

# InterPARES: Securing the Future of Our Electronic Records

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The advent of the computer in the 1940s brought about profound societal changes that we are still feeling today – whether it is in the way that organizations carry out business or in the way that individuals conduct their daily lives. The phenomenal growth in hardware and software development during the last six decades has been fueled by a highly competitive industry, where cutting-edge innovation seeks to create products which are increasingly faster, efficient and functional.

In such an environment there has been little time to ponder the consequences of this kind of phenomenal growth in information technology. Enormous economic incentives exist for the technology industries to create products that supersede and render obsolete or unusable prior technologies. In our quest for bigger, faster, better we have neglected to take into account the effects of information technology upon an information resource that is of utmost importance to our society – the record.

A record can be defined as information that is created, received or maintained by an organization or an individual during the conduct of their affairs and maintained as evidence of that activity. When technologies become obsolete, it is not just the hardware and software that become unusable, but also the records contained within the system. Technology that has been developed to allow us to capture, maintain and manipulate information has also diminished the likelihood that the record will be fixed and set aside as an identifiable juridical entity. In translating the record from paper to the digital environment, we have also failed to ask ourselves what elements and functionality of the record must stay the same and what can change – or perhaps, more profoundly, which aspects of the record have already changed as a result of information technology and which aspects endure despite such change.

The records generated by society, whether in the course of government, business or private activity, need to be maintained and preserved as a mechanism for accountability, as evidence of individual and corporate rights and as a form of long-term memory. In the paper world, forms and procedures have developed over time to ensure that records are capable of serving as dependable evidence of activity – to be so, the records must be both reliable and authentic. *Reliability* can be defined as the trustworthiness of the content of the record, which is ascertainable through an examination of the completeness of the record and of the procedures exercising control over its creation. *Authenticity* means that the record is indeed what it claims to be, that is, that the record has not been altered in any way since the completion of the process of creation.

Whether a document is authentic depends upon its transmission and how it is preserved. Transmission means having control over, and documentation of, the physical and intellectual chain of custody. Forms and procedures that ensure reliability and authenticity of records have evolved over the centuries of written record-keeping practices to such an extent that we have developed an almost unconscious appreciation for and understanding of them. The reasons for their existence have become transparent. These normative understandings and conventions do not yet exist for records being created, maintained and used in digital systems, however.

Electronic records give us no implicit reassurance of their reliability and authenticity because records are so easily altered at numerous points of transmission. The forms and procedures have also not yet been established or internalized/institutionalized (i.e., rendered into a set of intuitive activities and attitudes on the part of records creators

and keepers) through records creation and records-keeping practices. Moreover in translating records into the digital environment we have been driven by technological capacities and economic issues in system design and have neglected to build in many of the attributes of records and record-keeping that previously guaranteed reliability and authenticity. Unresolved issues relating to easy alteration of the record, authentication of records, reliable storage and retrieval of the complete and authentic digital record, predicting and providing for future long- and short-term access to records, and technological obsolescence all present challenges for the preservation of this type of information. These challenges are being addressed by the InterPARES project.

### Background

The genesis of the InterPARES project (International Research on Permanent Authentic Records in Electronic Systems) was in research carried out by Professors Luciana Duranti and Terry Eastwood at the School of Library Archival and Information Studies at the University of British Columbia - the Preservation of the Integrity of Electronic Records Project

[www.slais.ubc.ca/users/duranti](http://www.slais.ubc.ca/users/duranti).

Working with the U.S. Department of Defense Records Management Task Force, and based on extensive modeling of record-keeping systems, the earlier project defined requirements necessary for creating, handling and preserving reliable and authentic electronic records in active record-keeping systems.

The resulting requirements for records management applications (RMA) have become a Department of Defense standard (DoD 5015.2-STD) for certifying RMA vendors. The standard covers requirements for file plans, identifying and filing records, filing electronic mail messages, storing records, scheduling records, screening records, retrieving records, transferring records, destroying records, access control, system audits, system management and technical/general requirements.

InterPARES, a follow-up research project underway since January 1999, focuses on the long-term preservation of inactive electronic records, that is, records that need to be preserved for administrative, legal or historical reasons. InterPARES, also directed by Dr. Duranti, brings together national and international research teams from Canada, the United States, Italy, the United Kingdom, Australia, Ireland, the Netherlands, Sweden, France, Portugal, China and Hong Kong. Participating researchers are drawn from university, government and industry environments, including several national archives. Industry is represented by the Collaborative Electronic Notebook Systems Association (CENSA), a worldwide industry group including pharmaceutical, chemical, biotechnology, high-tech and other businesses. This multidisciplinary team brings expertise in archival science, preservation management, library and information science, computer science and electrical engineering to the project.

### Purpose

The broad goal of the InterPARES project is to develop the theoretical and methodological knowledge essential for the permanent preservation of electronic records, and, on the basis of this knowledge, to formulate models, policies, strategies and standards to ensure their preservation in and over time.

The InterPARES project is guided by the principles of archival science and by diplomatics. Archival science provides a body of concepts and methods used to study aggregations of records from the perspective of their documentary and functional relationships which include the methods by which records are controlled and communicated. Diplomatics provides a body of concepts and methods that came into being during the 17th and 18th centuries. Diplomatics focuses on the analysis of genesis and form of records with an emphasis on determining the reliability and authenticity of individual documents.

### Organization

The InterPARES Project is divided into four research domains, each addressed by a separate task force:

- Domain I: Conceptual Requirements for Preserving Authentic Electronic Records.** The goal is to identify the elements of electronic records that are necessary to maintain the authenticity of records over time.
- Domain II: Appraisal Criteria and Methodology for Authentic Electronic Records,** where the goal is to determine whether the evaluation of electronic records for permanent preservation should be based on theoretical criteria different from those applied to traditional records.
- Domain III: Methodologies for Preserving Authentic Electronic Records.** The goal is to identify and develop the procedures and resources required for the implementation of the conceptual requirements and the criteria identified in the first two domains.
- Domain IV: A Framework for Developing Policies, Strategies and Standards.** The goal of the research in this domain is to formulate principles that will guide the development of international, national and organizational strategies, policies and standards for the long-term preservation of authentic electronic records.

The task forces are using a wide variety of research methods including diplomatic and archival analysis, structured interviews, activity and entity modeling, and systems analysis and design.

### US-InterPARES

The American component of the project, US-InterPARES, is funded by a grant from the National Historical Publications

and Records Commission (NHPRC), the grant-funding agency of the National Archives and Records Administration. The grant represents the single largest award ever made by the commission. The project is being directed by Dr. Philip Eppard, associate professor in the School of Information Science and Policy, University at Albany, State University of New York, and Dr. Anne Gilliland-Swetland, assistant professor in the Department of Information Studies, University of California at Los Angeles (UCLA). The United States team also includes researchers from the University of Missouri-Columbia, Georgia Tech Research Institute, Penn State University, the National Archives and Records Administration (NARA) and the Smithsonian Institution.

The US-InterPARES team of researchers is examining issues of short- and long-term durability, accessibility and utility of electronic records systems, as well as the authentication of their content. In carrying out this research, the US-InterPARES team is identifying and modeling the form, function and structure of digital systems, as well as their associated content and metadata, with a specific focus on information created for record-keeping purposes in a variety of organizational and social contexts. A range of case studies of elec-

tronic records systems is being conducted in government, industry and academic settings in the United States.

US-InterPARES researchers are also focusing on the implications of systems design by translating the theoretical models, templates and typologies into systems design requirements as well as data and metadata models. These designs and models will then be implemented and evaluated in various organizational, social and national domains and across different types of systems that are capable of generating digital records. Implementation and evaluation will play a proof-of-concept role for InterPARES by providing feedback that can then be used to reinforce or modify the theoretical models, templates and typologies, as appropriate.

Implementation and evaluation will then be used to generate and test systems analysis and to design tools and strategies which can be factored into future arenas of digital records preservation, long-term access and authentication of both active and legacy digital data.

For further information about InterPARES see

**[www.interpares.org](http://www.interpares.org) (international team site)**

and

**<http://is.gseis.ucla.edu/us-interpares/> (US-InterPARES site).**