Contemporary Archival Diplomatics as a Method of Inquiry: Lessons Learned from Two Research Projects

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Abstract. This article explores the use of contemporary archival diplomatics as a method of inquiry in two recent electronic records research projects, namely, *The Protection of the Integrity of Electronic Records Project* (the UBC Project) and the *International Research on the Preservation of Authentic Records in Electronic Records Systems Project* (the InterPARES 1 Project). The first part of the article examines the historical and contemporary literary warrant underpinning diplomatics as a method of inquiry; the second part provides case studies of two illustrative examples of the process and results of the application of contemporary archival diplomatics in the above-mentioned research projects; the third part considers the current status and possible future directions for the use of contemporary archival diplomatics as a research method and concludes with some observations about the value of multiple methods and alternative interpretive frameworks in archival research.

Introduction

Over the past number of years, "the problem of context" has emerged as a recurring theme in the research literature of several disciplines, including anthropology,[1] linguistics,[2] media studies,[3] and information science.[4] When the issue of context is raised it is usually argued that, in any

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[1] See, for example, Roy Dilley, ed. *The Problem of Context* (New York: Berghahn, 1999).

[2] See, for example, Alessandro Duranti and Charles Goodwin, eds. *Rethinking Context: Language as an Interactive Phenomenon* (Cambridge, UK: Cambridge University Press, 1992).

[3] See, for example, Markus Schlecker and Eric Hirsch, "Incomplete Knowledge: Ethnography and the Crisis of Context in Studies of Media, Science and Technology," *History of the Human Sciences* 14 (2001): 69–87.

[4] See, for example, Licinio Roque, Ana Almeida, António Dias de Figueiredo, "Context Engineering: An IS Development Approach," *Proceedings of the Action in Language, Organisations and Information Systems, ALOIS2003* (Linköping, Sweden: ALOIS, 2003), 107–122; Colleen Cool and Amanda Spink, eds. "Issues of Context in Information Retrieval (IR)," [special issue of] *Information Processing and Management* 38 (2002); Ojelanki K. Ngwenyama and Allen S. Lee, "Communication Richness in Electronic Mail: Social Theory and the Contextuality of Meaning," *MIS Quarterly* 21 (June 1997): 145–167.

research investigation, the object of inquiry (i.e., the "focal event") cannot be properly understood, interpreted, or described in a meaningful way unless the investigator looks beyond the event itself to other phenomena within which the event is embedded. As Goodwin and Duranti explain it, "[t]he context is ...a frame that surrounds the event being examined and provides resources for its appropriate interpretation".[5] The question then becomes, what precisely should be included within that contextual frame? The question is a critical one because the answer will determine what is identified as relevant data in a given investigation and sets the boundary conditions for the truth-claims that may be made on the basis of that investigation.

The problem of context is the epistemological dilemma that presents itself when a researcher attempts to answer that question; the dilemma stems from the recognition that context is both boundless and susceptible to infinite regress. Jonathon Culler characterizes the problem of context in the following way:

> Meaning is context-bound, but context is boundless. ...Context is boundless in two senses. First, any given context is open to further description. There is no limit in principle to what might be included in a given context....Context is also unmasterable in a second sense: any attempt to codify context can always be grafted onto the context it sought to describe, yielding a new context which escapes the previous formulation".[6]

Given the impossibility of providing a full account of context, it is inevitable that certain aspects will be privileged while others will be minimized or ignored. In light of that inevitability, many researchers have come to recognize the need to make context itself a focus of conceptual and empirical inquiry in order to understand and describe more explicitly the frames of relevance within which research questions are asked and answered.

The problem of context is one that is certain to resonate with archival researchers investigating issues relating to the authenticity of electronic records. The problem of context as it affects the authenticity of electronic records is twofold: firstly, electronic records are deeply embedded within multiple and overlapping contexts that are complex and subject to rapid change; nevertheless, these contexts must be understood and described in order to both establish and protect the

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[5] Goodwin and Duranti, " "Rethinking Context: An Introduction," *Rethinking Context*, 3.

[6] Jonathon Culler, *On Deconstruction: Theory and Criticism after Structuralism* (Ithaca, NY: Cornell University Press, 1982), 123–124.

records' authenticity (meaning their identity and integrity) over time. Secondly, the boundary between records and their surrounding context tends to blur in electronic record-keeping environments, further exacerbating the difficulty of establishing and preserving their authenticity. As Anne Gilliland-Swetland observes:

> [Electronic] [r]ecords are heterogeneous distributed objects comprising selected data elements that are pulled together by activity-related metadata such as audit trails, reports, and views through a process prescribed by the business function for a purpose that is juridically required. Identifying the boundaries of such intellectually complex objects and then moving those objects forward through time and through migrations without compromising their authentic status is a significant issue.[7]

Archival research that seeks to identify requirements for assessing and maintaining the authenticity of electronic records must address a number of questions concerning context, among them: what constitute meaningful frames of relevance when it comes to investigating the authenticity of electronic records? How much contextual knowledge is necessary to establish and assess their authenticity? How much context must be preserved to maintain that authenticity over time?

One method of inquiry that has been proposed to address such questions is contemporary archival diplomatics. The potential of contemporary archival diplomatics as a methodology for analyzing the aspects of an electronic record's context that are meaningful to a consideration of its authenticity is based on the fact that its mode of analysis draws on an extensive and centuries old body of written reflection and experience about the nature of records and record-keeping in administrative settings.

This article explores the use of contemporary archival diplomatics as a method of inquiry in recent archival research. It is divided into three parts: the first part examines the historical and contemporary literary warrant underpinning diplomatics as a method of inquiry; the second part provides case studies of two illustrative examples of the process and results of the application of contemporary archival diplomatics in two recent electronic records projects, namely, *The Protection of the Integrity of Electronic Records Project* and the *International Research on the Preservation of Authentic Records in Electronic Records Systems Project*; the third part considers the current status and possible future

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[7] Anne J. Gilliland-Swetland and Philip B. Eppard, "Preserving the Authenticity of Contingent Digital Objects," *D-Lib Magazine* 6: 7–8 (July/August 2000): 2, available at http://www.dlib.org/dlib/july00/eppard/07eppard.html.

directions for the use of contemporary archival diplomatics as a method of inquiry with reference to postpositive and interpretive frameworks.

Historical and Contemporary Literary Warrant Underpinning Diplomatics as a Method of Inquiry

Diplomatics was born in the 17th century as an analytical technique for ascertaining the authenticity of medieval charters issued by sovereign authorities in previous centuries. Its primary purpose was to corroborate or refute the legal claims asserted in such records. The original tenets of diplomatics were outlined in a treatise called *De re diplomatica Libri VI* by Jean Mabillon, a member of the scholarly Benedictine congregation of Saint-Maur. Mabillon defined diplomatics as "the establishment of certain and accurate terms and rules by which authentic instruments can be distinguished from spurious, and certain and genuine ones from uncertain and suspect ones".[8] The first two parts of the treatise established the tests by which documents could be identified as true or false. On the basis of these tests, "Mabillon stated what, for a particular time and place, was the correct form for a genuine document, and presented ... the general principles of diplomatics".[9] The remainder of *De re diplomatica* provided proofs and illustrations of these principles and the manner in which they were to be applied and included facsimiles of two hundred original documents, with notes and arguments demonstrating why they should be considered authentic.[10]

In the 19th century, under the influence of classical philology and the scientific school of historiography, diplomatics evolved into an auxiliary science of history and its methods became more specialized.[11] Various branches of diplomatics began to take shape, focusing on

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[8] *De re diplomatica* (Paris, 1681), 1, quoted by C.R. Cheney, *The Papacy and England* 12th–14th *Centuries* (London: Variorum Reprints, 1982), 8.

[9] James Westfall Thompson, *A History of Historical Writing* (New York: The Macmillan Co., 1942), vol. 2, 19. Since Mabillon devoted an entire section of his treatise to the analysis of different kinds of script, *De re diplomatica* is also considered the first treatise on paleography. Since the 18th century, however, diplomatics and paleography have been regarded as separate disciplines.

[10] Heather MacNeil, *Trusting Records: Legal, Historical and Diplomatic Perspectives* (Dordrecht, the Netherlands: Kluwer, 2000), 20–21.

[11] For two centuries after its publication, *De re diplomatica* remained the standard book of diplomatic methodology. By the end of the 19th century, however, it had been replaced by a number of manuals, including Harry Bresslau, *Handbuch der Urkundenlehre für Deutschland und Italien*, 2 vols. (1889; reprint, Berlin: W. de Gruyter, 1968.); Arthur Giry, *Manuel de diplomatique: Diplomes et chartes Chronologie technique: Éléments critiques et parties constitutives de la teneur des chartes Les chancelleries; Les actes privés* (1893; reprint, New York: Burt Franklin, 1964); Cesare Paoli, *Programma scolastico di paleografia latina e di diplomatica*, 3 vols. (Firenze: G.C. Sansoni, 1894–1901).

chronology (i.e., systems of dating documents), sigillography (i.e., the study of seals), documentary forms, the status of transmission of documents, various types of copies, the procedures governing documentary creation, the procedures governing specific chanceries, and the criticism of forgeries, which had given diplomatics its original purpose.[12]

In the 20th and 21st centuries, diplomatics has continued to evolve as a tool for the retrospective understanding of historical sources. While it has not abandoned its earlier aim (to distinguish the false document from the genuine one), historical diplomatics has enlarged its territory to incorporate new streams of study.[13] "Social" diplomatics, for example, concerns itself with demystifying and exposing the discursive strategies employed in the production of documents.[14] Other streams of study apply traditional diplomatic methods to a broader range of documentation – including judicial registers, tax rolls, surveys, accounts, historical archival inventories – and are concerned with examining the emergence and means of diffusion of new documentary types and their adaptation within particular regions and cultures.[15] There also have been efforts to extend diplomatic analysis to archival documents created in the modern period.[16]

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[12] Luciana Duranti, *Diplomatics: New Uses for an Old Science* (Lanham, Maryland, and London: Scarecrow Press in association with the Society of American Archivists and Association of Canadian Archivists, 1998), 39. See also Olivier Guyotjeannin, "The Expansion of Diplomatics as a Discipline," *American Archivist* 59 (Fall 1996): 416-417. For a more detailed history of diplomatics see Georges Tessier, "Diplomatique," *L'Histoire et ses méthodes*, ed. Charles Samarin (Paris: Librarie Gallimard, 1961), 633–676. For a more detailed elaboration of classical diplomatic method see *Encyclopaedia Britannica*, 11th ed. (New York, 1910), s.v. "diplomatics," 300–306; *The New Encyclopaedia Britannica Macropedia*, 15th ed. (Chicago, II., 1974), s.v. "diplomatic," 807–813.

[13] For an overview and comprehensive bibliography of classical and contemporary studies of medieval diplomatics see Olivier Guyotjeannin, Jacques Pycke et Benoît-Michel Tock, *Diplomatique médiévale* (Paris: Brepols, 1993). For an overview of new directions in historical diplomatics see Guyotjeannin, "Expansion of Diplomatics," *American Archivist*, 417-419

[14] An example is Armando Petrucci's diplomatic examination of the language used in the preambles of Italian documents written between the 10th and 13th centuries. Petrucci finds in the formulas used by notaries in preparing preambles an increasing "preoccupation with affirming the validity of written evidence in comparison with the transience of oral evidence." For Petrucci, these shifts in the wording of the formulas used in preambles reflect the growing status of the document as an instrument of juridical power, as well as the growing status of Italy's professional notariate as an exclusive wielder of such power. See Armando Petrucci, "The Illusion of Authentic History: Documentary Evidence," *Writers and Readers in Medieval Italy*, ed. and trans. Charles M. Radding (New Haven: Yale University Press, 1995), 236–250.

[15] Guyotjeannin, "Expansion of Diplomatics," *American Archivist*, 419

[16] Notable diplomatic studies of historical sources for the modern period (especially from the 16th to the 18th centuries) include Heinrich Otto Meisner, *Archivalienkunde vom 16. Jahrhundert bis 1918* (Leipzig: Koehler & Amelang, 1969), and Georges Tessier, *Diplomatique royale française* (Paris: A et J. Picard, 1962). For an overview of diplomatic research undertaken for the modern period, see Bernard Barbiche, "Diplomatics of Modern Official Documents (Sixteenth–Eighteenth Centuries: Evaluation and Perspectives," *American Archivist* 59 (Fall 1996): 432-436.

A similar renewal of diplomatics has taken place in response to developments in archival science. Archival science developed in the 19th century as an extension of diplomatics[17] and even after archival science evolved into a separate discipline, the study of diplomatics remained an integral part of European archival education. In the 1980s, when the field of archival studies broadened its reach to include the control of current records the idea that diplomatics might be a useful tool for understanding contemporary records and records-related technologies began to take shape.[18] The first sustained effort to adapt diplomatics for this purpose was Paola Carucci's diplomatic analysis of the contemporary records of Italian administration.[19] Traditional diplomatists define a document as, "the written evidence of a fact having a juridical nature, compiled in accordance with determined forms, which are meant to provide it with full faith".[20] Carucci broadened that definition to include all the documents (not simply those having a juridical nature) created by an organization in the course of conducting its affairs. She also broadened the object of diplomatic analysis to include not only the elemental archival unit (i.e., the document) but also documentary aggregations (e.g., files and registers). Finally, she shifted the focus of diplomatic analysis from documentary procedures to administrative procedures. Although the scope of her study was limited to the specific context of Italian administration, Carucci's work initiated the process of merging the concepts and principles of diplomatics with those of archival science.[21]

The effort to adapt traditional diplomatics to contemporary record-keeping practices and to incorporate it into archival science was subsequently taken up by Luciana Duranti, who positioned the study of diplomatics within the broader context of modern bureaucracies. Drawing inspiration from the classical archival theorist Giorgio

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[17] For an overview of the historical connection between diplomatics and archival science, see Luciana Duranti, "Archival Science," *Encyclopedia of Library and Information Science*, ed. Allen Kent, vol. 59, supp. 22 (New York: Marcel Dekker, 1997), 3–5.

[18] At the 1989 International Council on Archives' Second European Conference on Archives, delegates recommended "that the development of the discipline of modern diplomatics be promoted through research in the typology of contemporary records and in the records-creating procedures of contemporary institutions." In Judith Koucky, ed. *Second European Conference on Archives: Proceedings* (Paris, International Council on Archives, 1989), 113. See also Tom Nesmith, "Archives from the Bottom Up: Social History and Archival Scholarship," *Archivaria* 14 (Summer 1982): 5–26; Don C. Skemer, "Diplomatics and Archives," *American Archivist* 52 (Summer 1989): 376–382; and Hugh Taylor, "My Very Act and Deed: Some Reflections on the Role of Textual Records in the Conduct of Affairs," *American Archivist* 51 (Fall 1988): 456–469.

[19] Paola Carucci, *Il Documento Contemporaneo* (Rome: La Nuova Italia Scientifica, 1987).

[20] Cesare Paoli, *Diplomatica*, 2nd ed., cited in Duranti, *Diplomatics: New Uses for an Old Science*, 44.

[21] Luciana Duranti, "Pour une Diplomatique des Documents Électroniques," *Bibliothèque de L'École des Chartes* 161 (2003): 604.

Cencetti, Duranti proposed a re-definition of diplomatics as "the discipline which studies the genesis, forms, and transmission of archival documents, and their relationship with the facts represented in them and with their creator, in order to identify, evaluate, and communicate their true nature".[22] In a series of articles written between 1989 and 1992, Duranti examined the principles and concepts of traditional diplomatics to determine whether they could be adapted to deal with records generated by modern bureaucracies.[23]

She found that the necessary elements of documentary creation identified by the early diplomatists, i.e., the *juridical system* (the legal and administrative context of document-creation), the *act* (the fact or event that causes its creation), the *persons* (the actors concurring in the act and its documentation), the *procedures* (the steps guiding the act and its documentation), and the *documentary form* (the concrete embodiment of all the relevant elements and their relationships) are as relevant to an understanding of the nature of records generated by modern bureaucracies as they were to an understanding of records issued by medieval chanceries. The main difference is that, in modern recordkeeping environments, the same elements manifest themselves in different ways. Over the course of the six articles, Duranti refined, reinterpreted, and extended the classical concepts, and introduced new ones to take into account the variety and complexity of bureaucratic recordkeeping environments. Duranti's series of articles resulted in a preliminary elaboration of contemporary archival diplomatics, which comprises a body of concepts and principles that are based on or extrapolated from concepts and principles drawn from diplomatics and archival science; these concepts and principles, in turn, are based on jurisprudence, the history and theory of administration, and an extensive and centuries old body of written reflection and experience about the nature of records and record-keeping practices in bureaucratic organizations.[24] Since the articles were first published,

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[22] Duranti, *Diplomatics: New Uses for an Old Science*, 45.

[23] The six articles were published subsequently in a single volume. See footnote 12, above.

[24] The concepts and principles of contemporary archival diplomatics and their evolution are the subject of Duranti, *Diplomatics: New Uses for an Old Science*. The evolution of diplomatic elements, from their elaboration in the work of traditional French, German and Italian diplomatists to their contemporary interpretation is traced in a document prepared for the Authenticity Task Force of InterPARES 1 by student research assistants Marta Maftei and Ian McAndrew, See "Lineage of Elements included in the Template for Analysis (pre-InterPARES): From Traditional Diplomatics to Contemporary Archival Diplomatics," (June 2000). The document is available on the InterPARES website at http://www.interpares.org.

numerous theses[25] and journal articles[26] have been written, which
have examined the application of archival diplomatics to a range of
modern and contemporary record forms.

Any method of inquiry is informed and shaped by some philosophi-
cal perspective about the nature of the world and the best means of
investigating it. In its 19th century manifestation, diplomatics was
inextricably linked to the scientific school of history. Scientific histori-
ans aimed to analyze documents by means comparable to those
employed by the natural sciences. This analysis involved the decompo-
sition of a document into a series of statements that were subsequently
refined until they resembled a scientific observation. Underpinning sci-
entific history were the beliefs that: (1) the objects of study in history
could and should be treated in the same way that the objects of study
in the natural sciences are treated and (2) the historian can adopt the
role of observer of an independently existing reality. These beliefs con-
nect scientific history to the philosophy of positivism, which emerged
in the latter half of the 19th century. The founder of positivism, Augu-
ste Comte, believed that the scientific method retained the same essen-
tial features whether one was speaking of the natural sciences or the
human sciences. As Michael Crotty describes it: "Whether one is
focused on nature or society, [Comte's] positive science looks to 'laws'
that can be scientifically established; that is, to facts that regularly
characterize particular types of beings and constant relationships that
can be shown to obtain among various phenomena. The direct
methods whereby these laws can be established scientifically are

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[25] See, for example, Steven Davidson, "The Registration of a Deed of Land in Ontario: A Study
in Special Diplomatics." (M.A.S. thesis, University of British Columbia, 1994); Anthony Gregson,
"Records Management Attributes in International Open Document Exchange Standards." (Master
of Archival Studies thesis, University of British Columbia, 1995); April G. Miller, "Exhibiting
Integrity: Archival Diplomatics to Study Moving Images." (M.A.S. thesis, University of British
Columbia, 2001); Elizabeth Mitchell, "Civil Litigation, Probate and Bankruptcy Procedures: A
Diplomatic Examination of British Columbia Supreme Court Records." (M.A.S. thesis, University
of British Columbia, 1995); Janice Simpson, "Broadcast Archives: A Diplomatic Examination."
(M.A.S. thesis, University of British Columbia, 1994); Janet Turner, "Special Diplomatics and the
Study of Authority in the United Church of Canada," (M.A.S. thesis, University of British
Columbia, 1994).

[26] See, for example, David Bearman, "Diplomatics, Weberian Bureaucracy, and the Management
of Electronic Records in Europe and America," *American Archivist* 55 (Winter 1992): 168–181; Tom
Belton, "By Whose Warrant? Analysing Documentary Form and Procedure," *Archivaria* 41 (Spring
1996): 206–220; Joan Schwartz, "We Make our Tools and our Tools Make Us": Lessons From
Photographs for the Practice, Politics, and Poetics of Diplomatics," *Archivaria* 40 (Fall 1995): 40–74;
Susan E. Storch, "Diplomatics: Modern Archival Method or Medieval Artifact," *American Archivist*
61 (Fall 1998): 365–383; Janet Turner, "Experimenting with New Tools: Special Diplomatics and the
Study of Authority in the United Church of Canada," *Archivaria* 30 (Summer 1990): 91–103.

observation, experiment, and comparison".[27]Traditional diplomatics adhered to the same tenets. According to Bruno Delmas

> In the exacting idea of positivist history developed at the end of the nineteenth century, the ambition of diplomatics [was] to reunite the conditions for establishing true history. Not a particular truth that one or the other of us might commit to our memories or essays, not a *connaissance*, but the truth.[28]

The diplomatist's specific task was to prepare the ground for the discovery of historical truth by:

> [Constructing] a building site for historical material that had been rigorously edited, dated, and critiqued. [The diplomatist] implemented a negative type of critique, if one can call it that, revealing falsifications, separating the wheat from the chaff, and also the straw (the formulary) from the grain (indisputable facts); or to take another metaphor which has had its moment of glory, to destroy the outer crust of the formula, within which the mineral of the data remains captive if it is not reached by the expert intervention of the diplomatist.[29]

Diplomatics thus reflected a belief in the possibility of discovering a consistent, underlying truth about the nature of a record through the application of rigorous techniques for analyzing its various components.

The ambition of contemporary archival diplomatics is considerably more modest than that of traditional diplomatics. Its philosophical orientation is more closely aligned with postpositivism, which, according to John Creswell, "refers to the thinking after positivism, challenging the traditional notion of the absolute truth of knowledge ...and recognizing that we cannot be "positive" about our claims of knowledge when studying the behavior and actions of humans".[30] These qualifications notwithstanding, postpositivism retains a belief in empirical reality and in the existence of laws or theories that govern the world and that need to be verified and

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[27] Michael Crotty, *The Foundations of Social Research: Meaning and Perspective in the Research Process* (Australia: Allen and Unwin, 1998), 22.

[28] Bruno Delmas, "Manifesto for a Contemporary Diplomatics," *American Archivist* 59 (Fall 1996): 443.

[29] Guyotjeannin, "Expansion of Diplomatics," *American Archivist*, 416.

[30] John Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 2nd ed. (Thousand Oaks, London, New Delhi: Sage, 2003), 7.

refined to enable us to make sense of that world. As Creswell explains it,

> The knowledge that develops through a postpositivist lens is based on careful observation and measurement of the objective reality that exists 'out there' in the world. Thus, developing numeric measures of observations and studying the behavior of individuals becomes paramount for a postpositivist. Thus, in the scientific method – the accepted approach to research by postpositivists – an individual begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions before additional tests are conducted.[31]

Contemporary archival diplomatics, at least as it is currently understood, is underpinned by a similar belief in the existence of an empirical reality – the world of records and record systems – that is governed by general principles, if not general laws, that are susceptible to discovery through observation and comparison. Such belief is implicit in Duranti's description of the diplomatic method of inquiry:

> Diplomatics saw the documentary world as a system and built a system to understand and explain it. Early diplomatists rationalised, formalised and universalised document-creation by identifying within it the relevant elements, extending their relevance in time and space, eliminating their particularities, and relating the elements to each other and to their ultimate purpose. ...These elements are building blocks which have an inherent order: in fact they can be analysed in sequence from the general to the specific, following a natural method of inquiry. However, such a method can be adopted only when the reality is fully observable or attainable. If this is not the case, a knowledge of the abstract characteristics of the system and its component parts, and of their relationships, makes it possible to understand the essential aspects. By referring to this knowledge, each single element of the system can be used as a key to all the others, and can lead to comprehension of the greater whole. This is the analytical method of inquiry, which is applied by the so-called "exact sciences" and which, in a process of discovery, tends to precede the method of moving from the general to the specific, and allows the formulation of generalizations.[32]

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[31] Ibid.

[32] Duranti, *Diplomatics: New Uses*, 107–108.

According to Duranti, this analytical method of inquiry is as relevant to an understanding of contemporary records in electronic form as it was to an understanding of medieval records on parchment. The diplomatic analysis of the elements of a record is a process of abstraction and systematization, the aim of which is to identify the essential attributes of a record and make them transportable to different historical and documentary contexts. By decontextualizing and generalizing the essential attributes of a record, the original diplomatists were able to recognize and evaluate records created over several centuries and across different juridical systems. The overarching thesis of contemporary archival diplomatics is that it will enable archivists to recognize and identify electronic records created in a variety of administrative contexts and in different hardware and software environments.

Contemporary Archival Diplomatics as a Component of Archival Research Design: Two Case Studies

The preceding summary of the evolution of diplomatics provides the backdrop for an examination of contemporary archival diplomatics as a research methodology, based on case studies of two recent archival research projects as illustrative examples. The first project, *The Protection of the Integrity of Electronic Records Project* (hereafter the UBC Project), was carried out at the University of British Columbia between 1994 and 1997. The research investigators were Duranti and Terry Eastwood.[33] The UBC Project aimed to identify and elaborate the methods necessary for creating and maintaining reliable and authentic electronic records in an administrative context. The *International Research on Permanent Authentic Records in Electronic Systems Project* (hereafter InterPARES 1) was carried out by an international team of researchers under the direction of Duranti between 1999 and 2002. The aim of this project, which built on the findings of the UBC Project, was to develop the conceptual and methodological knowledge necessary for assessing and maintaining the authenticity of electronic records over the long term. The discussion that follows is not intended to provide a comprehensive overview and analysis of the projects as a whole but, specifically, to demonstrate the application of diplomatics as a research method and to assess its strengths and limitations within the context of the two projects.

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[33] The author, who was a doctoral student at the time, served as research assistant on the UBC project.

The UBC Project[34]

The primary objectives of the UBC project were: (1) to identify and define conceptually the necessary and sufficient components of electronic records; and (2) to identify and elaborate the conditions necessary to ensure their reliability and authenticity for as long as they are needed by the record creator. To achieve those objectives the researchers adopted a deductive approach, drawing on the concepts and principles of archival diplomatics. Eastwood explains the reasons for adopting this approach in the following way:

> The aims of the project assume that policies, standards, and requirements for the management and preservation of trustworthy electronic records cannot be properly designed if the entities concerned are not clearly determined and recognizable. Therefore, a principal aim is to identify and define in a theoretical way both the byproducts of electronic systems and the methods for protecting the [reliability and authenticity] of those that constitute evidence of action. While we use a deductive method to seek out all the facts common to all instances of the entities considered, most other research on electronic records uses the inductive method to gather data about reality and analyze it as a means of building generalizations. We also work on the assumption that characterization of universally acceptable principles and methods for electronic records could only come from the application of principles and concepts already widely accepted and used to manage current records in the traditional environment.[35]

The approach taken in the UBC Project was likened to the traditional scientific method of the cloud chamber according to which, if a known entity is bounced against an unknown entity, the unknown entity will be revealed.[36]

The researchers began their work by stating the basic concepts and hypotheses of the project. These were framed in eight templates.[37] The

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[34] The findings of the UBC Project are reported in Luciana Duranti, Terry Eastwood and Heather MacNeil, *Preservation of the Integrity of Electronic Records* (Dordrecht: Kluwer, 2002). See also Luciana Duranti and Heather MacNeil, "The Protection of the Integrity of Electronic Records: An Overview of the UBC-MAS Research Project," *Archivaria 42* (Fall 1996): 46-67.

[35] Terry Eastwood, "Introduction," *Preservation of the Integrity of Electronic Records* (Dordrecht Kluwer, 2002), 5.

[36] Luciana Duranti and Terry Eastwood, "Protecting Electronic Evidence: A Progress Report on a Research Project and its Methodology," *Archivi & Computer* 5:3 (1995): 217.

[37] The templates have been published as Appendix A in Duranti, Eastwood and MacNeil, *Preservation of the Integrity of Electronic Records*. They are also available at http://www.inter-pares.org/UBCProject/index.htm.

first four templates defined the necessary and sufficient components of:
(1) a traditional record; (2) a complete traditional record; (3) a reliable
traditional record; and (4) an authentic traditional record. The last
four templates hypothesized the necessary and sufficient components
of (5) an electronic record; (6) a complete electronic record; (7) a reli-
able electronic record; and (8) an authentic electronic record. The con-
cepts and hypotheses articulated in the templates were subsequently
translated into activity and entity-relationship models that graphically
represented the concepts and hypotheses in relation to the creation,
handling, and preservation of active and semi-active records.[38] On the
basis of the activities and entities identified in the models, the research-
ers developed detailed rules for creating, handling, and preserving reli-
able and authentic records in hybrid record-keeping systems (i.e.,
systems containing both electronic and non-electronic records).[39]

The definitions and hypotheses articulated in the templates were
based on or extrapolated from the concepts and principles of archival
diplomatics. Those concepts and principles constituted the analytical
framework in which the necessary and sufficient components of a reli-
able and authentic electronic record were identified and elaborated. The
framework consisted of definitions of each of the relevant concepts (i.e.,
record, reliable record, and *authentic record*) and a decomposition of
each concept into its constituent parts. For example, to answer the
question, what constitutes an authentic record in a traditional environ-
ment?, the researchers began with a definition of *authentic record.*
Within that definition, key terms, such as *genuineness, mode, form*, and
status of transmission, manner of preservation, and *custody* were high-
lighted. Each of these terms was then defined and elaborated. The pro-
cess of decomposition resulted in the articulation of the necessary and

[38] The translation of concepts and hypotheses into activity and entity models was accomplished
with the assistance of the U.S. Department of Defense Records Management Task Force. The col-
laboration between the UBC researchers and the Task Force and the development of the activity and
entity models are detailed in a series of progress reports. See Heather MacNeil, "Protecting Electronic
Evidence: A Final Progress Report on a Research Study and Its Methodology" *Archivi & Computer* 7
(1997): 22–35; Luciana Duranti and Heather MacNeil, "Protecting Electronic Evidence: A Third
Progress Report on a Research Study and its Methodology." *Archivi & Computer* 6 (1996): 343-404;
Luciana Duranti, Heather MacNeil and William E. Underwood, "Protecting Electronic Evidence: A
Second Progress Report on a Research Study and its Methodology." *Archivi & Computer* 6 (1996):
?37–70; Luciana Duranti and Terry Eastwood, "Protecting Electronic Evidence: A Progress Report
on a Research Project and its Methodology," *Archivi & Computer* 5:3 (1995): 213–250. The activity
and entity models are also included as Appendices B, C, and E in Duranti, Eastwood and
MacNeil, *Preservation of the Integrity of Electronic Records.* They are also available at http://
www.interpares.org/UBCProject/index.htm.

[39] The procedural rules are included as Appendix D in Duranti, Eastwood and MacNeil,
Preservation of the Integrity of Electronic Records. They are also available at http://www.inter-
pares.org/UBCProject/index.htm.

sufficient components of an authentic record in a traditional environ-
ment along with the requisites for protecting each component.

The identified components of a reliable and authentic record in a
traditional environment subsequently became the starting point for
articulating the hypotheses concerning the necessary and sufficient
requirements for a reliable and authentic record in an electronic envi-
ronment. For example, to answer the question, what constitutes an
authentic record in an electronic environment? the researchers began
by re-iterating the components of an authentic record identified for a
traditional environment and then identified functionally analogous
requisites for protecting each component in the context of an elec-
tronic record-keeping environment. This comparative approach yiel-
ded a set of hypotheses concerning the requirements for creating and
maintaining reliable and authentic electronic records.

To identify the functionally analogous requisites, the researchers
drew on their knowledge of the kinds of electronic information pro-
duced and used in office systems. That knowledge, in turn, drew on
published and unpublished literature, personal contacts, and site visits
to record creators in Canada, the United States, Sweden and the Neth-
erlands, which provided the researchers with some understanding of the
reality of electronic record-keeping practices in a variety of settings.[40]

In the UBC Project, the archival-diplomatic decomposition of a
reliable and authentic record in both traditional and electronic envi-
ronments was a process of abstraction and systematization. The
strength of the analytical framework that was constructed out of this
process was that it provided a strong conceptual foundation for
establishing what a record is in principle, how it might be recognized
in an electronic environment, and what means might be necessary to
ensure its reliability and authenticity.

However, while the framework was strong on conceptualization,
it was weak on measurement, understood as "a process of linking
abstract concepts to empirical indicants".[41] The framework's valid-
ity and, more specifically, its content validity,[42] was weakened

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[40] The site visits entailed informal observation of electronic systems and discussions of the
templates with interested parties. See Duranti and Eastwood, "Protecting Electronic Evidence,"
219–220.

[41] Russell K. Schutt, *Investigating the Social World: The Process and Practice of Research*, 4th
ed. (Thousand Oaks, London, New Delhi: Sage, 2004), 91.

[42] Validity refers to the extent to which measures indicate what they are intended to measure.
Content validity is a specific kind of validity, which refers to the extent to which measures cover the
full range of a concept's meaning. See Schutt, *Investigating the Social World*, 113. In the present
context content validity refers to the extent to which the diplomatic framework in the UBC Project
represented or "covered" the domain of the concept "electronic record".

specifically by the fact that the hypotheses concerning the necessary and sufficient components of a reliable and authentic electronic record were never tested empirically in any systematic way. They were simply translated into another set of analytical models – the activity and entity-relationship models – which situated the identified components within the context of the activities associated with creating and managing electronic records in an organization.

Empirical testing of hypotheses through systematic observation of the phenomenon being investigated is a critical step in the deductive method. In the UBC Project, such testing would have allowed for the possibility of falsification of all or part of the theoretical constructs embodied in the archival-diplomatic framework. It also would have provided the researchers with an opportunity to refine and strengthen the model on the basis of the findings of the empirical study. Instead, the validity of the hypotheses was presumed rather than confirmed and, in the absence of such confirmation, they remained hypotheses.

The InterPARES 1 Project

The opportunity to strengthen the empirical foundation of archival diplomatics presented itself in the InterPARES 1 Project. The project's goal was to formulate principles and methods for ensuring the long-term preservation of authentic electronic records. To accomplish that goal, the project was divided into four complementary domains of inquiry: (1) conceptual requirements for preserving authentic electronic records; (2) appraisal criteria and methods for selection of authentic electronic records; (3) methods and responsibilities for preserving authentic electronic records; and (4) framework for the formulation of policies, strategies, and standards. Research questions were posed for each domain and multiple research methods were deployed to address those questions.[43]

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[43] For a detailed description of the project as a whole and its findings see InterPARES Project, *The Long-term Preservation of Authentic Electronic Records: Findings of the InterPares Project* (August 2002), available at www.interpares.org. For a full account of the work of the Authenticity Task Force, see Authenticity Task Force, "Establishing and Maintaining Trust in Electronic Records: The Final Report of the Authenticity Task Force," in *The Long Term Preservation of Authentic Electronic Records*, 1–33 and appendices 1 and 2.

Research in the first domain, which provided the foundation for the three subsequent domains, was the responsibility of the Authenticity Task Force.[44] The questions to be addressed by the Task Force were:

- What are the elements that all electronic records share?
- What are the elements that allow us to differentiate between different types of electronic records?
- Of those elements, which will permit us to verify their authenticity over time?
- Are the elements for verifying authenticity over time the same as those that permit us to verify their authenticity in time, that is, at the point at which they are originally created and transmitted?
- Can the elements be removed from where they are currently found to a place where they can more easily be preserved and still maintain the same validity?

To address the questions, the Task Force adopted a mixed methods approach that employed two distinct yet related methodologies. The first methodology was a theoretical and deductive one. It involved: (a) identifying and defining the elements of an ideal electronic record in general, and the elements relevant to a consideration of its authenticity in particular, using concepts and methods drawn from contemporary archival diplomatics; and (b) subsequently testing the content validity of the archival diplomatic model of an authentic electronic record through selected case studies of live electronic systems. The second methodology was an empirical and inductive one, based on a grounded theory approach[45] to the collection and analysis of the same case study data, which aimed to build new theory about the nature of electronic records and the means of ensuring their authenticity. The discussion that follows focuses specifically on the

[44] The members of the Authenticity Task Force were: Heather MacNeil, University of British Columbia (Chair), Chen Wei, Beijing Municipal Archives, Luciana Duranti, University of British Columbia, Anne Gilliland-Swetland, University of California, Los Angeles, Maria Guercio, University of Urbino, Yvette Hackett, National Archives of Canada, Babak Hamidzadeh, University of British Columbia, Livia Iacovino, Monash University, Brent Lee, University of British Columbia, Sue McKemmish, Monash University, John Roeder, University of British Columbia, Seamus Ross, University of Glasgow, Wai-kwok Wan, Hong Kong Public Record Office, Zhao Zhon Xiu, State Archives of China.

[45] As Strauss and Corbin define it, "[a] grounded theory is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory stand in reciprocal relationship with each other. One does not begin with a theory and then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge". Anselm Strauss and Juliet Corbin, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd ed. (London, Thousand Oaks, New Delhi: Sage, 1998), 23.

theoretical-deductive approach since this was the approach that involved the application of diplomatics.[46]

The archival diplomatic component of the Task Force's research design was carried out in three stages. In the first stage, the elements of an electronic record in general and those relevant to a determination of its authenticity in particular were identified and defined in the abstract. In the second stage, the content validity of the identified elements was tested through case studies of electronic systems. In the third stage, the outcomes of the first two stages formed the basis for the development of requirements for assessing and maintaining the authenticity of electronic records.

In the first stage, the Task Force constructed an analytical model of an electronic record based on archival diplomatics. The starting point for the model was the conceptualization of an authentic electronic record formulated in the UBC Project. In the course of developing the model, the relevant concepts were substantially revised and extended by the researchers based on their combined knowledge and experience with various kinds of electronic records and electronic systems. The concept of authenticity, for example, was decomposed into two sub-elements – identity and integrity – in order to pinpoint more precisely those elements of a record that are relevant to a determination of a record's authenticity. The various contexts in which a record is created, handled, and maintained also were more precisely articulated than they had been in the UBC Project and a new category of context, that is, technological context, was identified and elaborated. The resultant *Template for Analysis* was a decomposition of an "ideal" electronic record into its constituent elements. The *Template* defined each element, explained its purpose, and indicated whether, and to what extent, that element is instrumental in determining the record's authenticity. The elements of an electronic record included in the *Template* were organized into four main categories: *extrinsic and intrinsic elements of documentary form, annotations, context*, and *medium*.[47]

As an analytical model of an "ideal" electronic record, the *Template for Analysis* is analogous in certain respects to Max Weber's notion of an ideal-type. As Weber explains it:

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[46] For a discussion of the Authenticity Task Force's analyses of electronic records that were based on an inductive, grounded theory approach, see Anne Gilliland-Swetland, "Testing our Truths: Delineating the Parameters of the Authentic Archival Electronic Record," *American Archivist* 65 (Fall/Winter 2002): 196–215.

[47] For a more detailed discussion of the *Template for Analysis*, see Heather MacNeil, "Providing Grounds for Trust: Developing Conceptual Requirements for the Long-Term Preservation of Authentic Electronic Records," *Archivaria* 50 (Fall 2000): 56-67. The Template is published as Appendix 1 of *The Long-term Preservation of Authentic Electronic Records*. See above, footnote 43.

> An *ideal-type* is formed by the one-sided *accentuation* of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent *concrete individual* phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified *analytical* construct. ... In its conceptual purity, this mental construct ... cannot be found empirically anywhere in reality. It is a *utopia*. Historical research faces the task of determining in each individual case, the extent to which this ideal-construct approximates to or diverges from reality.[48]

Weber's ideal-type is not a description of reality but a methodological concept designed to assist the social science researcher in understanding and explaining social phenomena.[49] Its main purpose is to give "a coherent and unambiguous meaning to elements ...which would otherwise seem incoherent and chaotic".[50]

The nature and purpose of Weber's ideal-type methodology are comparable to the methodology of diplomatics. As Duranti explains it:

> [Diplomatic] methodology rested on the assumption that, notwithstanding differences in nature, provenance or date, all documents present forms similar enough to make it possible to conceive of one typical, ideal documentary form, the most regular and complete, for the purpose of examining all its elements. Once the elements of the ideal form have been analysed and their specific function identified, their variations and presence or absence in existing documentary forms will reveal the administrative function of the documents manifesting those forms.[51]

Consistent with that methodology, the *Template* was constructed specifically for the purposes of (1) identifying the elements of an authentic electronic record, based on contemporary archival diplo-

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[48] Max Weber, *Max Weber on the Methodology of the Social Sciences*, trans. and ed. Edward A. Shils and Henry A. Finch (Glencoe, Ill.: Free Press, 1949), 90.

[49] Alan Swingewood, *A Short History of Sociological Thought*, 3rd. ed. (London: MacMillan, 2000), 92.

[50] Julien Freund, *The Sociology of Max Weber*, trans. Mary Ilford (New York: Pantheon, 1968), 63. For analyses of Weber's use of ideal types as a research methodology and their connection to his theory of social reality see also Martin Albrow, *Max Weber's Construction of Social Theory* (London: MacMillan, 1990), esp. 149–157; Randall Collins and Michael Makowsky, "Max Weber: The Disenchantment of the Word," *The Discovery of Society* 5th ed. (New York: McGraw-Hill, 1993), 117–139; Stephen Kalberg, *Max Weber's Comparative-Historical Sociology* (Cambridge, UK: Polity Press, 1994), 81–91; Swingewood, *A Short History*, 81–111.

[51] Duranti, *Diplomatics: New Uses*, 133–134.

matics; (2) comparing those elements with the elements of electronic records identified through empirical observation of electronic systems; and (3) refining the *Template* on the basis of that comparison. By comparing the archival-diplomatic construct of an electronic record with the reality of electronic systems, the researchers hoped to develop an explanatory and, therefore, predictive model of an electronic record that would assist archivists, not only in identifying the conceptual requirements for authenticity for existing electronic records but, also, in identifying future record types and the necessary requirements for assessing and maintaining their authenticity over time.

Four rounds of case studies of live electronic systems that either created, or had the potential to create, electronic records were carried out between 1999 and 2001. To standardize the interview process for the case studies, a *Case Study Interview Protocol (CSIP)* was developed. The *CSIP* served as the interview script and was divided into five sections corresponding to the categories and elements included in the *Template for Analysis*. A range of questions was asked to elucidate information concerning each of the categories and elements. The translation of the case study data into a form that could be analyzed diplomatically by the *Template* was accomplished by coding the data for inter-related themes and concepts using a *Template Element Data Gathering Instrument (TEDGI)*.

As mentioned above, the case studies were intended to serve two purposes: the first was to test the content validity of the archival-diplomatic model of an authentic electronic record, the second, to build new theory about the nature of electronic records and the means of ensuring their authenticity. The theoretical-deductive approach (based on diplomatics) was adopted to achieve the first purpose while the empirical-inductive approach (based on grounded theory) was taken to achieve the second. By adopting a combination of deductive and inductive approaches to the collection and analysis of case study data, the researchers expected to build a rich and complex picture of the nature of electronic records and electronic systems, one that could constitute the basis for the identification of general conceptual requirements for authenticity as well as a typology of electronic records based on authenticity requirements for specific types of records. The following discussion examines the extent to which that expectation was met, focusing specifically on the process and results of the theoretical-deductive (i.e., diplomatic) analysis of case studies.

Each round of case studies of electronic systems was analyzed by comparing the archival-diplomatic model of an electronic record with the reality being observed.[52] The diplomatic analysis consisted of two parts. In the first part of the analysis, the researchers sought to determine whether the entities contained within the electronic systems were records or whether the system itself could be considered a record. The basis for that determination was the presence or absence in the system of the necessary and sufficient components of an electronic record identified in the course of constructing the *Template*. Those components were: (1) a fixed documentary form, (2) a stable content, (3) an archival bond with other records, (4) an identifiable juridical-administrative, provenancial, administrative, procedural, documentary and technological context, (5) an action, and (6) persons (author, writer, and addressee). The kinds of systems studied included databases (used to manage, for example, student records, financial aid, securities transactions, patent-granting, and the registration of last wills), document management systems (used to support agency-wide administrative functions, such as the drafting and management of procedures, as well as specific operational functions, such as the issuing of permits for the transportation of hazardous waste), a geographic information system (used to manage mappable thematic data related to land inventory and land use), and a web-based application system (used to support online trademark applications).

The analysis of the first two rounds of case studies revealed that a surprisingly large number of the systems examined did not appear to contain the necessary and sufficient components of an electronic record identified in the archival-diplomatic model.[53] This was attributed by the researchers to the fact that many of the electronic systems examined were dynamic and, as a result, the entities contained within them lacked a fixed documentary form and/or a stable content. Based on this finding, the Task Force modified the criteria for selecting case studies in the remaining two rounds to define more precisely the types

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[52] For a detailed description of the diplomatic analysis conducted on one of the round two case studies see Anna Gibson, "Overview of the Diplomatic Analysis of Electronic Records within the Canadian Automated Patent System (TechSource)," *Preserving Authentic Electronic Records: Preliminary Research Findings* [of InterPARES 1], proceedings from an International Symposium, ed. Luigi Sarno (Vancouver, B.C.: Istituto Italiano di Cultura Vancouver, August 2001), 61–66, available on the InterPARES website at http://www.interpares.org.

[53] In some cases, the information provided about the system was not sufficient to permit a detailed analysis of the system and the entities contained within it. For a discussion of the challenges faced by the UBC research assistants in analyzing the electronic systems in diplomatic terms see "Establishing and Maintaining Trust," 11–14. For a more general discussion of the limits of the case study design and instrumentation, see ibid., 25–27.

of electronic systems in which it was interested. The modification consisted of incorporating into the selection criteria more precise indicators of systems that were known to create records or that were likely to contain records.[54]

Altogether, 22 case studies of electronic systems were subjected to comparative diplomatic analysis. Of that number, twelve systems were found to contain records as that term is defined by archival diplomatics. In the systems that were found to contain records some components did not manifest themselves in a clear and unambiguous fashion. For example, the researchers found that in most cases there was no explicit manifestation of the archival bond between and among the records participating in the same action (e.g., a classification code or other unique identifier). In some cases it was implicit in one or more of the record's contexts, in others it appeared to be absent. Moreover, while it was reasonably straightforward to identify the business processes supported by the electronic system in general terms, it was not always easy to determine how the records participated in or supported specific actions.

The archival-diplomatic analysis of an electronic record assumes that the object of analysis, whether an individual record or an electronic system, is capable of reduction to a set of well-defined elements that will be apparent to any knowledgeable observer. This assumption was not supported by the experience of the members of the research team involved in collecting and diplomatically analyzing the case study data who often found it difficult to determine the records' boundaries. The difficulty stems from the complexity of the electronic systems examined. These were often multi-purpose, highly networked database systems containing a diverse range of data elements that could be compiled and presented in a variety of ways (for example, through hard-coded report formats, style-sheets, and virtual "on-the-fly" views) and that performed a range of functionalities, according to the needs of different users. Moreover, many of these systems contained a combination of raw data, information and one or more types of records. As a result, determining whether a given electronic system contained records and identifying the specific ways in which the various record components manifested themselves

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[54] The indicators included: (1) if the action in which the system participates is juridically required; (2) if there is a business procedure in place to carry out that action; and (3) if the system operates within the management or strategic decision-making levels of the organization. The modification of case study selection criteria was consistent with the grounded theory approach adopted in the case studies.

constituted a formidable and, in some cases, insurmountable, challenge for the researchers.[55]

The second part of the comparative diplomatic analysis consisted of identifying the elements of electronic records specifically associated with establishing their identity and demonstrating their integrity. The Task Force had theorized that elements falling within the categories of *documentary form* and *annotations* would play key roles in establishing the identity and demonstrating the integrity of electronic records. This theory was based on the role played by such elements in traditional records. It turned out, however, that in the case studies analyzed, it was often difficult to draw any meaningful inferences from the presence or absence of specific elements of documentary form or annotations to a consideration of a record's authenticity. The Task Force found that the determination of documentary forms in general and the establishment of required elements of documentary form and annotations in particular were deeply embedded within specific institutional and procedural contexts and were resistant to any easy generalizations. Moreover, given some of the gaps and inconsistencies in the case study data, the absence of certain elements may have been more apparent than real.[56] As a consequence, the researchers were unable to draw any conclusions about the significance of specific intrinsic and extrinsic elements of documentary form or annotations to a consideration of an electronic record's authenticity outside of the specific institutional and procedural context in which the record was created. A further consequence was that the researchers were forced to abandon their efforts to construct a typology of electronic records based on authenticity requirements since such typology depended on the ability to establish a meaningful differentiation and specification of record types on the basis of their particular authenticity requirements.[57]

While the case studies failed to support many of the Task Force's assumptions concerning the comparability of the means for ensuring the authenticity of traditional records and electronic ones, they did reveal a number of commonalities in the means used by creators to protect record authenticity from one institution to the next. The dip-

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[55] For the research assistants responsible for the diplomatic analysis of the case studies the difficulty was exacerbated by the fact that the knowledge had to be gleaned, not on the basis of a direct examination of the system itself and the entities within it, which is the traditional diplomatic approach; but, rather, on the basis of the information found in the case study tools and documentation. See "Establishing and Maintaining Trust," 11–14.

[56] For the limits of the case study data see ibid., 11–14 and 25–27.

[57] Before it abandoned its efforts to construct a typology, the Task Force experimented with a number of candidate types that drew primarily on diplomatic categorizations of types of records and types of procedures. For the discussion of the Task Force's efforts to construct a typology, see "Establishing and Maintaining Trust," 14–16.

lomatic analysis of case studies, as well as a separate analysis of elements relating to identity and integrity,[58] revealed that record creators tended to rely primarily on generic technological and procedural controls to ensure the authenticity of their records and to treat it as part of the management of the electronic system as a whole rather than as part of the management of individual records within the system. The commonest means of protecting the integrity of records in the case studies examined were access privileges – including passwords, user identifications, and user profiles – followed by various procedures that either prohibit or discourage modification of records once they are considered complete, the use of audit trails and system backup procedures. The commonest means of establishing the identity of records were classification codes, the linking of related electronic and non-electronic records, and record profiling. On the whole, record creators appeared to be more concerned with protecting the integrity of records than with establishing their identity. The case studies revealed little consistency in the way the elements that specifically establish the identity of a record (e.g., the names of the author and addressee, the indication of the action or matter, the archival bond) are captured and expressed from one electronic system to another. In many cases, certain elements did not appear to be captured at all.

An important purpose for incorporating archival diplomatics in the research design of InterPARES 1 was to assess its strengths and weaknesses as an analytical tool for identifying the necessary and sufficient components of an electronic record in a variety of electronic systems and in different administrative contexts. The diplomatic analysis was effective in identifying potential weaknesses of current electronic systems. For example, it highlighted the extent to which electronic systems are still being designed to manage data and information rather than records.[59] This finding appears to be the case even when the purpose for which the system is designed would appear to require the creation and maintenance of fixed records rather than fluid data. The diplomatic analysis also highlighted the significant extent to which elements relating to a record's identity are implicit

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[58] The separate analysis of the elements of identity and integrity is described in "Establishing and Maintaining Trust," 17.

[59] For the difference between an electronic system designed to manage data and information and one designed to manage records see, for example, David Bearman, "Record-Keeping Systems," *Archivaria* 36 (Autumn 1993): 17; 6 C.F.R. [U.S. Code of Federal Regulations] Chapter XII, Part 1234.2 subpart A: "Definitions" (Washington: NARA, 1999), c.v. "electronic information system," "electronic recordkeeping system"; European Commission *Model Requirements for the Management of Electronic Records* (U.K.: Office for Official Publications of the European Communities, 2002), sec. 10.3.

rather than explicit in many electronic systems and the consequent need to make certain identifying elements explicit to ensure that key indicators of identity are not lost when the records are removed from the system in which they have been created and actively used.

At the same time, the effectiveness of archival diplomatics as a method of inquiry in the InterPARES 1 Project was weakened by two factors: (1) its limited conceptualization of an authentic electronic record and (2) its insufficient elaboration of the various contexts in which an electronic record sits. With respect to the first factor, the method proved to be effective in analyzing electronic systems that contained entities that were directly comparable to traditional records, i.e., systems in which the digital objects were fixed and circumscribable. It proved to be less effective in analyzing electronic record systems that contained entities that were not directly comparable, i.e., systems in which the digital objects were fluid and less easy to circumscribe. In the latter case, the diplomatic analysis could only identify what appeared to be "missing" or "wrong" with the systems that behaved differently; it could not identify alternative, new, or unanticipated ways in which records were being created and managed within those systems.

With respect to the second factor, the case studies exposed a number of deficiencies in the elaboration of context in the *Template for Analysis*. The elements of context identified in the *Template* corresponded to a hierarchy of frameworks ranging from the general to the specific. They included the record's *juridical-administrative context* (i.e., the legal and organizational system in which the record creator is situated); its *provenancial context* (i.e., the mandate, structure, and functions of the record creator); its *procedural context* (i.e., the business procedure in the course of which the record is created); its *documentary context* (i.e., the broader aggregation to which the record belongs and its internal structure); and its *technological context* (i.e., the technological environment surrounding the record).

The case studies revealed that the elements relating to context and, in particular, procedural and technological context, were most relevant to an understanding of the electronic record-keeping environment and appeared to provide the main grounds on which record creators based their presumption of the records' authenticity. The "elements" of context that were identified in the *Template*, however, were little more than general categories, each of which required decomposition into more meaningful units of analysis. For example, audit trails were identified by creators as an important means of verifying the integrity of electronic records; but the technological context

was not decomposed to the level of audit trails, so the case studies failed to elicit any detailed information concerning how audit trails were being used in different organizations and the kinds of information being captured in them.

The failure to decompose the elements of context in sufficient depth also hindered the Task Force's ability to understand and analyze the specific nature of record aggregations in electronic systems. The majority of elements included in the *Template* fell into the category of *documentary form*, meaning that they were only relevant at the level of individual records. While this did not pose a problem when the research team was examining electronic systems containing homogenous aggregations of records (i.e., systems containing records that all share the same documentary form), many of the systems examined in the case studies contained heterogeneous aggregations of records (e.g., systems containing records that have a variety of documentary forms). In the *Template, documentary context* was the element designed to capture information about record aggregations. However, like the other elements of context, it was not decomposed sufficiently to permit the identification and elaboration of the various kinds of aggregations found in electronic systems.

Finally, the *Template* did not take into explicit account the relationships between and among the elements of an electronic record. The *Template* focused exclusively on defining the individual elements of an electronic record and identifying the role played by each element in establishing the record's identity and demonstrating its integrity. But the meaning of individual record elements and their significance to the record's identity and integrity is shaped, to a considerable degree, by their relationship to other elements. For example, the elements of an electronic record's technological context will shape and be shaped by elements of its documentary, procedural, and juridical-administrative context. Because relationships between and among records were not included as a specific category of analysis in the *Template* they were not taken into account in the diplomatic analysis of the case studies.

Current Status and Possible Future Directions for the Use of Contemporary Archival Diplomatics as a Method of Inquiry

The strength of contemporary archival diplomatics as a method of inquiry is that it comprises a body of concepts and principles that provide a strong conceptual model of an authentic record. That

body of concepts and principles is rooted in jurisprudence, administrative history and theory and a body of historical and contemporary knowledge about the nature of record-keeping practices in bureaucratic organizations. It thus constitutes a broad and deep foundation on which to identify and analyze the necessary and sufficient components of an authentic electronic record in a bureaucratic environment.

As a form of "knowing", conceptualization inevitably entails a distortion and oversimplification of reality. The archival-diplomatic analysis of an electronic record is a process of abstraction and systematization that eliminates the particularities and anomalies of records in the interest of identifying their common, shared elements. The inevitability of distortion and over-simplification, however, does not diminish the usefulness of conceptualization in general and archival diplomatic analysis in particular as a form of knowledge building. Like Weber's ideal type, the diplomatic model of an authentic electronic record is useful precisely because it is detached from the fluctuations of reality. As Freund observes, "because [the ideal type] is unreal and takes us a step away from reality, it enables us to obtain a better intellectual and scientific grasp of reality, although necessarily a fragmented one".[60]

Given that no conceptualization is capable of reproducing the diversity of particular phenomena, it would be premature to dismiss the archival-diplomatic model of a record simply on the grounds that it did not provide an adequate representation of an authentic electronic record. In the UBC and the InterPARES 1 projects, the effectiveness of the diplomatic analysis was undermined, ultimately, not by any inherent weaknesses in the model itself (which is not to say that there were no such weaknesses) but, rather, by the truth-value that the researchers accorded to the model. Critical to an understanding of the nature and purpose of an ideal-type is the recognition that it is a heuristic device, a diagnostic tool for establishing the meaning of the phenomenon under investigation. According to Freund, an ideal-type is not, in itself, either true or false; like any other tool it is simply useful or useless.[61] Moreover:

> [W]hen we call our construct an "ideal" type, that term has nothing in common with an ideal in the ethical sense, i.e., that which ought to be. The ideal type is not intended to be in any way exemplary, and must not be confused with an ethical model, or

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[60] Freund, *Sociology of Max Weber*, 63.
[61] Ibid., 66.

even with a practical rule of conduct. It seeks perfection of a logical, not a moral, order, and it excludes all value judgments.[62]

This understanding was not reflected in the way the archival-diplomatic model of an electronic record was interpreted in the two research projects. In the InterPARES 1 Project, for example, an important reason for developing the *Template for Analysis* was to compare the elements of an electronic record identified in the diplomatic model with the elements of electronic records identified through empirical observation of electronic systems in order to test the content validity of the model; on the basis of that comparison, the *Template* was to be adjusted, as necessary, to better reflect the reality being observed.

After the second round of case studies was completed, however, and it was discovered that large parts of the empirical reality did not fit the model, the model was not adjusted to better fit the reality; rather, the criteria for selecting the reality were adjusted to better fit the model.[63] The *Template* was thus re-interpreted as a normative or ethical model, the purpose of which was to prescribe the components that electronic records ought to possess rather than to identify the nature and purpose of the components electronic records actually do possess, which was its original purpose.

This re-interpretation of the model was particularly problematic because its elevation to normative status was not based on a strong empirical foundation of understanding about the nature of electronic records. The conceptualization of an authentic electronic record embodied in the archival-diplomatic model was based on a deep conceptual and empirical understanding of records created in traditional, paper-based systems. The understanding of the nature of records created in electronic environments that was embodied in the model was almost entirely conceptual and rooted in analogy rather than evidence.

According to Weber, ideal-types, inevitably, need to be revised and re-invented to take into account changes in social phenomena. In light of the two case studies examined, it is clear that a similar revision and re-invention of the archival-diplomatic model of an electronic record is necessary to enhance its effectiveness as an analytical tool.

Diplomatics emerged as a method of inquiry in the 17th century through an inductive process of observation and comparison: Mabillon examined more than 200 documents and, on the basis of that examination, he established the general concepts and principles of diplomatics.

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[62] Ibid., 64.
[63] See above, pp. 218–219.

One way to begin the process of revising the archival-diplomatic model of a record would be to return to those inductive (i.e., "research then theory") roots. Such an approach could begin with case studies of a wide range of electronic record-keeping environments; the case studies would provide the empirical grounds on which to identify the necessary and sufficient components of electronic records in a variety of settings. Given the currently weak articulation of context in the diplomatic model, a particular aim of the case studies might be to describe in more detail the various contexts in which records are created and used and the relationships between and among those contexts.

The record components that emerged through that inductive process could then be compared to the archival-diplomatic model to determine which of the concepts included in the model were present in the case study data and/or were considered relevant and meaningful by the case study participants. The comparative analysis could be supplemented by literary warrant analysis, the purpose of which would be to identify contemporary sources that support the inclusion of specific concepts in the diplomatic model. On the basis of the findings of these analyses, it might then be possible to engage in the process of systematization and abstraction necessary for the development of an ideal-type or multiple ideal-types of electronic records. Out of that process a new theoretical-deductive model(s) of an electronic record could emerge based on a more robust and representative set of concepts.

Deduction and induction are complementary, not competing, approaches to knowledge-building, as the following comparison makes clear:

> Using deduction, one generalizes, and then examines whether generalization holds in particular instances. Using induction, one examines a case to infer some general statement, and then examines other cases to confirm the statement. Deduction tends to favour the unifying tendency of scientific endeavour to seek out the general facts and principles of a thing common to all its instances ... Induction tends to favour the diversifying tendency of science to reveal the variety of expression or behaviour of the thing. ...Both methods rest on observation to build generalization in the interest of understanding the nature of the thing.[64]

While it is true that both inductive and deductive approaches were adopted in the InterPARES 1 Project, the effectiveness of the

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[64] Terry Eastwood, "What is Archival Theory and Why is it Important?" *Archivaria* 37 (Spring 1994):123

inductive approach as a means of building new theory about the nature of electronic records was undermined by the fact that the CSIP, the interview script for the case studies, was based on the *Template*, which meant that the diplomatic construct of a record was firmly entrenched in the interview script. As a result, the data collected in the case studies were biased toward corroborating or refuting that construct rather than building a new one.

Contemporary archival diplomatics, as it is currently interpreted, is steeped in postpositive assumptions about the nature of reality and the best means of investigating it. Postpositivist research inquiry takes as a given the existence of an objective reality that can be described by measurable properties that are independent of the observer and that are discoverable through systematic observation and comparison. The focus of postpositivist inquiry, generally speaking, is on the testing of theory in an attempt to increase the explanatory or predictive understanding of phenomena.[65]

These characteristics of postpositivist inquiry were embedded in the UBC and InterPARES 1 projects. Both projects adopted a deductive (i.e., "theory then research") approach in which the object of analysis (i.e., an authentic electronic record) was reduced to a set of clearly defined elements (by means of a set of hypotheses in the case of the UBC Project and through an analytical model in the case of the InterPARES 1 Project) based on the theory of the record embodied in contemporary archival diplomatics. The validity of the theory was then tested through comparison with empirical reality (although, as we have seen, this step was omitted in the UBC Project and sidestepped in the InterPARES 1 Project). The anticipated outcome of the process was the development of an explanatory and predictive model of an authentic electronic record that would enable archivists to identify authenticity requirements for current and future types of electronic records.

Such a process works best when the research is dealing with phenomena for which a strong body of theory already exists. In retrospect, it seems clear that the body of theory on which the process was based in the two case studies did not adequately cover the phenomenon under investigation. This finding suggests that we have not yet accumulated a sufficiently broad and deep understanding about the ways in which records manifest themselves in different electronic environments to develop an explanatory or predictive model. A more fruitful approach might be to shift the focus of research inquiry in

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[65] Michael D. Myers, "Qualitative Research in Information Systems," *MISQ Quarterly* (June 1997), available at http://www.qual.auckland.ac.nz/.

this area away from explanation and prediction and towards further description and exploration. The remainder of the article will speculate on how the relevance of contemporary archival diplomatics as a method of inquiry might be enhanced by situating it within the framework of other disciplinary and philosophical perspectives.

Perhaps the most obvious finding that emerges from the two research projects is that the environment in which electronic records are being created and maintained is too complex and diffuse for any one method of inquiry to capture. To understand the nature and purpose of electronic record-keeping in an administrative context, it is necessary to experiment with models and techniques drawn from a range of academic and professional disciplines, including anthropology, sociology, linguistics, and business administration. These disciplines attend to aspects of administrative record-keeping practices, such as organizational culture, the sociology of technology, and knowledge management, that contemporary archival diplomatics currently does not take into account.

Moreover, specific techniques such as text and discourse analysis, which are drawn from socio-linguistics, offer promising means for extending the nature and scope of contemporary archival diplomatics as a method of analyzing records. Text and discourse analysis study records as communicative events and forms of social practice, respectively, and provide alternative pathways to understanding the nature and purpose of records in a range of record-keeping environments.[66] There is precedent for such interdisciplinary exploration in the emergence of "social" diplomatics,[67] which has aligned itself with the perspectives and methodologies of disciplines such as cultural history, historical anthropology, socio-linguistics and semiotics, and which concerns itself with the study of archival documents as "monuments".[68]

A distinguishing feature of recent strategies of inquiry – ethnographies, phenomenologies, narratives, grounded theory studies, and case studies, among others – that have emerged from some of these disciplines is that they are designed to capture aspects of social reality as participants in that reality experience it, rather than in categories predetermined by the researcher. Research studies conducted in this

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[66] For a useful introduction to text and discourse analysis, see Stefan Titscher et al., *Methods of Text and Discourse Analysis*, trans. Bryan Jenner (London, Thousand Oaks, New Delhi: Sage, 2000).

[67] See above, p. 203.

[68] For poststructuralist theorists like Michel Foucault what transforms a document into a monument is the fact of its creation and use by a ruling authority. See Michel Foucault, *The Archaeology of Knowledge*, trans. A.M. Sheridan Smith (New York: Harper and Row, 1972), 7.

vein are characterized as qualitative in methodological orientation. Typically, they are based on richly-detailed descriptions of the phenomenon being investigated and they treat the research process, the researchers' own orientation at the start of the investigation and their interactions within that reality as essential aspects of the study.

The philosophical perspective underpinning many of these qualitative research methods is that of interpretivism. Interpretive philosophy offers a useful counterbalance to the postpositivist philosophy that underpins more traditional research methods, including contemporary archival diplomatics as it is currently understood. According to Russell Schutt:

> Interpretive social scientists believe that social reality is socially constructed and that the goal of social scientists is to understand what meanings people give to reality, not to determine how reality works apart from these interpretations. This philosophy rejects the positivist belief that there is a concrete, objective reality that scientific methods help us to understand; instead, interpretivists believe that [social] scientists construct an image of reality based on their own preferences and prejudices and their interactions with others. From this standpoint the goal of validity becomes misleading: "Truth is a matter of the best-informed and most sophisticated construction on which there is a consensus at a given time".[69]

The goal of validity is achieved when researchers' statements or conclusions about the empirical reality being studied are correct.[70] However, as Schutt observes, to accept validity as a research goal, "researchers must believe that it is possible to develop understandings that represent correctly empirical social reality."[71] Researchers working within an interpretive framework do not necessarily hold that belief, which has led them to suggest alternative research goals. One such alternative is authenticity:

> An authentic understanding of a social process or social setting is one that reflects fairly the various perspectives of participants in that setting. Authenticity ... reflects the belief ... that those who study the social world can hope to understand only how others view that social world. From this perspective, every observer sees the social world from his or her own vantage point; there is no

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[69] Russell K. Schutt, *Investigating the Social World*, 75.

[70] Ibid., 16

[71] Ibid.

basis for determining that one perspective is the "valid" one. The conception of knowledge as a mirror of reality is replaced by knowledge as a linguistic and social construction of reality.[72]

An interpretivist philosophy encourages us to see contemporary archival diplomatics as constituting a particular construction of reality rather than a demonstrably accurate reflection of it. More importantly, it invites us to see it as a conceptual model that is capable of various reconstructions. One means of reconstructing contemporary archival diplomatics along lines consistent with an interpretive philosophy is to position the diplomatic model within the framework of the emerging contextualist approach to research inquiry described at the beginning of this article.

Proponents of a contextualist approach to the investigation of social phenomena, such as the linguist Aaron Cicourel, maintain that researchers cannot hope to understand, describe, and interpret social phenomena in a meaningful way without providing a rich ethnographic[73] description of the background knowledge and frames of relevance within which such phenomena are embedded.[74] A similar assertion could be made with reference to electronic record-keeping environments, i.e., archival researchers cannot hope to understand, describe and interpret electronic records in a meaningful way without providing a rich description of the background knowledge and frames of relevance within which those records are embedded. A starting point for building such a description may be found in the inductive approach to creating a new theoretical-deductive model(s) of an electronic record proposed earlier.[75]

To broaden and deepen the diplomatic model's conceptualization of context and to situate it specifically within an interpretive framework, however, it will be necessary to introduce as a specific focus of research inquiry two additional aspects of context. Speaking in connection to anthropological research design, Roy Dilley explains:

> Context has been shown to be an emergent as well as a generative property of knowledge. Indeed, contexts are sets of relations and not self-evident things in themselves. We must therefore be

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[72] Ibid., 20.

[73] Ethnography is "the study and description of people in their everyday contexts." Definition taken from Kirsty Williamson et al., *Research Methods for Students, Academics and Professionals: Information Management and Systems*, 2nd ed. (Wagga Wagga, New South Wales: Charles Sturt University, 2002), 332.

[74] Aaron V. Cicourel, "The Interpenetration of Communicative Contexts: Examples from Medical Encounters," *Re-thinking Context*, 291–310.

[75] See above, pp. 226–227.

alive to the possibility that there are two parallel processes of construing context for [researchers] from within our own bodies of knowledge; and for [informants] within theirs. The conjunction of these parallel processes in the course of fieldwork or in our writing about the field and its subsequent dissemination to other readers may generate further contexts of knowledge through a dialogic relationship.[76]

Some of the difficulties experienced by the InterPARES 1 researchers in interpreting the case study data stemmed from the fact that the diplomatic terminology used in the CSIP was not always understood by the case study informants; the answers they provided to questions couched in that terminology may have been based, therefore, on a completely different set of assumptions than those of the researchers.

The ambiguity of the case study data underlines the importance of taking into account the parallel and, sometimes, conflicting processes of construing context in which researchers and informants are engaged. One means of doing so is to incorporate interpretive ethnographic approaches into the research design. A characteristic feature of such approaches is the use of "thick description"[77] to obtain a deeper understanding of the background knowledge and frames of relevance within which researchers and informants communicate with each other. Such understanding is bound to enhance the meaning and relevance of a diplomatic model as a tool for analyzing the nature and purpose(s) of electronic records in different organizational settings.

This article has examined the application of contemporary archival diplomatics in two research projects in order to identify its current strengths and limitations as well as its future potential as a method of inquiry. The examination reveals that the most significant strength of the method is its rigorous conceptualization of a record, a conceptualization based on jurisprudence, the history and theory of administration and a solid body of written reflection and experience about the nature of records and record-keeping practices in bureaucratic organizations. Its current limitations are attributable mainly to the excessive truth-value accorded to the archival-diplomatic model in the two research projects, which, in turn, may be attributed to the postpositive

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[76] Roy Dilley, "Introduction: The Problem of Context," *The Problem of Context*, ed. Roy Dilley, 38.

[77] Thick description is "a rich description that conveys a sense of what an experience is like, from the standpoint of the participants in it." Schutt, *Investigating the Social World*, I-33.

perspective that underpinned its use. The means suggested to over-
come the current limitations of the model and to extend its depth and
breadth focus on situating the model within a more interpretive and
contextualist framework and incorporating into it multiple disciplinary
and methodological perspectives in order to capture more fully the
complexity and diversity of electronic record-keeping environments.