ARCHIVAL MANAGEMENT AND PRESERVATION OF DIGITAL RECORDS IN BRAZIL: STATE OF THE ART

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Abstract

This article reports the Brazilian initiatives regarding the archival management and preservation of digital records. After a brief explanation of the inherent issues raised by computer generated records, the authors summarize the work undertaken by the Brazilian Technical Committee on Electronic Records - CTDE, and by the National Council on Archives - CONARQ.

I - INTRODUCTION

The proliferation of digital records in Brazilian public and private institutions since the 1990’s has reinforced the need to address their preservation issues and the implementation of recordkeeping systems. Such needs arise from the fact that unlike paper records, digital records are extremely vulnerable to human intervention, to technological obsolescence and to medium degradation. As records are sources of evidence of the activities undertaken by the institution that has issued them, the above mentioned factors jeopardize the essential qualities of those records: their reliability and authenticity. Consequently, government, society and citizens come to live under the threat of not having records that can ensure their rights and duties.

Still considering the specificities of digital records in comparison to traditional records, we note that the paper medium was replaced by a magnetic or digital medium; the symbols are no longer the letters of the alphabet and drawings, but binary digits; the direct reading of traditional records has been replaced by indirect reading, i.e., it is software and hardware dependent; and the simultaneous visualization of medium and information is no longer possible i.e., in the world of digital records, information and medium are perfectly separable.

The difficulty to identify the record among the enormous and diverse amount of digital information produced and stored by institutions is another key issue related to the digital world. That is due to the fact that such records are not physical, but logical units and that they may be presented as their paper equivalent, i.e., as memorandums, as reports, as contracts, etc., or as complex units (hypertexts) or dynamic sets, sometimes of variable content, that communicate with each others and/or with the user (databases).

With respect to their preservation, digital records engender an inherent contradiction: in order to be preserved, they must be reproduced. Technological obsolescence and medium fragility pair up to demand for periodical interventions such as migrations, emulations and refreshing to ensure access to digitally generated

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information. Such interventions, on their turn, raise authenticity (identity and integrity) and authentication issues for reproduced records.

Finally, the ease to create and transmit digital records brings up its own issues. It has been observed that the degree of informality involved in the creation of electronic messages (e-mails) compromises their qualities as records. From a transmission perspective, it is a known fact that computer networks have facilitated corporate communications to such an extent that they have embroiled the existing bureaucratic structure and broke previously existing formal hierarchical channels. Someone writing a report at home and sending it at three a.m. to the director’s office through a colleague that will review it is a perfectly imaginable scenario today.

Given the reasons above we wish to reinstate the first paragraph’s assertion on the need to manage and to preserve digital records based on an archival approach.

II – BRAZILIAN INITIATIVES ON ARCHIVAL MANAGEMENT AND ON THE PRESERVATION OF DIGITAL RECORDS

In March, 2002, the National Council on Archives – CONARQ\(^3\) - has reformulated the Committee on Electronic Records\(^4\) - CTDE, originally created in August of 1995.

CTDE is composed by an interdisciplinary group of professionals in Archival Science, Library Science, History, Law, Management, Physics, Mechanical Engineering and Computer Science from Federal and State Legislative and Executive institutions such as the National Archives, the Civil House from the Presidency of the Republic, the Department of Planning, the National Congress, the National Commission on Nuclear Power (CNEN), the University of Campinas (UNICAMP) the Indian Museum – FUNAI and the Brazilian Navy.

CTDE’s objective is to define and to submit to CONARQ policies, standards and legal and technical instruments to address the archival management and the preservation of digital records.

During the year of 2002, CTDE gathered the legal and theoretical knowledge necessary to take its first actions using the following methodology:

- Research and study of a bibliography on the archival management of digital records - notably the UBC project, the Pittsburgh project and the Australian initiatives;
- Research and study of the Brazilian law on digital records;
- monthly meetings with the members of the Committee to discuss the studied topics and to define action strategies.

CTDE has presented the following products in this first phase:

- the creation of a set of most frequently asked questions about digital records from an archival perspective with their respective answers;
- the creation of a website to divulge its activities
  (http://www.arquivonacional.gov.br/conarg/cam_tec_doc_ele)

In 2003, CTDE started working on a set of fundamental tools to attain its proposed objectives. To do so, CTDE kept following the international publications on

\(^3\) “... a collegiate body linked to the National Archives of the Civil House from the Presidency of the Republic, that is responsible for defining the national policy for public and private archives as the governing body of a National Archives System, as well as providing normative orientation regarding records management and the special protection of archival records.” (Information obtained from the site http://www.arquivonacional.gov.br/conarg, on 12/21/2005).

\(^4\) In this article, the terms ‘electronic record’ and ‘digital record’ are used interchangeably.
archival science, specially the articles and reports produced by InterPARES\textsuperscript{5}, an international project born in the University of British Columbia, Canada. This project’s theoretical and methodological richness, based on the study of contemporary archival diplomatics has allowed us to construct the definition of the supporting concepts for CTDE’s work such as digital record, reliability, authenticity, authentication, and more. These concepts were grouped up in a glossary, one of the instruments produced by CTDE which we will enumerate bellow:

1) **Glossary of terms related to digital records**: defines how the terms used by CTDE’s members in their technical discussions should be understood. The glossary was built after consultation to similar instruments in the information technology and archival science areas, like the InterPARES project and UNESCO’s “Directives for the preservation of digital records”.

2) **Chart for the preservation of digital archival assets**: its objective is to create awareness and to broaden the discussion on the instability of the digital legacy, and to assert the need to create policies, strategies and actions that will ensure long term preservation and ongoing access to digital records.

   The Chart presents three main propositions: the development of strategies and policies, the creation of standards, and knowledge dissemination.

   Strategies and policies for digital preservation shall be developed through archival management actions, through the provision of tools to the archival institutions, through the insertion of the National Archives in the electronic government program and through the promotion of cooperative actions for digital preservation. With regard to the creation of standards, the Chart proposes the elaboration of the functional requirements and metadata for the archival management and preservation of digital records and the security requirements for digital information.

3) **Resolution 20 of 16 July 2004, from the National Council on Archives**, on “The insertion of digital records in archival management programs in public bodies and agencies”. It establishes the need to identify records among the information and the documents produced, received or stored digitally and to adopt a single management program for both digital and non digital records. Furthermore, the resolution defines the minimum archival requirements that an electronic recordkeeping system should have.

   Resolution 20 was issued after a debate between the members of CTDE and based on Resolution 1 of 18 October 1995, which “Rules on the need to adopt record classification plans and/or codes in current archives.”

4) **Resolution on the transference of digital records to the archival institutions custody**: (under discussion): this resolution will establish guidelines for the transference of digital records to the archival institutions custody.

   The methodology adopted to elaborate this draft resolution was the analysis of the above mentioned Resolution 20, a comprehensive debate between CTDE’s members and a detailed study of the requirements to support the presumption of authenticity identified by the authenticity task force from InterPARES 1. Such requirements apply to digital records before they are transferred to the archival institution’s custody.

5) **Requirements for the Archival Management of Digital Records in Brazil – ReqBras**: this is the most important instrument CTDE has been working on since 2003. It comprises a set of conditions to be fulfilled by the record producing organization, by the recordkeeping system and by the records themselves to ensure the creation of reliable records and the long term preservation of authentic records.

\textsuperscript{5} International Research on Permanent Authentic Records in Electronic Systems.
It is important to note that in this first phase ReqBras has focused primarily on the archival management of digital records. Nevertheless, the preservation issue is also mentioned.

The methodology used on ReqBras’ elaboration is the following:
- study of international documents concerning the archival management of digital records: ISO 15.489 on Records Management; Functional Requirements’ Model (MoReq), from the European Union, specification of requirements from the U.S. Department of Defense (DoD); Requirements for Electronic Records Management Systems from the Public Records Office, England, and the Portuguese translation of the manual developed by the International Council on Archives “Electronic Records: a Workbook for Archivists”. It should be noted that the information gathered in these documents had to be adapted to the Brazilian law, standards and archival practices;
- ReqBras drafts are written by three members of CTDE during weekly meetings at the Indian Museum. Those drafts are subsequently discussed by all the members of the Committee during monthly meetings that take place in one of CTDE’s member institutions and through e-mail;
- discussions with the National Archives’ team for the Coordination of Records Management—COGED, to clarify questions about concepts and procedures in the field of archival management;
- division of ReqBras into two parts: the first deals with conceptual aspects and the necessary planning for the implementation of an archival records management program; the second is about the functional requirements and the metadata necessary for the implementation of an Electronic Recordkeeping System.

The first part of ReqBras is aimed at making clear that the success of an Electronic Recordkeeping System implementation is directly dependant on it being the fruit of a planned program for the archival management of records duly understood by all people involved. This will make clear the difference between an Electronic Recordkeeping System, an Information System and Electronic Documents Management.

With regard to the second part of ReqBras, the functional requirements were structured as follows:
- records classification plan
- records production
- workflow
- capture
- appraisal and destination
- information retrieval
- security
- storage
- preservation
- technical and administrative functions.

With respect to the metadata, the models from Australia\textsuperscript{6}, United Kingdom\textsuperscript{7}, MoReq and the ISAD-G Standard were used as a basis. The metadata was grouped in the four following areas:
- identification and documentary context elements

\textsuperscript{6} National Archives of Australia, Recordkeeping Metadata Standard for Commonwealth Agencies. 1999.
\textsuperscript{7} Public Record Office, Requirements for Electronic Records Managements Systems. 2002.
technological context elements
- Security elements
- Retrieval elements

At this point, a study of each area’s metadata items was undertaken to define which ones should be listed and supplemented after the definition of the functional requirements.

Once concluded, ReqBras will be opened to public consultation and subsequently submitted to CONARQ’s approval. It is our expectation that the model of Requirements for the Archival Management of Digital Records in Brazil will become a standard to be required by the government to all Brazilian public institutions that wish to develop or acquire archival management software. The adoption of such a measure will represent Brazil’s firm positioning on behalf of the preservation of authentic digital records and will place Brazil amongst the most advanced countries in this field and in compliance with UNESCO’s Memory of the World program.

III – FINAL CONSIDERATIONS

The reformulation of the Technical Committee on Electronic Records by the National Archives Council in 2002 represented the Brazilian archival community’s (under the leadership of the National Archive) definitive recognition of the importance of gathering knowledge about archival management and preservation of digital records.

CTDE’s work can be seen as a theoretical/methodological combination gathered basically from InterPARES’ first phase, with practical initiatives undertaken by the U.S. Department of Defense, the U.S. National Archives, the Public Records Office from England and by the European Community MoReq.

The model of Requirements for the Archival Management of Digital Records in Brazil, to be concluded in 2006, will be followed by a new work front aimed at the preservation issue.

By means of these instruments, CTDE and CONARQ, always under the guidance of the National Archives, will provide the necessary mechanisms to archival institutions, to the government and to the society in general to ensure the quality of digital records and, as a consequence, of the Memory of the World.
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