
United States Research Team Report

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Introduction

A defining characteristic of the United States' record-keeping context is its heterogeneity. Individual sectors, most notably the federal government and certain industries, are relatively homogeneous and controlled by specific records legislation, industry standards and regulations, and accreditation or licensing requirements; however, the United States consciously has not embraced a national information policy that requires uniform approaches to electronic records management. This is the result of several factors, including the common law juridical base of the United States; the distributed structure of the federal, state, and local systems of government; the traditional autonomies of the academic and religious sectors; and the increasing emphasis on enterprise and digital government facilitated through the implementation of state-of-the-art technology.

Records produced by federal, state, and local agencies are generally retained by a designated preserving agency in accordance with statutory requirements and associated records retention policies.¹ Private sector records (e.g., those of businesses, religious organizations, museums, and private universities) are either retained by the creating agency in accordance with statutory, regulatory, and organizational records retention requirements or are, usually after a period of time, deposited in or donated to archival or manuscript repositories for the purposes of historical research.

The range of practices employed by the archival community reflects this pluralism in record-keeping requirements and responsibilities (e.g., both life-cycle and continuum approaches and custodial and non-custodial management of electronic records). This pluralism is also reflected in the differences in the resources available for archival management and in the level of expertise of institutional archivists in electronic records management. As a result, electronic records preservation policies have been developed and implemented primarily on an ad hoc basis as needed within individual organizational contexts. Few systematic electronic records programs exist outside of the National Archives and Records Administration (NARA) and certain state archives, despite the National Historical Publications and Records Commission's funding emphasis on developing electronic records management principles, practices, and programs, and a measurable increase in the number of graduate education programs offering coursework in electronic records management.

This report reviews existing national and international legislation and standards that have implications for electronic records management, and specifically the preservation of authentic electronic records within one or more sectors in the United States. The review indicates the extent to which these standards or pieces of legislation address the principles for preservation policies, standards, or strategies identified by InterPARES. It offers some commentary about the current situation and how it might be improved. For example, the principles could be used by different sectors and interest groups to augment, qualify, or tighten the legislation and standards as sources of warrant; to suggest new legislation, standards, and policies; or to recognize and nurture best practices through professional education. It should be noted, however, that the preferred approach in many non-governmental sectors has been to enhance professional education in order to inculcate best practices, and to work in concert with professional archival associations to develop and support professional standards, rather than to respond to externally imposed standards.

¹ For example, responsibility for the archival management of federal records resides with the U.S. National Archives and Records Administration, while in some states responsibility for local government records from clusters of counties is devolved to archival repositories at universities situated in those counties. The records of individual state universities are usually managed by their archives according to state and institutional records management requirements.

International and National Legislation and Standards

There are few national standards that relate specifically to the authenticity and long-term preservation of electronic records, although the corporate sector has warrant in the form of the ISO 15489 Records Management Standard as well as regulatory requirement, such as those of the Food and Drug Administration that affect approval of new products. The following legislation and standards are referred to in the subsequent analysis:

Digital Millennium Copyright Act (DMCA) 17 USC Section 101 et seq. (title IV amending §108, §112, §114, chapter 7 and chapter 8, title 17, United States Code)

President Bill Clinton signed the Digital Millennium Copyright Act into law on 28 October 1998. The legislation implements the 1996 World International Treaty and two World International Property Organization (WIPO) treaties: the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty. Key provisions of the *DMCA* concern the circumvention of copyright protection systems, fair use in a digital environment, and online service provider (OSP) liability (including details on safe harbours, damages, and "notice and takedown" practices).²

Electronic Communications Privacy Act (ECPA), Title 18 of the United States Code, Section 2701 et seq.

This was adopted to address the legal privacy issues that were evolving with the growing use of computers and other innovations in electronic communications. The *ECPA* updated legislation passed in 1968 that had been designed to clarify what constitutes invasion of privacy when electronic surveillance is involved. The *ECPA* extended the privacy protection outlined in the earlier legislation to apply to radio paging devices, electronic mail, cellular telephones, private communication carriers, and computer transmissions.

E-Sign (Electronic Signatures in Global and National Commerce Act), Title 15 of the United States Code, Section 7001 et seq. See also state digital signature legislation—for example, the *Electronic Uniform Electronic Transactions Act ("UETA")*.

E-Sign (Public Law 106–229), enacted on 30 June 2000, eliminates legal barriers to the use of electronic technology to sign and form contracts, collect and store documents, and send and receive notices and disclosures. *E-Sign* applies broadly to federal and state statutes and regulations governing private sector (including business-to-business and business-to-consumer) activities. *E-Sign* authorizes the substitution of electronic notices for paper notices, including most, but not all, types of consumer notices. *E-Sign* also includes a number of important protections to ensure that consumers can receive, keep, and use electronic notices provided to them.

Government Paperwork Elimination Act, Title 44 of the United States Code, Section 3504 note (*GPEA*).

The *GPEA*, enacted on 21 October 1998, requires that by October 2003, all executive branch agencies are to provide for the use and acceptance of electronic signatures in communications with the public, where practicable.

Federal Records Act, Title 44 of the United States Code, Chapters 21, 29, 31, 33, and NARA regulations, Title 36 of the Code of Federal Regulations (CFR) Part 1234 (Electronic Records

² Though not specifically referenced in the chart that follows, the DMCA and other copyright legislation can pose significant challenges to the design and implementation of the long-term preservation of electronic records. Long-term preservation of authentic electronic and digital records may require copying that is outside the scope of current copyright protection. Future InterPARES policy research will include the examination of existing copyright and intellectual property regimes and their relationship to proposed digital preservation strategies and implementation.

Management). Records Management by Federal Agencies. See also state records and information management legislation.

Presidential Records Act, Title 44 of the United States Code, Sections 2201 et seq.

The *PRA*, enacted in 1978, changed the legal ownership of the official records of the President from private to public.

Federal Rules of Evidence (FRE) govern admissibility of evidence in administrative proceedings in federal courts. The general requirements address relevance, authentication, and hearsay aspects of evidence. While the *FRE* do not apply to suits in state courts, the rules of many states have been closely modelled on these provisions.

Food and Drug Administration (FDA) Title 21 of the CFR Part 11: Electronic Records; Electronic Signatures.

The Electronic Records and Electronic Signature Rule (21 CFR Part 11) was established by the U.S. Food and Drug Administration and put into effect on 20 August 1997. The rule defines the requirements for controlling electronic records and submitting documentation in electronic form, and the criteria for approved electronic signatures. It is designed to assist laboratories in the areas of improved data management, simplified regulatory compliance, and increased data security and integrity. The final rule relating to this title provides criteria under which *FDA* will consider electronic records to be equivalent to paper records, and electronic signatures equivalent to traditional handwritten signatures. Part 11 (21 CFR Part 11) applies to any paper records required by statute or agency regulations and supersedes any existing paper record requirements by providing that electronic records may be used in lieu of paper records. Electronic signatures that meet the requirements of the rule will be considered to be equivalent to full handwritten signatures, initials, and other general signings required by agency regulations. Section 11.2 provides that records may be maintained in electronic form and electronic signatures may be used in lieu of traditional signatures. Records and signatures submitted to the agency may be presented in an electronic form provided the requirements of Part 11 are met and the records have been identified in a public docket as the type of submission the agency accepts in an electronic form. Unless records are identified in this docket as appropriate for electronic submission, only paper records will be regarded as official submissions.

Freedom of Information Act (FOIA), Title 5 of the United States Code, section 552, as amended by the Electronic Freedom of Information Act Amendments of 1996. <<http://www.usdoj.gov/04foia/>>. See also state *FOIA* legislation.

Provides that any person has the right to request access to federal agency records or information, and that agencies shall make reasonable efforts to search for records in electronic formats and provide to requesters records in any format (including electronic). All agencies of the United States government are required to disclose records upon receiving a written request for them, except for those records that are protected from disclosure by the nine exemptions and three exclusions of the *FOIA*. This right of access is enforceable in court. The federal *FOIA* does not, however, provide access to records held by state or local government agencies, or by private businesses or individuals. All states have their own statutes governing public access to state and local records; state agencies should be consulted for further information about them.

International Organization for Standardization (ISO) 15489 Records Management Standards

ISO 15489 focuses on the business principles behind records management and how organizations establish a framework to enable a comprehensive records management program. The new standard identifies key issues involved in retaining the information and making it available in a usable and reliable way. ISO 15489 is aimed at individuals responsible for setting policies, standards, and guidelines for information management within organizations. These include records managers, archivists, librarians, knowledge

management professionals, database managers, and business administrators within organizations who are responsible for the oversight of record-keeping processes.

Reference Model for an Open Archival Information System (OAIS)—CCSDS

The OAIS-Reference Model drafted by the National Aeronautics and Space Administration (NASA), is an ISO technical recommendation relating to the preservation of digital information by digital archives and their producers and consumers. *Referencing Model for an Open Archive Information System (OAIS)*, White Book, Issue 4, Don Sawyer / NASA and Lou Reich / CSC. Among the components of OAIS are the following: the reference model identifies a minimum set of responsibilities for an archive to claim it is an OAIS; establishes common terms and concepts for comparing implementations, but does not specify a specific implementation; provides detailed models of both archival functions and archival information; and discusses OAIS information migration and interoperability among OAISs.

United States Department of Defense (DoD) 5015.2 Records Management Standard

The DoD standard was created for use by agencies of the United States government. The standard is designed and expressed in terms of compliance with U.S. laws and regulations. The purpose of the DoD standard is to prescribe “mandatory baseline functional requirements, and to identify non-mandatory features deemed desirable for Records Management Application (RMA) Software.”³ Within the context of the U.S. government, 5015.2 is a procurement standard requiring government agencies to purchase RMAs that are compliant with at least the minimum specifications.

The authenticity of archival records (i.e., that those records are indeed what they purport to be) is an aspect largely ignored in the legal context of the United States.⁴ Issues of system integrity and data reliability for active records are more common areas of concern when evidentiary value is an issue. The notion of authenticity of records in the sense used in diplomatics is largely alien to the corporate and legal records management communities in the United States.

State and Local Context

State and local authorities have also not systematically addressed the preservation of authentic electronic records, although legislation that parallels federal legislation often exists at the state level. The National Historical Publications and Records Commission has funded several initiatives to address electronic preservation issues at the state and local government level (e.g., in Minnesota, Mississippi, and the City of Philadelphia); and at individual academic institutions (e.g., Indiana University) that have sought to develop model solutions and policies in the absence of more specific legislation and standards.

The InterPARES research outcomes (i.e., principles, requirements, and models) will have an impact in the United States only to the extent that the authenticity and preservation of electronic records are considered universally pressing issues by archival, records management, and legal professionals. Although system integrity and access to reliable information are critical components of an effective electronic documentary record, the ability to establish and document the continued authenticity of electronic records is crucial to implementing an effective preservation plan.

⁴ The InterPARES [glossary](#) defines an *authentic record* as “a record that is what it purports to be and that is free from tampering or corruption.”

The following table presents the principles that should govern any preservation policy, standard, or strategy for ensuring the long-term preservation of authentic electronic records. The principles are drawn from the report of the InterPARES Strategy Task Force. Each principle is paired with references to relevant legislation or standards that affect the application of the principle in the U.S. environment. Commentary on the application of the relevant legislation or standards or on the absence of any such legislation or standards is provided as appropriate.

Principle	U.S. References and Commentary
<p>address records specifically rather than digital objects generally; that is, [any preservation policy, strategy, or standard] should address documents made or received and set aside in the course of a practical activity.</p>	<p>The U.S. National Archives is specifically charged with the archival management of the records of the federal government as defined by the <i>Federal Records Act</i> 44 U.S.C. Chapter 31. See also <i>National Archives and Records Administration</i> 44 U.S.C. Chapter 21; <i>Records Management by the Archivist of the United States</i>, 44 U.S.C. Chapter 29; <i>Disposal of Records</i> 44 U.S.C. Chapter 33;ⁱ <i>Coordinator of Federal Information Policy</i> 44 U.S.C. Chapter 35; <i>Information Technology Management Reform Act (ITMRA)</i> 40 U.S.C. Section 1401 et seq.; <i>Paperwork Reduction Act</i> 44 U.S.C. Chapter 35; <i>Administrative Procedure Act</i>, 5 U.S.C. Chapter 5, the <i>Freedom of Information Act</i>, 5 U.S.C. Section 552,ⁱⁱ the <i>Privacy Act</i>, 5 U.S.C. Section 552a.ⁱⁱⁱ Electronic Records: Electronic Signatures 21 CFR 11.1 (c).^{iv} See also examples from State records and information law such as Ohio^v and New Mexico.^{vi} In common practice, however, records and digital objects are typically undifferentiated in litigation and in business activities. Moreover, in non-federal repositories such a those of universities and local historical societies, records, manuscripts, and sometimes other library or artifact collections are often co-administered without explicitly addressing the distinctive preservation and authenticity needs of electronic records. The "Open Archival Information System (OAIS) Reference Model" refers only to <i>information objects</i> and not to records. See also <i>FRE</i>, <i>DoD</i>, and <i>ISO</i>.</p>
<p>focus on authentic electronic records.</p>	<p><i>E-Sign (Electronic Signatures in Global and National Commerce Act)</i> digital signature legislation addresses aspects of the reliability of electronic records; however, digital signatures only provide a means for assuring authenticity <i>in time</i>, and not preserving authenticity <i>over time</i>.</p> <p>See also <i>FRE</i>, <i>DoD</i>, and <i>ISO</i>.</p>

recognize and provide for the fact that authenticity is most at risk when records are transmitted across space (i.e., when sent between persons, systems, or applications) or time (i.e., either when they are stored offline, or when the hardware or software used to process, communicate, or maintain them is upgraded or replaced).	This is not currently addressed in the U.S. context.
recognize that preservation of authentic electronic records is a continuous process that begins with the process of records creation and whose purpose is to transmit authentic records across time and space.	<i>U.S. Department of Defense (DoD) Directive 5015.2, Records Management Program Directive, March 2000. ISO 15489 Records Management Standard. OAIS Reference Model.</i>
be based on the concept of trust in records keeping and record preservation and specifically on the concepts of a trusted record keeping system and the role of the preserver as a trusted custodian.	The Joint Interoperability Test Command's (JITC) software testing program for 5015.2-STD, Design Criteria Standard for Electronic Records Management Software Applications, November 1997 < http://jitc.fhu.disa.mil/recmgt/ >.
be predicated on the understanding that it is not possible to preserve an electronic record as a stored physical object; it is only possible to preserve the ability to reproduce the record.	This is a new construct in the U.S. context.
recognize that the physical and intellectual components of an electronic record do not necessarily coincide and that the concept of digital component is distinct from the concept of element of documentary form.	Archival practice in the United States has not traditionally examined elements of documentary form in establishing record-keeping protocols and requirements. The concept of a digital component is a new construct in the U.S. context.
specify the requirements that a copy of a record should satisfy to be considered equivalent to an original.	See 17 USC 101 et seq.
integrate records appraisal in the continuous process of preservation.	U.S. archivists are increasingly involved in the design of record-keeping systems as well as scheduling electronic records. Both of these activities provide opportunities to integrate appraisal and description requirements into electronic record keeping at a pre-archival stage. U.S. archivists need increased education and training in how best to effect this integration in their own institutional contexts.

explicitly state that the entire process of preservation must be thoroughly documented as a primary means for protecting and assessing authenticity over the long term.	This principle underlies <i>FRE</i> . As with the previous principle, this is in part an issue of ensuring best practices through increased archival education and training in electronic records management. However, there is no current metadata framework that U.S. archivists could impose on record-keeping system design, or require of record-keeping procedures.
explicitly recognize that the traditional principle that all records relied upon in the usual and ordinary course of business can be presumed to be authentic needs to be supplemented in the case of electronic records by evidence that the electronic records have not been inappropriately altered.	Not explicitly recognized in the U.S. context.
recognize that the preserver is concerned with both the assessment and the maintenance of the authenticity of electronic records. The assessment of the authenticity of electronic records takes place before the records are transferred to the custody of the preserver as part of the process of appraisal, while the maintenance of the authenticity of copies of electronic records takes place once they have been transferred to the preserver's custody as part of the process of long-term preservation.	This could in part be ensured through increased archival education and training in electronic records management and the development of professional best practices. Since individual U.S. archival repositories in the United States espouse both life cycle and continuum models of archival management, archivists need to understand how to apply this principle within their own institutional contexts.
draw a clear distinction between the preservation of the authenticity of records and the authentication of a record.	This distinction is not currently made in the U.S. context.

ⁱ The *Federal Records Act*, 44 U.S.C. 3301, defines federal *records* to include all books, papers, maps, photographs, machine-readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States government under federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions procedures, operations, or other activities of the government or because of the informational value of data in them.

ⁱⁱ The *Freedom of Information Act*, 5 U.S.C. 552(f)(2), defines *record* to include “any information that would be an agency record subject to the requirements of this section when maintained by an agency in any format, including an electronic format.” In general, the definition of “agency record” under FOIA is broader than the definition of “record” under the Federal Records Act.

ⁱⁱⁱ The *Privacy Act*, 5 U.S.C. 552a(a)(4) defines *record* to mean “any item, collection, or grouping of information about an individual that is maintained by an agency, including, but not limited to, his education, financial transactions, medical history, and criminal or employment history and that contains his name, or the identifying number, symbol, or other identifying particular assigned to the individual, such as a finger or voice print or a photograph.”

^{iv} The *FDA Electronic Records: Electronic Signatures*, 21 CFR Part 11 defines *electronic records* as “any combination of text, graphics, data, audio, pictorial, or other information representation in digital form that is created, modified, maintained, archived, retrieved, or distributed by a computer system.”

Records required to be kept because of a law or regulation may be maintained in electronic format in lieu of paper, and electronic signatures in lieu of traditional signatures, in whole or in part, shall be regarded as equivalent to paper records and traditional signatures provided they meet the requirements of these guidelines except where specifically prohibited by law or regulation. 21 CFR 11.1 (c).

^v *Ohio Administrative Code* Section 149.01.1 (G) defines *records* to include “any document, device, or item, regardless of physical form or characteristic, created or received by or coming under the jurisdiction of any public office of the state or its political subdivisions, which serves to document the organization, functions, policies, decisions, procedures, operations, or other activities of the office.”

Ohio Administrative Code Section 1306.21 (1) defines “the minimum requirements of creation, maintenance, and security of electronic records and electronic signatures; (2) If electronic records must be signed by electronic means, all of the following: (a) the type of electronic signature required; (b) the manner and format in which the signature must be affixed to the electronic record; (c) the identity of, or criteria that must be met by, any third party used by the person filing a document to facilitate the process. (3) Control processes and procedures as appropriate to ensure adequate preservation, disposition, integrity, security, confidentiality, and auditability of electronic records; (4) Any other required attributes for electronic records that are specified for corresponding non-electronic records or reasonably necessary under the circumstances. (B) (1) The department of administrative services may adopt rules in accordance with section 111.15 of the Revised Code to ensure consistency and interoperability among state agencies with regard to electronic transactions, electronic signatures, and security procedures.”

^{vi} New Mexico Title 1 General Government Administration Chapter 13 Public Records Part 70 Section 7 (A) defines *records* as “information preserved by any technique in any medium, now known, or later developed, that can be recognized by ordinary human sensory capabilities either directly or with the aid of technology.”