Effective Digitization in Archives

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Research Article

ARTICLE INFORMATION	ABSTRACT
	Different techniques and methods are implemented by archivists in archives in order to protect and ensure the maximum usage of archival material. Digitisation is one of these primary techniques. It provides maximum usage and also protection of the archival material as well. Besides the advantages of digitisation it is afterall a technical process. Thus it should be carried out by experts, should be preplanned and factors like archival material and users should be taken into consideration. Within this context in this study entitled 'Effective Digitisation in Archives', the importance of digitisation in archives and the points that are important for an effective digitisation are emphasized. In addition, the basic requirements for an effective digitisation process are presented. **Keywords:** Archives, Digitisation, Archival material.

I.   Introduction

Richard J. Cox (2000: 127) expresses the importance of records as:

"A half century ago records were the raw materials of history. Now, records are part of a vast accumulation of materials weaving the fabric of the past. Society, rushing head on with its many technologies in the front, struggles to hold onto any semblance of a past. There is a fear that records and archives will be lost."

The importance of knowledge and records for people and institutions is beyond argument. The people or institutions that can manage knowledge and records will be powerful. In order to achieve this it is strategically important to protect knowledge and records.

Digitization can be defined simply as the transfer of printed material to electronic media. Digitization is one of the important techniques used in archives to protect unique archival material. Besides, protection of material digitization ensures usage of the material by more users. However, the advantages of digitization are not limited to these.

Archivists and users should take into account certain points relating to digitization which is of course a comprehensive process. As mentioned previously, digitization is a technical process and lots of phases are interconnected in this process. Therefore for the success of this process it is important for archivists and experts to preplan it and prepare a road map. In this context in this study entitled "Effective Digitization in Archives" the basic requirements for an effective digitization process are presented and they are collected under 5 basic steps.

II.   Digitisation and Digital Preservation

Digitization is at the forefront of contemporary concepts for archivists. As a result, it has been the topic of many studies.

Digitization can be defined as:

- Digitization is the process of transforming analog material into binary electronic (digital) form, especially for storage and use in a computer (Moses, 2005: 120).
- The process of creating digital files by scanning or otherwise converting analogue materials. The resulting digital copy, or digital surrogate, would then be classed as digital material and then subject to the same broad challenges involved in preserving access to it, as "born digital" materials (Dpconline, 2012).

Digitization and digital preservation are sequential processes. Digital preservation and digitization ensures digital archives and digitization starts with digital preservation. It is a process like digitization and it should be carefully worked out.

Digital preservation refers to the series of managed activities necessary to ensure continued access to digital

materials for as long as necessary. Digital preservation is defined very broadly for the purposes of this study and refers to all of the actions required to maintain access to digital materials beyond the limits of media failure or technological change. Those materials may be records created during the day-to-day business of an organization; "born-digital" materials created for a specific purpose (e.g. teaching resources); or the products of digitization projects (Dpconline, 2012).

Jantz and Giarlo presents a four phased digital preservation process and it is shown in Fig. 1
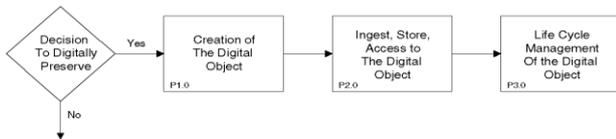
Fig. 1. Digital presentation workflow (Jantz and Giarlo, 2007)

Adrian Cunningham (2008: 541-542) states the important elements for digital archives as follows:
Knowledge of
- the full range of record keeping theory and practice and the role of archives in society;
- the relationship of records to the broader information management landscape;
- the work processes of modern organizations, office processes, and the machinery of government;
- current affairs and history;
- the workings of e-business and e-government;
- metadata regimes for discovery, recordkeeping, and data management;
- legal, regulatory, and governance frameworks;
- information and communications technologies;
- auditing and compliance assessment approaches and regimes;
- broader digital communities and initiatives;
- documentation of provenance and context in archival systems;
- XML;
- approaches to quality control/assurance; and
- digital storage options and technologies.
- skills, capabilities, and qualities in communication, influence, and change management
- consultation and negotiation;
- flexibility and good judgment;
- research;
- risk assessment and management;
- systems design and implementation;
- preparing business cases;
- modelling and analytical ability (including functional and work process analysis); and disaster preparedness and business continuity.

There can be some disadvantages of every technique in institutions and it is valid for digitization too. These disadvantages usually are coming from the digital materials and during the planning process these disadvantages derive from the characteristic features of digital materials must taken into account. These disadvantages are (Ford, 2007:33):
- Digital materials are only accessible through machines.

- Digital materials are stored on tapes or discs which are short-lived if inappropriately managed
- Digital materials are prone to sudden oblivion due to faulty materials or keyboard operator error
- Digital materials are frequently overtaken by new versions of both hardware and software and
- Digital materials are often managed only poorly, if at all.

Patricia Galloway (2011: 170) emphasizes the importance of digitization in her article entitled 'Educating for Digital Archiving through Studio Pedagogy, Sequential Case Studies, and Reflective Practice' as follows:

"It is a truism of archival education that in order to carry out their functions, all archivists are supposed to know their holdings, how and by whom they were created, valued, and used in their original and subsequent contexts, and how to protect them for the future. Protecting them for the future requires not only familiarity with the contents of collections but also with the technologies of the media that bear those contents, and the technologies by which the contents were inscribed on the media in question."

James Bantin and Leah Agne (2010:244) also emphasizes the importance of digitization in archives as follows:

"Archival repositories bear an increasingly heavy responsibility for the selection and digitization of materials from their holdings. In addition to traditional archival functional expectations, users and administrators now expect archivists to provide extensive online access to the unique and often still relatively hidden primary sources contained in institutional collections. As a consequence, the creation of online content and effective digital reference service is now viewed as an additional measure of success of a repository."

Laura Millar (2010:199) presents the effects of digitization as follows:

"Digitization is both a preservation strategy and an access tool. Digitizing a document or image and making it available electronically means the original does not have to be handled repeatedly, reducing wear and extending its life. As a preservation tool, digitization id today what microfilming and photocopying were in decades past: a means of extending the life of documents by reformatting them for easier and less invasive use and then storing the originals safely. Digitization also allows users to Access materials remotely, meaning they do not have to travel to the institution to view the material in person. Digitization also supports outreach, helping to raise awareness of the existence and scope of an institution's holdings by providing remote Access to archival materials audiences well beyond the traditional user group."

III. Effective Digitisation in Archives

Digitization is such a process that is not easy to implement because as mentioned before this technique can be expensive and time consuming. Because of that, archivists, managers and experts should plan the process in detail and determine a road map.

Digitization has many advantages for archival material, user and archivists. These advantages are compiled in Fig. 2.

Fig. 2. Advantages of digitization

There are many studies on digitization in archival literature. In the studies important facts about digitization and how it should be carried out is emphasized.

Conway (2014) expresses the importance points about digitization as follows:

"The creation of digital surrogates from archival sources is fundamentally a process of representation, far more interesting and complex than merely copying from one medium to another. Theories of representation and the vast literature derived from them are at the heart of many disciplines' scholarship and of particular relevance for scholars who work primarily or exclusively in the digital domain."

In this study a five phased road map for an effective digitization process is determined and shown in Fig. 3.

Fig. 3. Basic requirements for an effective digitization process

a. Determining Written Corporate Strategies for Digitisation

Written corporate strategies for digitization specify the basic rules for the implementation of the process. Thus it is important to determine written strategies and proceed with these strategies.

Most of the national archives have strategies for digitization. In this study the strategies and policies of the National Archives of America (NARA) and the National Archives of Australia for digitization are given as examples.

NARA uses a combination of five strategies for digitizing and making holdings available online (National Archives and Records Administration , 2008:3-4):

- *Strategy One: NARA will gather and make available on the web archival materials that we have already digitized in the course of performing our agency functions but for one reason or another are not available online.*
- *Strategy Two: NARA will establish partnerships with organizations from a variety of sectors (private, public, non-profit, educational, Government) to digitize and make available holdings. Partnerships present an opportunity for increased access to historical Government information through the increased availability of information technology products and services. Partnerships will enable NARA to make more digitized holdings available than we could on our own, because the partner will bear most of the expense of digitizing.*
- *Strategy Three: NARA will conduct digitizing projects on its own with materials that are not appropriate for partnerships. For example, we might digitize our "treasure vault," at-risk material that only NARA can handle, or high-interest materials for which no partner can be found. These projects could take a variety of forms, with a variety of funding sources. The projects would be crafted with an eye toward enabling NARA to enhance its capacity to preserve and digitize holdings.*
- *Strategy Four: NARA will pursue digitization of archival materials as part of its preservation reformatting approach.*
- *Strategy Five: To ensure that users everywhere can access all of our digitized records, we will continue to make our online catalog (currently the Archival Research Catalog, ARC) a hub for discovering NARA's digital images. Our partners, our describers, and our digital labs are creating data that we assimilate into ARC, so that users have comprehensive access to NARA's digital copies, whether on NARA's web site or our partners' web sites, regardless of their location on the web. Users will not only be provided efficient access to the records via the online catalog but will also have the archival context of those records.'*

The National Archives of Australia's Digital Transition Policy aims to move Australian Government agencies to digital recordkeeping for efficiency purposes. This includes all agencies regardless of their legislative status.

Digital recordkeeping means that the majority of our agency's records will be created, stored and managed digitally and, where possible, incoming paper records will be scanned so that new paper files are not created. For many agencies the new policy means digital transition or moving from paper-based records management to digital information and records management (NAA, 2012).

The policy sets out the requirements for all Australian government agencies and these are (NAA, 2012):
- Senior management support to drive change
- Check-up 2.0 self-assessments
- Reduce paper stockpiles
- Manage digital information wherever it is held

b. *Presenting the Main Aim of Digitization*

The main aim of digitization should be presented to determine if digitization is really necessary. It is also important to clarify that digitization is needed for institutions not to meet a loss. At this point the quantity and the quality of archival material will be decisive. For this purpose conducting a survey both with archivists and users will be an efficient method.

c. *Analysing Users*

Digitization has two ultimate goals as mentioned before. These are, to protect archival material and to ensure maximum usage of archival material. For this reason users' needs and requirements are the elements that direct digitization and therefore user analysis should be performed.

Deborah Kaplan (2009: 35) summarizes the important points about users of digital archives in her article ''Choosing a Digital Asset Management System That's Right for You' as follows:

- If you are worried about preservation, then you need to think about the user needs of archivists.
- If you are using the resources for administrative purposes, then you need to worry about the user needs of the departments in question, some of which have very specific legal demands regarding privacy, retention, and copyright.
- For resources used in the classroom, you need to think about the user needs of both instructors and students.
- If you want to share your objects with the rest of the Web, then you need to think about the needs of those unaffiliated users and what you want them to learn about your organization and its shared objects.

d. *Performing Needs Analysis for Equipment and Software*

The process of equipment and software analysis should be handled as an infrastructure improvement work. During this improvement process, firstly the equipment and then the software should be provided.

There are some primary elements for digitization in archives. These elements are (Guercio, 2001: 267):

- electronic protocol registries,
- electronic systems of classification and filing,
- digital scanning of traditional records (according to a costs/benefits analysis),
- and creation and maintenance of records in electronic forms (by using digital signatures).

e. *Ensuring Technological Transformation of Archivists and Users*

Digitization brings about the usage of technological products and systems. Therefore the transformation of archivists and users should be ensured in order to get maximum benefit from digital records. Education programs can be planned and implemented to provide the technological transformation of archivists and users.

IV. Conclusion

There are lots of points that can be emphasized about digitization because it is a very comprehensive process. The most important point is to analyze the archival material, users and resources of the institution before conducting the process because they are the important ones that shape digitization.

A reliable digital repository is one whose mission is to provide long-term access to managed digital resources; that accepts responsibility for the long-term maintenance of digital resources on behalf of its depositors and for the benefit of current and future users; that designs its system(s) in accordance with commonly accepted conventions and standards to ensure the ongoing management, access, and security of materials deposited within it; that establishes methodologies for system evaluation that meet community expectations of trustworthiness; that can be depended upon to carry out its long-term responsibilities to depositors and users openly and explicitly; and whose policies, practices, and performance can be audited and measured (Jantz and Giarlo, 2007: 196).

Richard Pearce Moses (2007: 16) has two different scenarios about digitization. These are:

Worst - Case Scenario

Maybe the status quo is the worst-case scenario. Some archivists are working hard to address the issues of digital records. Although I have often spoken of "new skills for a digital era," those skills are not new to a few archivists who have been working with digital materials for decades. The problem is that the skills are new to many in the profession. In this bleak scenario, the archival profession fails to adapt to the digital era. Not enough archivists master the new skills.

Best - Case Scenario

We will have passed through a variety of doors and solved the problems of selecting, acquiring, and preserving the fragile digital records that hold society's memories. These records are well organized and easy to use. We will have found a way to harness technology to do our jobs better. People use archives frequently, in part because they find it so easy to get the information they need. As important, they trust us because we offer them valuable assistance."

In conclusion like Cunningham (2008: 543) expresses:

"Ultimately, digital archiving is not just an interesting source of research projects and academic theorizing. Our national and state institutions, in the face of pressing societal and organizational needs, must develop sustainable, industrial- scale digital archiving implementations."

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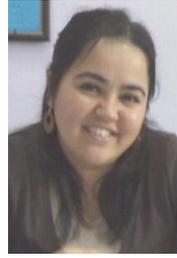
Burçak Şentürk was born in Istanbul, Turkey in 1980. She received a B.A. degree in information and records management in 2002, and an M.A. degree and PhD degree also in information and records management from Marmara University in 2005 and 2010 respectively. She joined the Marmara University Department of Information and Records Management in 2003 as research assistant and she has now been an Assistant Professor in the same department since 2011. Her major study areas are archival science, archivists, records management, and information technology in e-government applications. She has made various scholarly contributions in these areas.