The Power of Archives[1]

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Archival laws usually aim to establish the authority of archival institutions by describing **what** they do rather than **why** they do it, although most of them implicitly regard archives primarily as mechanisms for memory and identity, both collective and personal. This has marginalized archives by limiting their role to that of custodians of historical sources.

Responding to the effects that the last few decades of freedom of information laws have had on the awareness of the citizens of democratic societies, several archival administrations have filled this gap in legislation by issuing mission statements that emphasize **accountability** in its various aspects, legal, administrative and historical, as the primary responsibility of archival institutions. For example, the National Archives and Records Administration of the United States mission statement reads: "The National Archives and Records Administration serves American democracy by safeguarding and preserving the records of our Government, ensuring that the people can discover, use, and learn from this documentary heritage. We ensure continuing access to the essential documentation of the rights of American citizens and the actions of their government. We support democracy, promote civic education, and facilitate historical understanding of our national experience."[2] This new emphasis on protection of accountability, on archives as trusted custodians and warrantors of democracy, is also due to the government

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[1] This title is the translation of part of the title of a very rich and visionary book written by L. Giuva, S. Vitali, I. Zanni Rosiello, *Il potere degli archive. Usi del passato e difesa dei diritti nella societa' contemporanea*. (Milano: Bruno Mondadori Editore, 2007).
[2] See http://www.archives.gov/about/info/mission.html. Accessed February 14, 2008

increasing use of digital technologies and the challenges they present, due not only to their rapid obsolescence but also and foremost of the characteristics of the records resulting from their use.

Digital records do not exist as physical entities, but are constituted of **linked digital components**, that is, of entities that either contain one or more records or are contained in the record, and require a specific preservation measure. This implies not only that what appears on a computer screen, the "manifested" record, differs from what is stored, but also that it disappears as such when closed. When the record is later recalled, we do not "open" the same record but create a copy. Thus, in the digital environment, the original record, that is, the first complete record issued that is capable of reaching the intended consequences, is only the received record for as long as it is kept open before saving it. Moreover, **we cannot maintain or preserve digital records**, **but only our ability to re-produce them**, that is to exhibit them on a screen from stored digital components in the same documentary form they had when received, **re-create them**, that is, in the absence of preserved or preservable digital components, generate them again from the same content data, form data and composition data, or **protect** the capacity of stored only "records" (i.e. linked digital components that are not meant to be seen as manifested records, such as workflows guiding business transactions or computer patches enabling the production of sound) to enable or instruct the making of different manifested records.[3] The inevitability of constant reproduction and, when dealing with long-term preservation, of mass-copying creates problems related to **copyright** legislation and to the **intellectual rights of authors**, in addition to making it very **difficult to identify the final,**

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[3] L. Duranti and K. Thibodeau, "The Concept of Record in Interactive, Experiential and Dynamic Environments: the View of InterPARES," *Archival Science* 6, 1 (2006): 13-68.

official, reliable or accurate version of any given record, an endeavor further complicated by the easiness of manipulation and repurposing of the same records.

How can archival institutions deal with this situation? What are their priorities at a time when universal access to and protection of the records of governments, given the fragility of digital material, appear to require quite divergent and sometimes conflicting measures? Archival tradition maintains that the archivist's **primary duty is to the records** while his/her **secondary duty is to the user**, on the grounds that only by serving the records we can serve the users. Several decades ago, Sir Hilary Jenkinson elaborated on the meaning of "serving the records" by stating that archivists do so by maintaining intact their fundamental characteristics. Thus, we protect the **naturalness** of the records by preserving them in the way they have accumulated through time in their natural sedimentations, as a result of being instruments and by-products of activity; we protect the **interrelatedness** of the records by revealing and freezing their interrelationships within the archival *fonds* by means of archival description; we protect the **impartiality** of the records, that is their ability to reveal the truth, derived from the fact that they were not created for the purposes for which they will be used by posterity, by planning their retention and disposition at the time of their creation; and we protect their **authenticity**, that is their identity and their integrity, through a chain of unbroken legitimate custody.[4]

With digital records, these traditional archival activities are still necessary, but no longer sufficient to guarantee that the inalienable characteristics of all records will be kept intact over time. What else is necessary? Several models and research projects have emphasized a few key

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[4] H. Jenkinson, *Manual of Archival Administration.* London: Percy Lund, Humphries, 1922. The volume underwent a second edition in 1937, which was republished in 1965 with an introduction and bibliography by R.H. Ellis. See also L. Duranti, The Concept of Appraisal in Archival Science," *The American Archivist* 57 (Spring 1994): 328-344; and T. Eastwood, "What is Archival Theory and Why is it Important?" *Archivaria* 37 (Spring 1994): 122-130.

points, that is, that 1) the traditional **concept of preservation** must include the processes necessary to transmit the record through time, including conversion and migration; 2) the **unbroken chain of preservation** must begin at creation and continue from the record-making system to the recordkeeping system and the record preservation system; and 3) the focus on accountability requires the archives to **present itself as the trusted custodian**.[5] As defined by the InterPARES project, a multinational interdisciplinary research endeavour on the long term preservation of authentic digital records, a trusted custodian is a person who

- acts as a **neutral third party**, i.e., demonstrates that he/she has no stake in the content of the records and no reason to alter records under his/her custody, and that he/she will not allow anybody to alter the records either accidentally or on purpose,

- is equipped with the **knowledge and skills** necessary to fulfil his/her responsibilities, which should be acquired through formal education, and

- establishes a **trusted preservation system** that is capable of ensuring that accurate and authentic copies of the creator's records are acquired and preserved.[6]

However, in addition to these major points, there are specific activities that a professional entrusted with the preservation of digital records must undertake in order to protect the characteristics that qualify them as records. An archivist acting as designated trusted custodian for a given record creator must

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[5] Among the models, the most notable is the Open Archival Information System (OAIS) Reference Model, available at http://public.ccsds.org/publications/archive/650x0b1.pdf. The information model articulated in the OAIS standard has been the foundation of several research projects, such as CEDARS, PREMIS and Persistent Archives, respectively accessible at http://www.leeds.ac.uk/cedars/, http://www.oclc.org/research/projects/pmwg/, and http://www.sdsc.edu/NARA/. Also the METS project, accessible at http://www.loc.gov/standards/mets/, as well as the ERPANET project, available at http://www.erpanet.org/, have strongly contributed to the building of a consistent body of general knowledge on digital preservation. The project that has most emphasized these three points is InterPARES, of which this author is the director, accessible at www.interpares.org.

[6] See *A framework of principles for the development of policies, strategies and standards for the long-term preservation of digital records* (hereinafter InterPARES 2 Policy Framework) accessible at http://www.interpares.org/ip2/display_file.cfm?doc=ip2(pub)policy_framework_document.pdf, p. 9.

1. position him/herself at the **beginning of the record life-cycle**, taking the role of a "designated" trusted custodian who provides advice to the creator;

2. assess the **authenticity of the records**,[7] and **monitor it** throughout their existence, especially when the system in which they reside is upgraded, or transfers occur from a system to another, and when the records move from the responsibility of an office to that of another;

3. identify the records to be preserved at the moment of their creation and **monitor their transformation through time;**

4. determine the **feasibility of preservation** on the basis of the archives technological capacity and, in cases of a negative assessment, decide with the creator on the best course of action;

5. determine a **preservation strategy** independently of technological trends and maintaining the focus on interoperability across systems and through time;

6. control the **accuracy of the records**[8] after each conversion or migration;

7. develop **procedures** that address issues of **intellectual rights and privacy;**

8. recognize to **archival description a primary authentication function.** The authentication function of archival description is a **collective attestation** of the

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[7] The InterPARES 2 Policy Framework, cited above, at pp. 6-7 states: "The concept of authenticity refers to the fact that a record is what it purports to be and has not been tampered with or otherwise corrupted. In other words, authenticity is the trustworthiness of a record as a record. An authentic record is as reliable and accurate as it was when first generated. Authenticity depends upon the record transmission and the manner of its maintenance and custody. Authenticity is maintained and verifiable by maintaining the identity and integrity of a record. The identity of a record is established and maintained by indicating at a minimum the names of the persons participating in the creation of the record (e.g., author, addressee); the action or matter to which the record pertains; the date(s) of compilation, filing or transmission; the record's documentary form; the record's digital presentation (or format); the relationship of the record to other records through a classification code or a naming convention; and the existence of attachments. The integrity of a record is established and maintained by identifying the responsibility for the record through time by naming the handling person or office(s) and the trusted records officer12 or the recordkeeping office, identifying access privileges and access restrictions and indicating any annotations or any modifications (technical or otherwise) made to the record by the persons having access to it.

[8] The InterPARES 2 Policy Framework, cited above, at p. 6, states: "An accurate record is one that contains correct, precise and exact data. Accuracy of a record may also indicate the absoluteness of the data it reports or its perfect or exclusive pertinence to the matter in question. The accuracy of a record is assumed when the record is created and used in the course of business processes to carry out business functions, based on the assumption that inaccurate records harm business interests. However, when records are transmitted across systems, refreshed, converted or migrated for continuous use, or the technology in which the record resides is upgraded, the data contained in the record must be verified to ensure their accuracy was not harmed by technical or human errors occurring in the transmission or transformation processes. The accuracy of the data must also be verified when records are created by importing data from other records systems."

authenticity of the records in a *fonds* and of all their interrelationships as made explicit by a) their administrative, custodial and technological history, b) the illustration of their scope and content, and c) the hierarchical representation of the records aggregates. The unique function of archival description is to provide an **historical view of the records and of their becoming** while presenting them as a whole in which the individuality of each member is subject to the bond of a common provenance and destination;

9. and be constantly **involved in research and development projects** similar to those carried out by the industry, addressing questions like the following:

-what entity constitutes the record in each dynamic or interactive system[9]
-what instantiation of such entity can be regarded as the record (manifested or stored entity)
-how to keep such entities accurate and authentic through time
-how to enable users to verify such authenticity over time.

Thus, archives need to distance themselves from the old way of doing things and completely change their approach. Unfortunately, the old way is still for the most part the present way: academics conduct research which very few read and even less try to implement, usually unsuccessfully, as also demonstrated by research;[10] archival associations establish committees who issue guidelines, usually expressing the minimum common denominator shared by the experiences of the members, rather then research findings; ISO issues standards under the pressure of groups who need basic guidance and either develop their own or are ready to adopt the ways of the parties most involved in committee work; legislators issue laws too often based on the expertise of IT professionals and without serious consultation with archivists; governments make technological choices without consulting with archivists; and archives have

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[9] According to the InterPARES 2 Terminology Database, a Dynamic System is: "A system linked to particular algorithmic programming and mathematical system capabilities, as expressed in this statement: 'The identification of dynamic systems concerns the definition of a mathematical model which behaves like a process solely on the basis of its measurements' [Computer and Information Sciences - *"Linear Model Identification Toolbox for Dynamic Systems"*]," and an Interactive System is: "A system in which each user entry causes a response from or an action by the system, by virtue of automated reasoning based on data from its apparatus. [General Dictionaries , Page: 3]," accessible at http://www.interpares.org/ip2/ip2_terminology_db.cfm.
[10] See for example W. Duff, A. Marshall, C. Limkilde, and M. van Ballegooie. "Digital Preservation Education: Educating or Networking?" *The American Archivist* 69, 1 (2006): 188-212.

to respect often unreasonable laws, implement standards that are often far too generic, and preserve often unidentifiable and non preservable material. This scenario cannot meet present and future needs because 1) technology changes very rapidly while national and international consensus of any kind is very slow; 2) general standards and laws need much adaptation to specific contexts to be implemented; 3) research results must be translated in concrete terms to be understood by professionals; 4) research has demonstrated that solutions to digital records preservation are dynamic and specific; and 5) the financial, technological, and knowledge resources of archival organizations and units are very different from one another.

A better way of doing things is one in which each **archives becomes a locus of research** by establishing a partnership with academics involved in international research, professionals involved in standards development, experts in law and information technology and, most importantly, with the creators of the records that fall under their jurisdiction. Complementing this picture would be the effort of each **archival association in promoting an environment supportive** of the archives' goal by demonstrating to regulatory and auditing bodies and policy makers that they ought to embed digital records preservation requirements (not rules) in any activity that they regulate, audit or control.

This new way would result in 1) the generation of new knowledge, 2) the achievement of action-oriented outcomes, 3) the education of all participants, 4) solutions that are relevant to the local setting, 5) a sound and appropriate research and development methodology, and 6) and the empowerment of the archives. **The power of archives** will then consist in being able to establish a policy for the institution, strategies for implementing it, plans of action for specific aggregations or types of records, and detailed procedures to carry them out, and to update all of

the above continuously according to changes in available technologies, records produced, and resource availability. This is what a large group of researchers from more than sixteen countries are beginning to do in InterPARES 3 (2007-2012), a new collaborative research effort aiming at placing the archives at the center of society as an instrument of accountability and a point of reference for any institution, organization, community or person who needs 1) guidance in the creation, maintenance and preservation of its records, 2) a neutral third party to take care of the digital evidence of its activities, or 3) an expert witness who attests the authenticity of digital records presented as evidence in legal proceedings.[11] Not only the archival world is ready for a dramatic change but governments, citizens and society at large badly need it.

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[11] See the web site of the InterPARES 3 Project at http://www.interpares.org/ip3/ip3_index.cfm. See also L. Duranti, "An Overview of InterPARES 3 (2007-2012)," *Archives & Social Studies: A Journal of Interdisciplinary Research* 1, 2 (2007): 577-603. Also accessible at http://socialstudies.cartagena.es/images/PDF/no1/duranti_overview.pdf.