need to be considered, including: system maintenance fees; upgrades and repairs; and staff training. Consideration is also paramount for the intangible costs of moving to a new working environment. Time and resources are required to comply with new regulations and legislation; to file, store, retrieve and access records; and to support office staff as they adjust to new technologies and methodologies. Careful monitoring of the way in which electronic records are created and used is essential to developing an effective library work environment.[9-12]

Conclusion: Electronic records refer to information stored in a digital format, encompassing documents, images, emails, databases, and other types of data. Unlike traditional paper records, electronic records exist in a non-physical, digital realm, making them accessible through various electronic devices. The transition to electronic records is fueled by the need for increased efficiency and accessibility. Digital records can be accessed instantly from anywhere with an internet connection, eliminating the constraints of physical location and manual retrieval. It is pertinent for management of organizations, record officers, archivists and other personnel to recognize the underlying impact of technology in the management of records in the electronic era. More attention should be placed on keeping abreast with new innovations with regards to records management since development in this field is dynamic and organizations around the globe are seeing the need to imbibe

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them in their processes and activities for optimal performance. The long-term preservation and management of digital records is a major concern facing archives. Preserving digital records involves various challenges, including policy questions, institutional roles and relationships, legal issues, intellectual property rights, and metadata and other technical issues.

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