

The Historical Research Method and Information Systems Research

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Abstract

In this paper, we review the premises and practice of the historical method in order to understand how it can be applied to studying information systems (IS) related phenomena. We first examine the philosophical and methodological foundations of the method. For this purpose, we introduce a four-tiered research framework, which consists of (1) the paradigmatic or meta-theoretic assumptions that guide historical research, (2) pragmatism as an overarching approach or a way of doing historical research, (3) the historical method as the guiding principles for producing history, and (4) a review of some central techniques IS historians have applied in historical research. For point four, we review how McKenney et al. (1997) and Porra et al. (2005, 2006) applied Mason et al.'s (1997ab) seven steps of doing IS history. Finally, we compare the historical method with other methods applied in the IS field today: We compare the historical method with the longitudinal case study, case study, field study, and ethnography.

Keywords: *The Historical Method, Postmodernism, Understanding, Information Systems Phenomena, Four-Tiered Research Framework, Paradigm, Meta-Theory, Assumption, Philosophy, Ontology, Epistemology, Ethics, Values, Approach, Methodology, Technique, Steps, Pragmatism, Longitudinal Case Study, Case Study, Field Study, Ethnography, Objectivism, Interpretivism, Social Relativism, Realism, Positivism, Information Systems History, Information Technology History, Information Systems Discipline History, Historical Narrative, Story.*

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*History has both stimulated and reflected enormous changes in modern Western societies.
Felipe Fernández-Arnesto (Epilogue—"What is history now")*

1. Introduction

Recent interest in historical research in information-related fields such as information systems (IS) and information sciences¹ is a result of a growing recognition that we need to better understand the past as it relates to information and IS phenomena. This interest encompasses histories "of the field" and "in the field" (Ramiller in Bryant, Black, Land, & Porra, 2013, p 12). In IS, history "of the field" reflects on our academic field's evolving scholarship². History "in the field" refers to the use of history to understand substantive information and IS related phenomena that are of interest to our disciplinary community³.

There are many reasons for the interest in producing IS history (Bryant et al., 2013). For one, history is important for the discipline's identity:

Histories are powerful because they both create and reinforce collective identities. Without a history it is difficult to know who one is, where one comes from or where one is headed. It is difficult to belong or have direction. History is like a collective memory, which historians produce about the past (Marwick, 2001). Having a history is important because what happened in the past profoundly affects all aspects of our lives and will affect what happens in the future. (Bryant et al., 2013, p. 4)

Histories establish a record of the past⁴. Histories provide accounts of past events in order to explain what happened at the time⁵. They provide analyses of the historical record in order to make sense and explain contemporary phenomena⁶. Some histories are written to forecast the future by identifying repeated patterns in historical narratives. History can be used as entertainment⁷. Histories include reverse history: creating narratives about the past by backtracking from the present circumstances. Sometimes, histories are used for propaganda or myth-making⁸. Finally, history can be written for romantic appeal (Marwick, 2001). Perhaps some or all of these reasons can be found behind the increasing interest in historical research in the IS field today. But the reasons can also be as simple as learning about others in the IS field or understanding one's own origins. These are just some examples of how history is as important to a community, society, or an academic field as memory to an individual.

What makes historical research interesting is that it can accommodate this kind of variety of purposes. It is not surprising that history writing is gaining popularity in fields not formerly known for their engagement in this line of research. What fields outside history have in common is the growing realization that the long-dominant social science research paradigms such as those based in economics, cognitive psychology, and behaviorism limit the research questions they can answer (Smith & Lux, 1993). Undoubtedly, the existing research methods have provided a rich foundation for the research traditions of these fields, but many phenomena remain out of reach from their perspectives. The value that historical research is seen to provide lies in its unique potential for understanding complex phenomena measured in terms of their scope and duration. The historical

¹ Both the *Journal of the Association for Information Systems (JAIS)* and the *Journal of Information Technology (JIT)* have recently published IS history special issues.

² Hirschheim and Klein's (2012) IS field history is an example of an IS history "of the field".

³ Porra, Hirschheim, and Parks (2005, 2006) are examples of an IS history "in the field".

⁴ Hirschheim and Klein's (2012) history of the IS field is an example of this third kind of history.

⁵ An example of this kind of history is Jakobs' (2013) attempt to understand why X400 failed.

⁶ An example of this type of history are the Porra et al. (2005, 2006) studies of why the IT function at Texaco failed.

⁷ The story of the first business computer LEO (Ferry, 2003) is an example of this type of history. An attempt to probe the historical record to explain this is Land (2000).

⁸ Removing Trotsky from the historical archives of the former Soviet Union and Lenin's appraisals of him is an example of this sort of history writing (Marwick, 2001)

method has generated interest among social scientists because of its potential to expand their research horizons:

Today, history stands virtually alone among social science disciplines in its ability to analyze particular episodes, or empirical cases, and to explain broad-gauged patterns of social, cultural, political, economic, and intellectual activity. In exploring change, historical research questions actually emphasize complexity rather than simplicity, and it is this characteristic that marks history's most distinctive break with methodologies employed in other social sciences and humanities. (Smith & Lux, 1993, p. 595)

In this paper, we review the historical method. Hereafter, when we say “the historical method”, we refer to the broadest possible methodological context that covers general philosophical considerations of the subject matter of historical research in addition to the more commonly used but narrower meanings assigned to this method, which tend to include references to collections of specific techniques used in the history writing process (cf. Topolski, 1976). In this paper, we discuss four levels of abstraction (i.e., philosophical paradigms, approaches, specific methods, and techniques) that can be found in history writing today. We note that most historians would most likely use the term historical methods to emphasize the practical level of portfolios of specific methods and techniques for carrying out a historical research project (cf. Topolski, 1976). Most accounts of the historical method do not commonly include higher levels of abstraction (e.g., philosophical, paradigmatic, or approach-driven guidelines) for directing an historian’s inquiry or how they choose what to do in order to produce a historical narrative. In IS research, Mason, McKenney, and Copeland (1997b) have used the term “an historical method” to refer to the fact that their choices of what to do at various stages of the interpretive history writing process provide one path through the many possibilities. Should they have aspired to produce another type of narrative (i.e., a critical one), for example, their choices might have been different. Facing this diversity in the meaning and content of the historical method, we chose to use the term “the historical method” to signify that we are interested in facilitating a discussion on how to write history in an inclusive context open to many levels of analysis given our admittedly interpretive biases. If anything, our choice of words throughout this paper may make the various levels and aspects of the historical method seem more clearly defined and agreed on than they actually are. We make no excuses for this. Much had to be left out from this already long paper and for other papers and other researchers. Such is the richness and wonder of this method. This paper is a result of our personal journey of learning how to navigate the many options and opinions about how to do historical research without being properly trained as historians. We wrote this paper so that other aspiring IS historians can learn from our experience and expand on it by adding their perspectives and experiences. With this work, we believe we provide a good starting point. Understanding the possibilities of the historical method for the IS field is a collective effort. So broad are the horizons of this fascinating method that we could arguably call it the mother of the next generation research.

As academic fields outside the history field adopt the latter’s methods, they adapt it according to their own traditions. Since the 1960’s and 1970’s, interest in writing history has spread far beyond traditional imperial histories about the victor (often a pale male) (Cannadine, 2002; Colley, 2002; Fernández-Arnesto, 2002). Over these decades, history has become increasingly social, political, religious, cultural, intellectual, economic, and technical in nature (Evans, 2002; Cartledge, 2002; Pedersen, 2002; Hufton, 2002; Rubin, 2002; Brett, 2002). It has been enriched by many new perspectives such as gender, race, and class (cf. Cannadine, 2002; Kessler-Harris, 2002). History writing has spread to disciplines outside history, such as the IS field (cf. Bryant et al., 2013). All these influences have enriched the historical method, which today seems more like a class of methods than a single shared method (Topolski, 1976). The purpose of the method is still to interpret past events and to present the interpretations in order to understand what happened and why in the context of historical environmental forces; however, the ontological and epistemological stances and related research techniques for locating, analyzing, organizing, evaluating, critiquing, and interpreting past evidence and creating narratives may vary from one historian to another (cf. Munslow, 1997; Tosh, 2000).

One important reason for the growing diversity in the ways historians apply the historical method is that historians are notoriously practical. They choose their tools and techniques based on how useful these are in answering their questions about the past (Topolski, 1976). Historians' techniques thus follow from their research questions (and not vice versa). Yet, at the core of all historical research is evidence and its careful handling. This is true whether one believes that producing history is a semi-objective pursuit of describing past events or a process of interpreting somebody else's interpretations of them (Topolski, 1976).

In this paper, we review the historical method in order to understand how it can be applied in the IS field to studying information and IS-related phenomena. We first examine the method's philosophical and methodological foundations. For this purpose, we introduce a four-tiered research framework that allows us to examine and compare it with other IS research methods. The first level of the framework consists of the paradigmatic or meta-theoretic assumptions that guide historical research. The second level is about research approaches. At this level, we review pragmatism as an overarching way of doing historical research. The third level has the principles of the historical method and the fourth clarifies their central techniques. At this last level, we review how McKenney, Mason, and Copeland (1997) and Porra et al. (2005, 2006⁹) apply Mason et al.'s (1997a, 1997b) seven steps of doing IS history. After positioning the historical method in the context of the framework, we compare it with other research methods commonly applied in the IS field, which include the longitudinal case study, case study, field study, and ethnography. We hope this paper will help IS researchers become familiar with the historical method by making the method more palatable and understandable as we relate it to the research paradigms, approaches, methods, and techniques IS researchers already know.

2. Historical Research in the IS Field

In the IS literature, the first historical study was likely that of Mann and Williams (1960)¹⁰ who looked at the dynamics of organizational change associated with the implementation of electronic data processing equipment. Since then, there have been some case studies involving IS implementation and use, but they have not really been historical studies (cf. Pettigrew 1973; Markus 1983)¹¹. McFarlan (1984) first noted the absence of historical studies in a research colloquium titled *The information systems research challenge* held at Harvard University. This concern later led to the establishment of the Harvard MIS history project, which ultimately produced the historical studies *Airline reservation systems: Lessons from history* (Copeland & McKenney, 1988)¹², and *Bank of America: The crest and trough of technological leadership* (McKenney et al., 1997)¹³.

In addition to these corporate IT histories, there have been several histories about computers. One such example is the historical analysis of the growth of the world's first commercial use of the computer called LEO (Caminer, Aris, Hermon, & Land, 1988). We can also find historical analyses such as those by Dickson (1981) and Hirschheim and Klein (2012) on the growth of the MIS field, and by Friedman and Cornford (1989) on the evolution and growth of the systems analyst profession and the systems analysis function¹⁴.

⁹ The Texaco IT history project consists of three papers: Hirschheim, Porra, and Parks (2003) is a case study of the evolution of the CIO's role and the IT function; Porra et al. (2006) is the historical narrative of the four decades of Texaco's IT; and Porra et al. (2005) is a system theoretical interpretation of how Texaco top management perceptions of IT's poor performance were formed. The last paper is a second-level interpretation or a theoretical *history* (Porra et al., 2005; von Bertalanffy, 1968).

¹⁰ Mann and Williams (1960) is really an exploratory, longitudinal study with the emphasis on the analysis and description of the problems and the effects of the implementation rather than on producing a chronological narrative. As is common with histories, the method of producing the narrative is not discussed.

¹¹ Pettigrew (1973) is a longitudinal case study in which theoretical questions are raised and explored based on a historical narrative. Markus (1983) is a case study where historical events are analyzed through three theoretical lenses. The method of producing the narratives is not discussed in these studies.

¹² Copeland and McKenney (1988) is a historical narrative. The method of producing the story is not discussed in the paper.

¹³ McKenney et al. (1997) is a historical narrative. The historical method used to produce the story is discussed in Mason et al. (1997a, 1997b) and later in this paper.

¹⁴ As is common with historical research, the method of producing the historical narratives of computers is not discussed in these studies.

In general, however, historical studies are still rare in the field¹⁵. In fact, they are so rare that the scarcity of historical knowledge in the field may stand in the way of its maturity:

In his various works, the economist and historian Joseph Schumpeter has stressed the notion that any field of inquiry which justifiably earns the distinction of being called a "discipline" must provide for the world four kinds of knowledge: (1) empirical data, observations and facts, (2) theories and paradigms, (3) ethics, and (4) history. A study of history is necessary to provide a temporal and contextual meaning for each of the other three forms of knowledge. Most contemporary MIS research addresses the first two forms. Active work is also underway in ethics. To date, however, the field has generally lacked a historical perspective. MIS researchers for the most part, have not sought to identify fully the broad socio-economic conditions of continuity and change that accompany the use of information technology (IT). This stands out as a deficiency in an otherwise robust field. (Mason et al., 1997a, p. 258)

A decade after Mason et al.'s (1997a, 1997b) and McKenney et al.'s (1997) papers, at least one more IS history has been published in *MIS Quarterly* (Porra et al., 2005) and *Information and Organization* (Porra et al., 2006). Moreover, the *Journal of the Association for Information Systems* published a Special Issue on IS History in 2012, and the *Journal of Information Technology* has published a two-issue IS history special in March and June of 2013. Two top academic journals publishing IS history special issues back-to-back may be a promising sign. Perhaps the interest in doing historical research is growing in the field. However, there is significantly more work to be done before the IS field can boast of a robust historical tradition.

There are several reasons for the historical perspective's slow growth in the IS field. The field is too young to have an established historical perspective¹⁶. The shortage of IS histories to build on may be a hindering factor. Moreover, historians do not often discuss the philosophical, methodological, or practical aspects of producing their narratives, which can slow the growth of an IS historical research tradition. That so few histories have been published in the IS top journals may be also a problem. Finally, historical research can be an arduous undertaking. History writing is still a labor of love rather than a fast way to a publication. For reasons like these, historical research may seem beyond the realm of possibilities for many researchers today—a situation we hope to remedy in this paper.

3. Origins of the Historical Method

The historical research method is one of the oldest research methods, its roots going back to the Ancient Greeks (Marwick, 2001). Herodotus (ca. 485-425) distinguished between verifiable past or stories that could be substantiated according to the rules of evidence and those that counted as unverifiable myths (Howell & Prevenier, 2001). Today's professional history, however, is not based on the assumptions or works of early historians. As an academic field, history has developed its own professionalism and its specialized methods relatively recently.

The first learned journal of history—called the *Historische Zeitschrift*—was founded in 1859. The *American Historical Review* was initiated in 1884. Compared to science, the professionalization of history has taken place more slowly. For comparison, the British Association for the Advancement of Science was founded in 1831 (Marwick, 2001). C.W. Langlois and C. Seignobos's central early work on historical methodology entitled *Introduction to the study of history* was published at the turn of the twentieth century. Their view was that the purpose of writing history was not to entertain but to produce knowledge. At this point, a half a century had passed since history had stopped being considered a branch of literature.

A characteristic of today's historical method is that much of it is based on historians' practice handed down from one generation to another by professors in their university lectures. From an outside

¹⁵ To a large extent, the same is true in other management fields, but see Smith and Lux (1993) and Golder (2000), who have applied the historical method in marketing.

¹⁶ Generally speaking, businesses started installing computers in the 1950s and universities began teaching IS in the 1970s.

perspective, it is difficult to identify a distinct body of literature that would lay out the practical details of what historians actually do in order to produce historical narratives¹⁷. Historians have been “notoriously reticent about their assumptions and methods” (Marwick, 2001, p. 172). Their practice has not included openly discussing their philosophical, theoretical, or methodological approaches¹⁸. Consequently, the works about the historical method have commonly not been produced by the most well-known history writers but by authors who write about the historical method (i.e., Marwick, 2001; Tosh, 2000; Munslow, 1997; Bailyn, 1994; Stone, 1992; Novick, 1988; Ginzburg, 1980; Hexter, 1971; Gottschalk, 1969; Elton, 1967; Carr, 1961; Bloch, 1953; Collingwood, 1946; Becker, 1932).

As other disciplines have embraced the historical method in their research method repertoire, the discourse about its foundations has opened up for a healthy debate (cf., Cannadine, 2002). As history writing becomes a part of the IS field, it is important to understand the historical method as it is today and how it relates to the philosophical, theoretical, and methodological foundations IS researchers already know. In Section 4, we introduce a four-tiered research framework, which provides a useful context for this discussion.

4. Introducing the Four-tiered Research Framework

In order to understand the complexity and power of the historical method, it is useful to examine it in layers. For this purpose, we offer a four-tiered research framework with four components familiar to IS researchers: (1) paradigms, (2) approaches, (3) methods, and (4) techniques. These four notions are used extensively in IS research, but inconsistently. Aware of this situation, we suggest definitions that interrelate the notions and assign them different levels of abstraction. We then use these ideas for positioning and understanding the historical method in the context of the IS field. The framework allows us to examine and compare the historical method with other IS methods (see Figure 1).

1. Paradigms (meta-theoretic assumptions guiding the research) (i.e., functionalism, social relativism, radical structuralism, neohumanism)
2. Approaches (a generic or overarching way of doing research) (i.e., pragmatic, phenomenological, hermeneutical, structural, critical, erudite-genetic, logical, dialectic)
3. Methods (principles of the research process) (i.e., the historical method, longitudinal case study, ethnography, field study, in-depth case study)
4. Techniques (steps and tools used in the research) (i.e., historical research steps and techniques such as for developing focusing questions, specifying the domain, gathering evidence, critiquing the evidence, determining patterns, telling the story, writing the transcript by Mason et al. (1997a, 1997b))

Figure 1. The Four-tiered Research Framework

A central characteristic of the framework is that it includes an idea of inheritance: each lower level inherits the fundamental assumptions and principal characteristics of the higher levels and refines them. Thus, **approaches** inherit the philosophical, ontological, epistemological, and ethical assumptions of the **paradigm**. **Methods** inherit the beliefs, guiding principles, and values of the **approach**. The **techniques** and tools inherit the principles of **methods**.

4.1. Historical Method Level 1: Paradigm

At the highest level of abstraction of the four-tiered framework are the paradigmatic foundations of the historical method. This level is about the philosophical or meta-theoretical assumptions that guide research. It connects research to alternative paradigms that are shared by different research

¹⁷ When we asked four “proper” historians what the seminal historical method references were so we could include them in this paper, two of them replied by saying that our question was “silly”.

¹⁸ This is very different from the practice in IS interpretive research where discussing one’s philosophical, ethical, and theoretical premises is considered a central part of research reporting.

communities in and between academic fields. By paradigmatic assumptions, we refer to a basic ontology (What is assumed to be the nature of the world around us? That is, what is reality?), epistemology (How can knowledge about ontology be acquired?), and ethics (What are the values that guide research?). From an ontological perspective, we can assume archetypical positions such as realism and constructivism. The former assumes the world is comprised of hard, intangible structures that exist irrespective of any labels ascribed to it. The social world exists irrespective of the individual's perception of it. On the contrary, constructivism assumes that society is relative and the social world is names, concepts, and labels that make individual structure reality. From an epistemological perspective, one is concerned with how knowledge can be acquired and how "truth" can be found. Here, we can assume archetypical positions such as positivism and anti-positivism. The former seeks to explain and predict what happens in the social world by searching for patterns and relationships. These involve developing and testing hypotheses. Anti-positivism rejects the notion that observing behavior leads to its understanding. Like ontology and epistemology, in ethics, too, we can assume archetypical positions such as neutralism and criticalism. Neutralism ascribes to the belief that researchers should conduct research without the impositions of values. Criticalism contends this is impossible and that researchers have the obligation to articulate what their a priori values are.

These three fundamental paradigmatic concepts describe the extremes of the kinds of beliefs that typically characterize an academic community that shares a paradigm. We assume that paradigms drive research either consciously or subconsciously. Indeed, every piece of research is founded on a set of philosophical assumptions whether these are acknowledged, discussed, or even understood by the researcher.

4.1.1. Four Paradigms

The term paradigm has been a controversial concept ever since Thomas Kuhn (1962) introduced it in his influential book on scientific revolutions to describe the historical development of the natural sciences, in particular physics and astronomy (cf. Lakatos & Musgrave, 1970). For Kuhn, a paradigm relates to universally recognized scientific achievements that, for a time, model problems and solutions to a community of practitioners (horizontal perspective). Burrell and Morgan (1979), however, use the term paradigm to describe the basic assumptions underlying co-existent theories rather than the evolution of fields (vertical perspective). In the IS research field, a paradigm is commonly understood in this latter sense. This development has undoubtedly been influenced by Hirschheim and Klein's (1989) early adoption of Burrell and Morgan's four paradigms to classify research in the field (see also Mumford, Hirschheim, Fitzgerald, & Wood-Harper, 1985). In this paper, we use the notion paradigm to refer to a "commonality of perspective which binds the work of a group of theorists together" (Burrell & Morgan, 1979, p. 23). We discuss paradigms in Burrell and Morgan's sense because their four paradigms are familiar to the IS research field and because they have been shown to apply to IS research.

The first of Burrell and Morgan's (1979) paradigms is the functionalist paradigm, which is concerned with providing explanations of the status quo, social order, social integration, consensus, need satisfaction, and rational choice. It seeks to explain how the individual elements of a social system interact together to form a working whole. The second paradigm, called social relativism, describes intellectual positions that reject absolute or universal standards or criteria. This stance leads to the idea that, since there are no objective standards for reality, knowledge, or truth, these must be socially constructed (Marshall, 1994). The social relativist paradigm thus seeks explanation in the realm of individual consciousness and subjectivity, and in a social actor's frame of reference as opposed to an action's observer. From such a perspective, "social roles and institutions exist as an expression of the meanings which men attach to their world" (Silverman, 1970, p. 134). The third paradigm, radical structuralism, emphasizes the need to overthrow or transcend the limitations placed on existing social and organizational arrangements. It focuses primarily on the theory, structure, and analysis of economic power relationships. The fourth paradigm, neohumanism, seeks radical change, emancipation, and potentiality, and stresses the role that different social and organizational forces play in understanding change. It focuses on the perspective from another side and thus on all forms of barriers to emancipation: in particular, ideology (distorted communication), power, psychological

compulsions, and social constraints. We use Burrell and Moran's paradigmatic framework because the IS field has been comfortable with their ideas about paradigms for a while now, which is demonstrated by the fact that Hirschheim and Klein (1989) found evidence of all four in IS research.

4.1.2. Paradigms and the Historical Method

Burrell and Morgan's (1979) framework is useful in understanding the historical method because it allows one to contrast the philosophical foundations of the traditional¹⁹ historical method, the postmodernist history writing, and IS research paradigms. The idea of paradigms sits particularly well with the postmodernist, social relativist, and interpretivist ideas that historical narratives are socially constructed. At the core of postmodernism is the idea that past social and political systems and cultures are themselves constructions rather than reflections of reality and that their later descriptions are also social constructions by the historians who study them. Postmodernism is so prevalent today that it has been called "the contemporary condition under which we gain knowledge" (Munslow, 1997, p. 2). At the core of the postmodernist history writing are widely spread doubts about the foundations of traditional history that there can be any kind of accurate (or near-accurate) representations of an objective reality that exists independently from the observer. Those who caution against the counting too much on constructivist history warn that social relativism does not necessarily lead to good history. Specifically, it can lead to a study of representations or how meanings are constructed instead of what people did in the past (Tosh, 1984).

Note that we do not make any claims that Burrell and Morgan's (1979) four paradigms are the only paradigms that IS researchers subscribe to or that they are in any way the only possible paradigms for historical research. We use Burrell and Morgan's paradigms only as an example of how the paradigm level can be conceptualized for historical research. We could have chosen other conceptualizations for these purposes. One alternative option is Deetz's (1996) two dimensional model of local/emergent—elite/a priori and consensus—dissensus in organization science. Deetz's model is appealing because it is founded on a criticism that Burrell and Morgan's four paradigms are limited in their ability to account for central recent developments including postmodernism²⁰. We acknowledge this but stay with Burrell and Morgan's model because it has been shown to characterize IS research whereas Deetz's model, however promising, has not. The point we want to make is that, in today's history writing, the paradigm can be freely chosen by the historians. In our view, the gift of postmodernism to history writing is not that one has to agree with postmodernism but rather that there are no right or wrong paradigms. There is power in the multitude of perspectives. As the number of research paradigms adopted by the IS research community increases, the horizons of the historical research will continue to broaden.

Also note that Burrell and Morgan's paradigm framework was not born in the field of history and thus does not necessarily best represent traditional paradigms of proper historians. As a matter of fact, traditional historians do not discuss their work in paradigmatic terms. According to the history field's tradition, it is not customary to discuss one's philosophical foundations. Few historians have neither the training nor even an inclination to discuss their philosophical stances (Novick, 1988). The history field has also not necessarily embraced Kuhn's (1962) views on paradigms because many historians do not consider history to be like science in that it would go through similar paradigmatic shifts (Marwick, 2001). Third, philosophical paradigms may seem abstract and sanitized to traditional historians who are sensitized to the historicity of ideas being shaped by the surroundings of cultural assumptions, social settings, and other elements of historical contexts. Finally, history departments began to teach the historical method relatively recently based on an idea that "common sense and sound general education" provided an adequate foundation for history writing (Tosh, 1984, p. viii). For

¹⁹ In this paper, we use the notion "traditional" history to refer to the practice of historians prior to the postmodernist influences. Admittedly, this is an exaggeration because the lines between traditional and postmodernist history are not necessarily clear. An illuminating account on history writing and realism can be found in Novick (1988). Also, postmodernist historians do not necessarily reject ideas that some kind of objectivity can be reached about the past (Porra et al., 2005, 2006). Nevertheless, we find the differences between the pre- and postmodernist history writing to be significant enough to warrant this characterization.

²⁰ For those interested in reading more about a postmodernist criticism of Burrell and Morgan, we recommend Cooper and Burrell (1988).

reasons like these, traditional historians are not inclined to engage in philosophical debates. None of this means, however, that the historical method does not have philosophical foundations. Like any other method, the historical method can be analyzed at the paradigmatic level of the four-tiered research framework.

Those who have preoccupied themselves with the paradigms of traditional history have described them as realist or as having realist ideals²¹ (cf. Novick, 1988²²; Danto 1965, 1985). Reality is thus seen to exist independently of the human mind, thought, and imagination. The idea that reality has a cognitive or normative authority over the mind is also generally present. A realist historian aims to accurately describe past reality while recognizing that it cannot ever fully be achieved (Marshall, 1994). Few historians would consider themselves scientists, but their practice has traditionally been largely based on science-inspired techniques for collecting, verifying, interpreting, processing, and presenting evidence about the past (Novick, 1988, Elton, 1967; McCullagh, 1984; Shafer, 1974).

4.1.3. Epistemology and the Historical Method

Acknowledging the existence of a paradigmatic level in history writing translates into a need to answer epistemological questions about the nature of historical truth and how knowledge about such truth can be acquired. The fundamental ideas about what is considered historical truth today stem from the late 1800s and early 1900s and the beginnings of the scientific method in history writing by men such as Ranke, Bernheim, Langlois, and Seignobos (Marwick, 2001; Gottschalk, 1969; Johnson, 1934). Some trace the roots of the debates concerning historical truth back to 1824 and Ranke's pontification that historians' task is to show the past as it "actually was" (Marwick, 2001). These foundations of the so-called scientific historical method were aligned with Comte's positivist principles and the belief that the then mainstream, more instinctive methods of history writing were irrational.

Since then, historians have learned that there is a big gap between stating intentions of objectivity and actually carrying them out. What objectivity means in history writing is a complex question with plenty of debate and no simple answers (Novick, 1988). Reaching acceptable objectivity is further complicated by the fact that past societies were very different from our own, which makes knowing about them difficult. One solution among the traditional historians has been to consider history as a collective affair: when many historians study the past, their combined narratives amount to increasingly accurate portrayal of past events. This realist historical epistemology has been compared to the legal model in which the goal is to establish the truth about past events beyond a reasonable doubt (Fogel & Elton, 1983; Salvemini, 1939; Shafer, 1974).

Also, many postmodernist historians agree that some of the past reality is objective in a sense that it existed externally to the individuals experiencing it (e.g., historical evidence shows that an oil crisis actually took place in the 1970's) (Porra et al., 2005, 2006). Postmodernist historians acknowledge, however, that this objective reality is grounded in a historical context and individual's experiences of it (i.e., the meaning of the oil crisis at the time can only be imperfectly understood through the descriptions of those who lived it²³).

Today's historians also generally accept that history is contemporary or present to the extent that historians exist in the here-and-now (Munslow, 1997). Inevitably, historians hold positions on how they see the relationship between the past, its traces, and the manner in which they extract meaning from them. The task of historians is thus to make sense of a partially external and partially internal past reality as they interpret historical evidence²⁴. Note also that postmodernist history is founded on the ideal of a

²¹ This conclusion is a liberal generalization because not all historians share alike premises.

²² Historians have also described themselves as rationalists (as opposed to irrationalism) (Novick, 1988).

²³ Note that an external reality that was called *an oil crisis* was experienced as such by some but as an opportunity by others. We call it a crisis because Porra et al. (2005) adopted this notion for the events of the times in their historical study. As an objective reality, they observed the oil crisis using indicators such as substantial change in the oil price. We thank one of our reviewers for noting the variable nature of the impact of this specific historical event on people who lived through it.

²⁴ Of course, it is up to a history's readers to accept or reject historians' interpretations because, at the end of the day, they evaluate the evidence in the narrative and come to conclusions concerning believability.

cumulative collective effort: the artifacts of the past may remain the same, but the stories about them evolve over time as new generations of historians examine them from their ever-evolving perspectives.

4.1.4. Ethics and the Historical Method

Historians choose their ethical and moral values consciously²⁵ or subconsciously but, in both cases, they guide their work. In the early days of the history field, the scientific historical method embraced the values of science (Novick, 1988). These values changed how history was done: all evidence had to be approached critically²⁶ and skeptically (Gottschalk, 1969). Any witness, whether living or dead, was to be approached from the vantage point that they may have made mistakes or even intended to mislead the historian (Salvemini, 1939). The scientific values dictated a careful application of the historical method as the best defense against “fanciful tale, willful distortion, and honest error” (Breisach, 1983).

Originally, scientific values were instituted because academic historians needed to distinguish themselves from amateurs who were perceived to have political, ideological, or religious biases (Novick, 1988). Objective knowledge meant authority. It commanded assent and was clearly distinguishable from opinion. In the beginning of the history field, professional historians viewed objective values as protecting history and themselves from unwanted influences. Objective knowledge was considered inconvertible and noncontroversial.

In retrospect, objectivity-based values served the history discipline well. They led to the concentration and standardization of historians’ practice. They provided the foundation for the transpersonal replicability of historians’ techniques. The pursuit of objective history included professional obligations to colleagues. These shared scientific values made peer review possible.

The values of the history field evolved over time but were not fundamentally challenged until postmodernism. The new historians—many of whom were from outside the history field—seemed to undermine its values. They asked candid questions about the nature of truth embedded in historical narratives. They also provided alternatives. Foucault was among the authors who advocated an entirely new way of seeing the past:

Studying history then becomes an activity of seeking to discover “the other”, and thereby to confront ourselves. Much as we may wish to look back on the past as something potentially familiar, Foucault wishes to point out that we should be prepared to be shocked by its strangeness, which in turn should make us confront the present in a similar manner. (Bryant et al., 2013, p. 8)

The central message of postmodernist history was that there will always be many truths about the past.

An outcome of the change in the core values of historical research is the realization that historians should pay attention to histories of all of humanity regardless their political stance, socio-economic status, class, or side (e.g., in a war). Histories now include stories of ordinary people, rebels, protestors, radicals, criminals, the sick, and the insane. All these stories provide valuable clues of the looming societal, social, cultural, political, economic, and technical changes. Postmodernism has resulted in histories about people who were formerly missing in the stories about the past, which includes women, children, and racial and ethnic minorities (Fernández-Armesto, 2002). As history expands to all areas of human life, professional historians seem once again to be joined by history-writing amateurs such as IS researchers. This time, however, the fellow history writers are professionals of their subject areas who aspire to learn historians’ techniques but do not necessarily subscribe to their paradigmatic values.

²⁵ Novick (1988) states this principle as follows: “Historian’s conclusions are expected to display the standard judicial qualities of balance and evenhandedness” (p. 2).

²⁶ In response to a reviewer comment, we note that being critical of evidence in traditional historical research is not a synonym for a critical approach in philosophy. Historians use the term critiquing in a much more limited sense that relates to specific techniques for dealing with pieces of evidence. A critical approach in philosophy refers to an overarching approach to research comparable with pragmatism.

4.2. Historical Method Level 2: Approach

The second level of the four-tiered research framework consists of the approaches that go with the chosen research paradigm. With an approach we mean a generic or overarching way of going about doing research. It includes a set of directing ideas related to goals, guiding principles and beliefs, fundamental concepts of the activity, and the principles of the process. In this context:

- a) Goals specify the general purpose of the research inquiry.
- b) Guiding principles and beliefs form the common philosophy of the approach (cf. Avison & Fitzgerald, 1995).
- c) Fundamental concepts define the nature of the final product implicit in the approach.
- d) Principles of the process express the essential aspects of the methods that can be used with the approach.

Examples of approaches in history writing include pragmatic*, phenomenological, hermeneutical, structural*, critical*, erudite-genetic*, logical*, and dialectic²⁷. Approaches represent categorically different ways historians reflect on their subject matter. They thus specify different streams of historical research (Topolski, 1976). From a practical standpoint, an approach guides researchers over those situations during the research process where paradigms, methods, and techniques leave blank spots for human judgment. For this reason, approaches are particularly helpful for IS historians who don't have a strong IS historical research tradition to build on. In Section 4.2.1, we introduce a pragmatist approach as one applicable alternative.

4.2.1. Pragmatism as an Approach

In academia, pragmatism is typically seen as a philosophy. In the IS field, for example, scholars have presented pragmatism as a possible alternative to IS research paradigms (Porra, 2001; Goles & Hirschheim, 2000). As a paradigm pragmatism would have its place in the first level of the four-tiered research framework. In this paper, however, we consider pragmatism as an approach defined as "a way of doing philosophy" (Menand, 1997, p. xxv). If paradigms represent philosophy departments' attempt to understand "what we know about how we know", a pragmatist approach is the "real work of the world done somewhere else". Therefore, a pragmatist approach is:

an effort to unhitch human being from what pragmatists regard as a useless structure of bad abstractions about thought. The sheer bravado of the attempt, the suggestion that all we need to do to lighten our load is drop the whole contraption over the side of a cliff and continue on doing what we want to do anyway (Menand, 1997, p. xi).

When combined with a paradigm (level 1), pragmatism allows us to make its theories of ontology, epistemology, and ethics work in practical situations of doing historical research. Approaches are needed because paradigms are just ways of making sense of how to understand reality. They alone cannot tell us where to go or whether going there is a good idea in the first place. Only we can tell ourselves these things. In order to do so, we need an approach that allows us to formulate steps to take for carrying out the principles of the paradigm as we work toward producing a narrative. Historians use approaches so they don't get lost in the detail of the many choices they have at every phase of the research process. Menand (1997) exemplifies a pragmatist approach:

We wake up one morning and find ourselves in a new place, and then we build a ladder to explain how we got there. The pragmatist is the person who asks whether this is a good place to be. The nonpragmatist is the person who admires the ladder (p. xxxiv).

²⁷ Our list includes approaches IS researchers and historians apply. For a detailed discussion of the approaches commonly applied in the history field (marked with a *), see Tosh (1976).

Pragmatism works as an approach because it does not discriminate against any particular paradigm, theory, methodology, or technique. It serves as a kind of lens through which to view the other levels of research (Goldkuhl, 2012). Thus, pragmatism provides a specific perspective on paradigms, theories, and methods. It is “a kind of a knot pulling together of threads that lead to many other areas of thought” (Menand, 1997, p. xxvi). This knot serves as a way in which the paradigmatic assumptions are actualized in methods and techniques at the level of practice. This orthogonal²⁸ nature of pragmatism has been blamed for the fact that, as an approach, it is largely invisible from the perspective of today’s mainstream research world.

4.2.2. Principles of Pragmatist Approach

The roots of pragmatism go back to the late 19th and early 20th century to scholars such as James, Peirce, Dewey, and Wendell Holmes, and contemporary philosophers such as Rorty and Davidson. A pragmatist’s goal is to “attain perfect clearness in our thoughts of an object”, which means focusing on its practical effects of positive significance (Menand, 1997, p. xiii). A pragmatist approach means that we must consider the practical effects of the action in order to determine if it is worth taking (James, 1975, 1907). For a pragmatist historian, the deciding factor is whether or not something, be it related to the paradigmatic assumptions, approach, theory, method, technique, or piece of evidence, is useful. Useful in this context is not the same as utilitarian: rather, usefulness has a socially responsible connotation and means that which is deemed good among the participants of the social collective whose history is being written. For pragmatism, useful is infused with values and citizenship (Menand, 1997). From both the historians’ and the collectives’ perspectives, the primary value of pragmatist history is in its impact: what is the positive difference that the historical narrative will make in the current situation of those whose story is being told and what positive difference will it make in the world in general? Pragmatism thus has its own concept of truth. This truth is defined by the historians’ purposes and shared by their subject matter (Wicks & Freeman, 1998). From this perspective, a history is considered a true presentation of past events if it is socially useful or fruitful (Peirce in Copleston, 1994). Thus, truth is ethically impregnated. It corresponds with the historians’ ethical and moral world views and the world views of those whose history is being written.

Because a pragmatic truth is a social construction, this approach works well with social relativism and interpretivism but also with functionalism and realistic philosophical stances because pragmatism does not reject objectivist ideas. Charles Sanders Peirce advocates that historians should strive for accuracy in spite of the difficulties surrounding the concept and the fact that accuracy may fundamentally be unachievable (Copleston, 1994). The task of a pragmatist is to “inquire into the real character of things whether they know they have them or not” (p. 306). This an example of pragmatism as a knot pulling together ideas that seem to have irreconcilable differences serving as a mediator between philosophical extremes. A pragmatist historian could say, for example, that “there are many things in the world that are a result of social negotiation processes but there are also things that exist outside of these”. A characteristic of a pragmatic is to avoid paradigmatic extremes because they are not useful for getting things done. John Dewey assumes a different but equally pragmatic stance on accuracy by carefully avoiding references to the concept because of the ontological and epistemological problems that surround the notion. William James reminds us that perfect accuracy is not even possible because proof of anything is unattainable (Menand, 1997). For a pragmatist, all decisions, observations, and understandings are bets on what the universe is today and what it might do tomorrow regardless of what paradigm is being followed. Pragmatic historians need to be comfortable making such bets.

As an example of how pragmatism guides historians’ practice, we can look at the choices they make as they create narratives. A pragmatic approach in action means that, when no guiding principle or evidence exists that compels the historian to choose between several plausible accounts of past events, they may choose according to their taste (James in Copleston, 1994). When issues cannot be decided on intellectual grounds, historians are entitled to choose on “passional grounds” (p. 338). All

²⁸ Examples of authors with other “orthogonal” ideas as compared with those embraced in the IS research field include Churchman, Ackoff, and Pepper. More recently, some theoretical work by Porra (1999) in the IS field falls into this category. While these ideas make a great deal of sense, they are not easily combined with mainstream IS approaches.

other things being equal, a pragmatic historian should choose to embrace a view of reality that best satisfies their moral viewpoint. So, rather than spending time or effort engaging in ontological, epistemological, and ethical debates, or chasing paradigmatic perfection in their practice, pragmatic historians, aware that there are many paradigmatic options that could be chosen, write stories that seem right to them. Necessarily, then, each history is produced from a specific perspective in order to make a point about past events. Thus, any history is necessarily just a history—one version of what may have happened among many other possibilities.

A pragmatist approach eases the pressure on historians to get it right with the idea that history is necessarily forever unfinished, changing, growing, and plastic. It will always consist of objective and subjective aspects, material and immaterial evidence, and indisputable and relative truths (James, 1909). Every historical narrative is a work in progress. Unavoidably, it will have paradigmatic, theoretical, methodological, technical, and factual inconsistencies because it was produced by historians who are fallible human beings who lived during their times and in their historical contexts. The pragmatist's contribution is that this does not diminish the narrative's value. Thus, fundamentally, a pragmatist universe is thought of as a multi-verse, something that is never completed or synthesized into a stable whole or a system where all the parts would fit. Pragmatic pluralism lets things exist distributively (James, 1977). In a multi-verse, different stories and different kinds of stories about the past co-exist and evolve while never necessarily becoming reconciled.

A pragmatist approach also echoes John Dewey's idea that history is a series of stages (Fallace, 2010). Each new stage incorporates the prior one but consists of an increasingly nuanced, socialized, and democratically informed collective historical consciousness. From Dewey's vantage point, history will be perpetually rewritten. Old events will be seen in new ways. New generations of historians will continue to reexamine and reinterpret past evidence and historical narratives.

A characteristic of pragmatism is that it is originally a distinctively American approach. As such, it has met a lukewarm reception in particular among European scholars and philosophers. One reason may be the very fact that it deemphasizes philosophizing and theorizing and stresses the value of practice and doing what works. From an academic perspective, this stance means abstaining from deep theoretical debates and dogmas about the meaning of metaphysical concepts such as truth and reality, which have led to much philosophy that—however enjoyable—has arguably produced little in the way of research results (Tashakkori & Teddlie 1998). For a pragmatist, the value of philosophical discussions is only as great as the applicability of their results to solving the practical problems of doing history now. Perhaps because historians are notoriously practice oriented, pragmatism is common among the profession. Pragmatist thinking is said to be behind much of the explosion in the diversity of the foundations and approaches of postmodernist history writing (Menand, 1997; Rorty, 1979). Yet, few historians openly acknowledge their pragmatist tendencies²⁹. Historians are as silent about their approaches as they are about their research paradigms³⁰.

Pragmatism does not work as a standalone paradigm for historical research because it does not offer in its system of verification a formal set of criteria for determining the purposes of historical narratives (Appleby, Hunt, & Jacobs, 1999). As a philosophy on its own right, pragmatism can only work if democratic institutions are strong and functioning daily and when the purposes for which histories are written are not left to decisions of any single group of knowledge seekers. As an approach, however, pragmatism can give direction to historians work regardless of the researchers' preferred paradigms. For example, in a Burrell and Morgan (1979) sense, we can see how pragmatism can work with the four paradigms: combined with a functionalist philosophy and corresponding research paradigms, a pragmatist approach leads one to consider that people's perceptions of the world have some correspondence with that world and that standards, even though they are historical products, can be made to discriminate between valid and invalid assertions (Appleby et al., 1999). Pragmatism also

²⁹ In IS research, a notable exception is C. West Churchman, who supported pragmatism (Porra, 2001). Another notable pragmatist in the IS field is Enid Mumford.

³⁰ Admittedly, we too failed to mention in our IS historical papers that we applied a pragmatist approach most of the time. One likely reason for this omission is that it is customary for IS researchers to disclose their paradigmatic assumptions, methods, and techniques, but not their approach. This may be because pragmatism is seen to be a practical, and not an academic, matter.

works with social relativism because it is sympathetic to democracy and debate and dissent and irreverence, which are vital in today's history writing. Finally, pragmatism moderates a radical structuralist and neohumanist research paradigms because it supports the idea of undermining foundations, collapsing distinctions, and deflating abstractions (Menand, 1997), while not supporting the idea that everything should be questioned (Bernstein, 1999).

4.3. Historical Method Level 3: Method

The third level of the four-tiered research framework consists of the methods that go with the selected paradigms and approaches. In IS research, method has been defined as "a codified set of goal-oriented 'procedures' which are intended to guide the work and cooperation of the various parties involved in the process" (Iivari, Hirschheim, & Lyytinen, 1998).

Traditionally, the history field's methods and techniques have focused around providing detailed instructions and procedures on how to properly deal with evidence (Marwick, 2001). In the postmodernist environment, evidence and its appropriate handling are still at the core of history writing, but the purpose of the historical method is broader: "the creation and the eventual imposition of a particular narrative of the past" (Munslow, 1997, p. 3).

Diverse influences from a host of fields have changed what historians think they can know about the past but also how they think they can know it (Howell & Prevenier, 2001). Seen this way, method does not only refer to a narrowly defined empiricist enterprise surrounding the evidence, but to the whole process of writing a historical narrative whose nature depends on the kinds of lenses one applies in the process. Today's historians come from all academic areas including economics, sociology, and other social scientific backgrounds and bring in influences consistent with them (Jones & Zeitlin, 2007). In Sections 4.3.1 and 4.3.2, we discuss two central aspects of the historical method of today: change theory and the postmodernist impact on lenses applicable in history writing.

4.3.1. Change Theory

The one thing historians generally agree on is that history is about understanding change over time (Jones & Zeitlin, 2007)³¹. How explicit they are about their change theories, however, varies. At one extreme are some postmodernist, interpretivist historians who acknowledge their change theoretical lenses and explain how they were applied in their interpretations (cf., Porra et al., 2005). These theoretical historians do not make claims that the resulting narratives are true in any objective sense (von Bertalanffy, 1968). Rather, they view the resulting narratives as socially constructed plausible scenarios of the past events based on the evidence and the change theory. Theoretical history is based on the idea that different change theories provide different perspectives on past evidence and thus result in a richer historical understanding.

At the other end of the spectrum are those traditional historians who do not disclose their change theories and thus may seem to approach change without preconceived notions. Their stories, however, tend to conform to one of several typical change theoretical alternatives. One such alternative is linear change theory with an assumption of teleology (Howell & Prevenier, 2001). This type of a history has an actor or set of actors that have the power to influence the course of events. This influence typically leads to a better future. Another typical change theory is cyclical change theory. These histories tend to be pessimistic. They portray past reality as unchanging and repeating. Those who live under unsatisfactory conditions tend to remain that way. A third type of change theory portrays change as sudden upheavals (Mason et al., 1997a, 1997b; Schumpeter, 1942). These kinds of narratives are often based on some form of the punctuated equilibrium model, which describes radical shifts in the environment that dramatically alter the course of events for better or worse (Porra et al., 2006; 2005).

Generally speaking, today's historians are more open about discussing their change theories than ever before. There seem to be as many change perspectives as there are change theories. Views

³¹ Some histories are about a point in time or an event. We consider these types of histories as examples of studying change over time even when the time period is brief.

such as constructionism seem to embrace historians' freedom to assemble the past evidence across time: "In writing stories, historians do not discover a past as much as they create it; they choose the events and people that they think constitute the past, and they decide what about them is important to know" (Howell & Prevenier, 2001, p. 1). An important part of this creation process is deciding about the nature of change.

Historians' change theoretical choices may easily seem too gratuitous. In reality, however, evidence has a way of directing an historian's inquiry (Marwick, 2001). An example is Porra et al.'s (2005) theoretical IS history of the Texaco's IT function in which they apply three different system theoretical change theories to understanding change over four decades. Their interpretation shows how the three different change theoretical lenses (one emphasizing stability; another focusing on linear change, and a third focusing on radical shifts) can all be used to illustrate different viewpoints of the past. A mechanistic, an organic and a colonial change theory lead to three different stories, but the resulting narratives corroborate one another. The lesson from this IS historical study is that different change theories can provide distinct yet complementary historical perspectives on certain verifiable past events.

Today's historians are pragmatist in their change theoretical choices. They trust their own judgment without ever assuming them to be infallible (Menand, 1997). In other words, historians "have faith in what they do" (xxxiv). Pragmatism cannot explain where our judgments originate. An easy answer is to claim that they are based on cultural rules, yet different individuals from the same cultures make different judgments of which change theoretical lens to choose.

From a practical pragmatic standpoint, any lens is ultimately selected depending on how well it helps compose a believable story in order to make a useful point about the past (J. Pratt, personal communication, February 12th, 1999, University of Houston, History Department). From an academic pragmatic perspective, a purposeful application of change theory, for example, translates into short histories publishable in learned journals. In this respect, today's historians differ from the early professional historians of the late 19th and early 20th centuries who created detailed, unedited reporting of the evidence free from interpretation (Novick, 1988)³². The working pragmatic approach principle justifying the wide variety of theoretical lenses is anti-foundationalism or "knowledge does not rest on fixed foundations" (Bernstein, 1999, p. 385).

4.3.2. Postmodernist Impact

Postmodernism has expanded the role of theory and methodological variety in the doing of history (cf. Cannadine, 2002; Howell & Prevenier 2001; Marwick, 2001; Tosh, 2000; Kieser, 1994; Novick, 1988; Tuchman, 1981; Topolski, 1976; Shafer, 1974; Hexter, 1971; Gottschalk, 1969; Bloch, 1953). Traditional historians may not necessarily embrace the idea, but today's historians apply a variety of theories and associated methods to doing history (Marwick, 2001). Interpretive lenses have largely come from fields other than history including social sciences economics, political science, and psychology (Howell & Prevenier, 2001). Some notable methodological influences have come from anthropology, humanities (i.e., linguistics, philosophy, and literary criticism), and so on. As a result, historians have a much broader range of inquiry than ever before.

For example, the social scientific impact stems from authors such as Marx (cf. 1867), Weber (cf. 1922, 1930), and Durkheim. Their work provides theoretical perspectives on how people organize themselves in groups by family, community, class, caste, or political party, and how such collectives give meaning to their own history. Social sciences have also contributed an appreciation for quantitative methods and precision to history writing.

Human psyche theorists such as Freud, Jung, and Erikson have provided tools for understanding how individuals and populations in particular areas may have seen their world. Anthropologists' methods, such as those related to studying rituals and performance of non-literate societies, have fundamentally

³² Oil company histories, for example, consisted of volumes of detailed accounts of events. All evidence was documented as if it were equally relevant.

changed how historians approach their subject matter. Philosophy and hermeneutics have enriched the historical method. For example, Dilthey and Windelband have emphasized the need for a textual reading strategy that allows the scholar to empathize with the text. Their viewpoint of understanding meanings constructed from the text's language has found its way into historical research.

Gadamer (1960) has changed how historians approach their subject matter by emphasizing the fact that historians are chronologically removed from the texts they study. Thus, historical readings will fundamentally differ from any contemporaneous readings of the same texts, which were constrained by their historical context. Structuralists such as Saussure (1967) and Peirce (1991) have revolutionized historical linguistic analysis by claiming that language is a mental system with no necessary relationship to the world or reality. Saussure has submitted that the relationship between the signifier and signified is arbitrary, unstable, and sliding, and that meaning is never fixed, certain, or fully possible. Derrida (1976) and others have developed the idea of textuality, the hidden characteristics derived from the societal power structures alleged to be hidden in all texts and thus in everything being constructed in language (Marwick, 2001). Foucault has affected historical research by exploring the nature of discourse in areas such as western sexuality, criminality, bureaucratic institutions, and the state. He has established that historical facts do not exist independently of the thought world that makes them knowable³³. As one example of the influences of these developments, historians now regularly use the term discourse to mean systems of speech, thought, and action that constitute knowledge.

We could continue the list of outside influences (i.e., by adding names such as L vi-Strauss, Geertz, Bourdieu, and Turner) on historical research today. We could also add more fields (i.e., the humanities) to this list. The purpose of our discussion, however, is purely illustrative. We have hopefully opened a window on the richness and challenges of the paradigmatic, theoretical, and methodological environment in which today's historians work³⁴. Finally, it is not possible to discuss history writing today without acknowledging that historians work in an increasingly pluralistic environment that celebrates interdisciplinary history programs such as American, Ethnic, Asian, and Women's studies with their characteristic theoretical and methodological perspectives.

From an IS researchers' perspective, the 21st century is marked by promises of the expanding ontological and epistemological foundations of what history is and how it is produced (cf., Munslow, 1997; Tosh, 2000). As the result of this expansion, the realm of what constitutes historical inquiry may seem all encompassing. It easily looks like every discipline, paradigm, approach, theory, and method could be part of a historical research process. All forms of academic research inquiry seem to be available for today's historians. This may well be true³⁵. But these changes have not erased what must be found at the core of every history: An historian's task is to ask important questions about past events and answer them by carefully studying evidence. This unchanging goal tends to moderate ontological and epistemological extremes:

I have never been impressed by the argument that, as complete objectivity is impossible in these matters (as of course, it is), one might as well let one's sentiments run loose. As Robert Solow has remarked, it is like saying that as [a] perfectly aseptic environment is impossible, one might as well conduct surgery in a sewer. Nor on the other hand, have I been impressed with claims that structural linguists, computer engineering, or some other advanced form of thought is going to enable us to understand men without knowing them. Nothing will discredit a semiotic approach to culture more quickly than to allow it to drift into a combination of intuitionism and alchemy, no matter how elegantly the intuitions are expressed or how modern the alchemy is made to look. (Geertz, 1973, p. 30)

³³ For example, the idea of an "IS professional" only makes sense in a world that knows computers.

³⁴ See the references listed in the beginning of this section for good resources on postmodernist influences on history writing

³⁵ According to Bernstein (1999), a pragmatic tradition can best be characterized as an "engaged fallibilistic pluralism" (p. 397). This means taking our own fallibility seriously or resolving that, however much we are committed to our own thinking, we are willing to listen to others without denying or suppressing the otherness of the other.

Geertz talks mainly about culture, but his words apply equally well to history writing. Pragmatic historians select lenses and methods useful for evoking kinship with people whose story they are telling. Lenses are important because they allow external readers to examine and evaluate the stories being produced. Yet, swaying too far to the side of theoretical patterns contorts the past to fit predetermined meanings that are often too familiar to be interesting (Wineburg, 2001). Studying evidence too far detached from the individual people and their circumstances, concerns, or needs easily results into “esoteric exoticism” (p. 6) that tends to leave cold those whose history is allegedly being written.

4.4. Historical Method Level 4: Techniques

In traditional history writing, the historical method translates into mastering systematic, rigorous techniques of professional history. Historians share an obligation that narratives are founded on evidence and presented in a format that is open to public scrutiny and criticism by reexamination of the respective records by other historians (Marwick, 2001; Novick, 1988; Hexter, 1971). Historians’ practice includes mastering the details of the narratives and the techniques that are used to produce them (Munslow, 1997; Tosh, 2000). Also, in IS research, methods are typically supported by a set of techniques for accomplishing specific tasks where a technique refers to a well-defined sequence of elementary operations that more or less guarantee the achievement of certain outcomes when well executed (Iivari et al., 1998). Sometimes, it seems that good research output is just a matter of meticulously following predefined steps.

In history writing, however, evidence and not methods or techniques must drive the process. This means that an historian must examine, at each step of the process, many possible techniques that could be used and find one that works with the evidence at hand. A pragmatist approach is also useful. People who are drawn to pragmatism tend to be the kind of people who are reluctant to regard someone else’s word on a subject as final (Menand, 1999). Thus, historians choose techniques they deem best for producing an interesting and useful narrative. This may seem that any technique will do that accommodates the evidence, but even the most renowned pragmatists follow guidelines when these work. A set of such guidelines come from professional historians’ traditions. They also come from the research traditions of adopting fields. IS historians have also come up with a set of techniques that have been shown to be effective. Because pragmatists are devoted to what works, they tend to not venture far out from proven research practices. Specifically, pragmatists want to avoid fragmenting pluralism, where one is using techniques that are known only to a small group that already shares its biases (Bernstein, 1999). They like to stay away from flabby pluralism where one borrows from different techniques with little more than superficial poaching. They reject polemical pluralism, where one’s technique choices are not really open for learning from others. Finally, pragmatists do not support defensive pluralism where others are complemented for their techniques but these are not investigated for their merits.

In Sections 4.4.1 through 4.4.8, we discuss some of the central techniques of the historical research method as they have been adapted to the IS field. For this purpose, we review how McKenney et al. (1997) and Porra et al., (2005, 2006) apply Mason et al.’s (1997a, 1997b) seven steps for producing IS history. We chose these two histories because their authors are open about how they applied the historical method to producing IS history. They are also the only IS histories thus far that have been produced applying Mason et al.’s adaptation of the historical research techniques to the IS field. Two histories are too few to talk about a methodological tradition. But the two works provide a good beginning for opening a discussion about the techniques used in IS history writing.

The seven steps presented here may seem straightforward and their techniques all but obvious. We cannot speak for McKenney et al. (1997) about how easy it was for them to apply the seven steps, but applying them in writing the Texaco IT story was anything but straightforward (Porra et al., 2005, 2006). In a pragmatist spirit, Porra et al. studied each step while reviewing many potentially useful techniques outside Mason et al. that could have worked with the available evidence until settling on the ones presented here. As pragmatists say, at the end of the day, it is researchers’ judgment call regarding what techniques to apply. In order to accomplish the task, Porra et al. leaned on the history

field, social sciences, IS research practices and philosophy of science along the kinds of lines presented here in the four-tiered research framework.

4.4.1. Steps

The task of producing a historical narrative is commonly divided into distinct steps. The scientific historical method, for example, has three steps (Grigg, 1991³⁶): (1) research, or the identification and location of sources and the selection of evidence from these; (2) analysis, usually divided into external and internal criticism; and (3) synthesis, or interpretation. While the scientific model still has some influence in historians' practice, it has been complemented by alternative steps as the premises of doing history have expanded (Rundell, 1970; Novick, 1988). Different fields have come up with their own interpretations of stages. In marketing, for example, the historical research method has five steps: (1) select a topic and collect evidence, (2) critically evaluate the sources of the evidence, (3) critically evaluate the evidence, (4) analyze and interpret the evidence, and (5) present the evidence and conclusions (Golder, 2000). In consumer research, the historical research method has been applied as a qualitative, interpretive method with three steps of: (1) investigation, (2) synthesis, and (3) interpretation (Smith & Lux, 1993).

In the IS field, Mason et al. (1997b) describe a historical method using seven steps: (1) begin with focusing questions, (2) specify the domain, (3) gather evidence, (4) critique the evidence, (5) determine patterns, (6) tell the story, and (7) write the transcript.

In Sections 4.4.2. through 4.4.8., we first summarize Mason et al.'s (1997a, 1997b) steps. We then review how McKenney et al. (1997) and Porra et al. (2005, 2006) applied these techniques to writing Bank of America's IS history and Texaco's IT function history, respectively.

4.4.2. Focusing Questions

The first task is to formulate focusing questions that will provide goals and direction to the history writing process:

History "is strictly speaking, the study of questions." (W.H. Auden). Historians seek to study questions of social continuity and change by analyzing events and contemplating data gleaned from a wide variety of empirical sources (Mason et al., 1997a, p. 271). Historical studies, as with all research, must begin with a question or a cluster of coordinated questions which serve to focus all subsequent inquiry. (Mason et al., 1997b, p. 312).

McKenney et al. (1997) initiated the Bank of America (BoFA) IS history when they were searching for firms that were innovating with information technology (IT) that would lead to changes in an industry (Mason et al., 1997b). Specifically, they based their BoFA history on seven focusing questions (Table 1).

Table 1. Focusing Questions from McKenney et al.'s (1997) Bank of America History

1. What were the perceived competitive crises that threatened the organization?
2. Why was IT proposed as a solution?
3. How was the technology identified, selected, infused, and absorbed into the organization?
4. What conditions favored innovation in this organization and not in others?
5. Who played the key executive and technical roles and how were these roles played?
6. How did the subsequent events unfold? What was the result? How was the corporation's role as a social and economic entity changed?
7. How were business practices and the basis for competition in the firm's industry changed?

³⁶ The steps of the scientific historical method are presented according to the U.S. tradition.

Mason et al. (1997a, 1997b) make clear how important focusing questions are, but do not discuss the specifics of how these materialized. Yet, producing focusing questions can be a difficult process. Going from a general research idea to a set of well-articulated focusing questions can be a time-consuming process.

Porra et al. (2005, 2006) report that the focusing questions for the Texaco IT function (Texaco IT) history formed as a result of having observed the oil industry and Texaco IT for over a decade. The process involved cultivating friendships and professional relationships with the firm's executives, managers, employees, and stockholders. At the end of the ten year period, questions about Texaco IT had clustered around success and failure over considerable time periods (cf. Thompson, 1967) (Table 2).

Table 2. Focusing Questions from Porra et al. (2005) Texaco IT Function History

1. What significant changes did the Texaco IT function face over its existence?
2. What significant change did Texaco face since the initiation of the IT function?
3. What were the significant changes in the oil industry over the existence of the IT function?
4. What were the significant changes in IT over the existence of the IT function?

In their papers, Porra et al. (2005, 2006) say relatively little about how the questions actually formed. Generally speaking, the process by which focusing questions form is not well understood. Yet, asking interesting, meaningful, and relevant questions about the past is essential for a successful outcome. Being familiar with the topic area and the historical organizational, professional, technological, social, and business circumstances that relate to the stories being told is important. As the authors of the two histories indicate, having a wide network of acquaintances in the area of interest is an invaluable asset. Good questions somehow arise as historians dwell in the social contexts of those whose past they are about to describe.

The general assumption at this phase of the history writing is that "material must precede the thesis" (Tuchman 1981, p. 9). This means that focusing questions should form in historians' minds as they explore the evidence. As historians formulate potential research questions they opportunistically select sources they believe may contain some answers to the questions (Shafer, 1974; Todd, 1972). At this stage, questions should be in the interrogative rather than declarative form to help the researcher maintain a noncommittal position in their investigation (Fogel & Elton, 1983; Gottschalk, 1969).

This means that focusing questions can be general and vague. A common misconception is that they need to be well-formulated or even hypotheses (cf. Cattell, 1966). At this stage, questions arising from curiosity are attributed to observations about circumstances in the real world, theory, and/or the written word. In order to come up with good questions, historians often cast a net over a wide range of materials covering decades or even centuries (cf. Golder, 2000; Brooks, 1969; Fogel & Elton, 1983). In practical terms, this means locating, selecting, and reading considerable amounts of materials that may or may not end up being useful.

In the Texaco IT function history, the focusing questions were driven by a general goal: to write a story that was interesting to former and current Texaco employees, the researchers, and the IS field that could convincingly be backed up by evidence. According to pragmatism, it makes no sense to write a dull history no matter how much evidence there is to support it because dull stories will not be read and thus will not be useful. It makes equally little sense to pursue an interesting story that cannot be made believable with evidence because no matter how interesting the narrative it would not be regarded as history. Thus, Porra et al (2005, 2006) pursued questions that could lead to finding out why Texaco's IT function was seen a laggard in the management's eyes and eventually failed. Their hunch was that the answer had to do with how Texaco, its IT function, the oil industry, and IT changed over time.

4.4.3. Specify the Domain

The second task is to specify the domain by deciding about the unit of the analysis and the topic of the story:

Focusing questions determine the domain for inquiry and dictate several methodological presuppositions. An individual firm, for example, is the primary unit of analysis. The firm's industry serves as a secondary unit of analysis. Thus, [historical] studies do not, for example, trace a particular technology, a particular social theme or a particular geographical area—nor are they primarily chronologies. Rather, they are fundamentally histories that focus on the implementation, use, and management of computer and communications based technologies. (Mason et al., 1997b, p. 312)

In the BofA history, the primary unit of analysis was the firm, and the secondary domain the banking industry in the larger context of contemporary firms (e.g., the Douglas aircraft and Ford automotive companies) that were going through similar revolutions in their application of IT. The BofA history begins in 1904 with the opening of the bank's first offices, but is mainly about how the firm revolutionized the banking industry during the 1950s with electronic recording method of accounting (ERMA) and the model IBM 702 computer system, and how it lost its lead in the late 1960s in large part due to IBM's failure to deliver fully operational operating systems for its 360/65 systems. The story focuses on the individuals who made this change happen and on the process by which the new "dominant design"³⁷ was achieved.

In the Texaco IT history, the primary unit of analysis was Texaco's IT department, and the secondary domain the economic, political, and information technological environment of the oil industry and the firm. This included the strategic, financial, and organizational contexts at Texaco. The story begins in 1903 with the birth of the firm, but is mainly about the computer era starting with Texaco's purchase of the first IBM mainframe in 1957. The story focuses on the rise and fall of the IT function as a result of top management's persistent perceptions of its poor performance and consequent decisions to dismantle the unit in the context of technological, economical, and organizational changes.

At the core of both histories is IS, but neither is primarily about technology. The IS story begins with the acquisition of mainframes and follows subsequent IS-related developments for several decades. In both cases, the IS of these firms lead to significant organizational, financial, and business structural change. In both stories, their IS also lead to phenomenal business success followed by failure. Another characteristic of both narratives is that they include times at the firm long before the purchase of the first computer and extend until the current times. Thus, the BofA history covers over 88 years (from 1904 until 1992), and the Texaco IT history covers over 98 years (from 1903 until 2001). A long perspective helps establish the origins of the organizations, the events of the narratives, and the finality of the story. Analyzing IS histories in these kinds of contexts can help sort out the broader meaning of ISs for firms, industries, markets, economies, and societies in the long term.

4.4.4. Gather Evidence

The third task of the history writing process is to collect what sometimes seems to be a staggering amount of material about the past:

History is a discipline that requires the gathering and processing of a large number of facts³⁸ collected from as many primary sources as possible in as comprehensive a way as possible. Primary source material comes in four general forms: (1) written, in the form of official documents, unpublished documents, diaries, memoirs, letters, memos, clippings, and the like; (2) material, in the form of objects, artifacts, and visits of actual sites; (3) traditional, in the form of stories of the past repeated by secondary sources; and (4) eye witness testimony. The first three are appropriate for all types of historical research; the last, of course, only for research done during the lifetime of some of the key participants. (Mason et al., 1997b, p. 312-314)

³⁷ Dominant design is a design that yields superior results for the firm. It is generally the result of a radical innovation in an industry (Abernathy & Utterback, 1978)

³⁸ In this paper, we use the term "evidence" instead of "fact". In postmodernist history, these terms are often used interchangeably to mean that "facts" and thus "evidence" are somebody's interpretations of past events.

The third step of historical research is systematically gathering evidence. This can be arduous, time consuming, and frustrating (Mason et al., 1997b). For this reason, historical research is best done in a group. In this phase, it is especially useful to have acquaintances among those whose story is being told because it facilitates an effective and intimate sharing of ideas and understandings during the research process. McKenney et al. (1997) made site visits and drew on a network of acquaintances to discuss their ideas about evidence sources including their own recollections of the events. This process also helped find key people and data sources. They used all four types of source materials noted by Mason et al. (1997b) including SRI files, bank files, Al Zipf's³⁹, employees' personal files records, organizational charts, systems diagrams, schemas, office and operations layouts, photographs, and flow charts of early banking processes. McKenney et al. report that one of the most time-consuming tasks in this phase was securing copies of original documents because it required locating the individuals who had the documents and convincing them that they needed access.

Porra et al. (2005, 2006) had many long-term acquaintances with Texaco. They had formed relationships through an academic research center working together in research projects and attending seminars and events organized by the center. One of the authors even shared an office with a retired Texaco executive for a period of time preceding the history project. Porra et al. also collected all four types of source materials. They report that, in this history project, finding evidence was not difficult. On the contrary, they were inundated with materials from Texaco's past and present CIOs, managers, and employees keen on participating in the process. Visits to the corporate offices and homes resulted in a vast amount of evidence from public and private sources. These included annual reports, magazine and newspaper articles, previous academic research, oil company histories (i.e., Yergin, 1992), industry statistics, brochures, web sites, and thousands of pages of private documents such as IT strategic plans, IT personnel statistics, IT budgets, letters, and memos relating to Texaco IT. In addition to these archival materials, Porra et al. collected data contemporaneously during the last decade of the history. Between 1990 and 2000, they conducted circa 45 hours of formal, tape-recorded individual and group interviews with 54 of Texaco's senior management and IT personnel. Porra et al. estimated that, over the years, they had informal interviews, conversations, lunches, and meetings totaling several hundreds of hours. The Texaco IT history project was different from the BofA project but in line with other historians' observations that the difficulty with historical research is not always access to past evidence but when to stop collecting it (Golder, 2000).

In both projects, the authors recorded evidence in a timeline⁴⁰. An excerpt from Porra et al. (2006, p. 85) gives an idea of the labor intensive process:

All relevant data was recorded into a timeline in four categories: events primarily affecting IT; Texaco at large; the oil industry; and technological advances that affected IT. With these broad guidelines we read most everything available about Texaco and its IT until we had a general idea of the evolution of the function. From then on we narrowed our recording down to what seemed relevant to the story. Due to the abundance of historical evidence concerning Texaco IT we became selective of what to record in order to produce a history of the function within a reasonable time frame. We continued to record any strategic, financial, organizational and technological change affecting Texaco or IT over the four decades. Starting in 1970 we recorded IT function personnel and budget for each year. For Texaco at large we recorded revenues, assets, income, and personnel numbers for each year. For significant changes in the oil-industry, we recorded Oil Price/Barrel (Imports OPEC FOB) for each year. For Texaco IT and the firm at large, we recorded any changes in strategy, organization, and information technology. We dated all entries and identified their sources. While computers were part of Texaco since 1959, we focused on the years of the corporate IT function starting in 1970. In addition to timelines, we produced two figures in order to visualize change in central categories.

³⁹ This was Bank of America's prime mover for technology during the period.

⁴⁰ Timeline is a typical technique historians use to organize evidence: divide the storyline into meaningful time periods and name them (Marwick, 2001).

At this point in the process, notes on a timeline are considered sufficient documentation (Gottschalk, 1969). Other simple but useful tools include large sketching paper, pencils, and Microsoft Word and Excel. Visualizations such as drawings, charts, and symbols can be used to organize the evidence. Color coding or physically separating different evidence domains (i.e., industry, firm, organizational unit, IS) into clearly labeled containers can also be useful.

Both McKenney et al. (1997) and Porra et al. (2006) report that they relied on primary and secondary sources and public and private sources when collecting evidence. Historians generally hold that primary sources are at the core of the historical method (Marwick, 2001; Grigg, 1991), yet there is no unanimous agreement on what these are. According to one definition, a source is primary when it "gives the first information obtainable of the fact or event to be discovered" and secondary when it is "derived from primary sources which are either known to exist or are discoverable" (Crump, 1928, p. 67-68). Primary sources are also called the basic "raw material" of history (Marwick, 2001, p. 26). They are the sources that came into existence during the time period being investigated. Articles and books written by historians drawing on these primary sources are secondary sources. Primary sources have also been defined as archival sources and secondary sources as historical literature that relies on these primary sources (Smith & Lux, 1993). Finally, eyewitness accounts of an event are considered as primary sources and testimonies from witnesses not present at the event as secondary sources (Golder, 2000). Following this classification in the Porra et al. history of Texaco IT, for example, the primary sources included—as noted above—public sources such as annual reports, newspaper and magazine articles, previous academic research on the oil industry and Texaco, public industry statistics, brochures, and various relevant websites, and private primary sources such as IT strategic plans, personnel statistics, budgets, and letters and memos by key individuals. In the Texaco IT history, secondary sources included retrospective sources such as publically available contemporary oil company histories, retrospective magazine and newspaper articles, and websites.

The sources in both BofA and Texaco IT histories are typical of historical research. Generally speaking, historians rely on published materials, field interviews, archival materials, and cultural artifacts (e.g., advertisements, billboards, structures) (Golder, 2000). Often, they begin in the library searching through books, periodicals, and electronic databases. They search materials on the Internet. They rely on company archives, which are often available for researchers. They conduct personal interviews to complement other sources. They find evidence in government libraries, courthouses, churches, and private residences. Often, it is necessary to be vigilant in focusing on relevant rather than merely interesting data or risk becoming overwhelmed (Eisenhardt, 1989)⁴¹.

In interpretivist IS histories, evidence gathering processes ascribe to a social relativist perspective, which suggests that evidence is considered to be an interpretation of the events by the authors of the documents. As historians gather evidence, their task is to remain open to these interpretations or the reality that evidence provides, which is not necessarily any actual reality that once existed (cf. Cannadine, 2002; Howell & Prevenier, 2001; Marwick, 2001; Tosh, 2000; Munslow, 1997). Porra et al., (2005, 2006) put their approach in hermeneutic⁴² terms: they state that they were recording the meanings participants assigned to their past with the understanding that these meanings were already interpretations of the actual happenings. Later, as the authors of the history, they would interpret the evidence through theoretical lenses that may have been outside the horizons of those whose history they were writing. The aim of this double hermeneutic process is to share the resulting narrative with the participants in hopes that they would accept it and incorporate it into their understanding of their own past (cf., Bleicher, 1982).

⁴¹ A pragmatist approach is helpful when making decisions about how much and what kind of evidence to pursue because it emphasizes that researchers should use their judgment and giving some specifics on how they should use it. In historical research, judgment's role is more pronounced in evidence gathering than in typical data collection related to other research methods because of the relatively unfocused nature of the process at this step.

⁴² While Porra et al.'s (2005, 2006) approach was mostly pragmatic, here they talk about a hermeneutic rather than pragmatic approach. These are, however, closely aligned. Both value multiple perspectives and their socially constructed interpretations. Note that perfect adherence to pragmatism without overlapping with other approaches can be difficult and perhaps not even desirable.

4.4.5. Critique the Evidence

The fourth task of the history writing process is to assess what the collected evidence is worth:

The accumulated evidence must now be critiqued and evaluated. Some will be false, some contradictory, much irrelevant, and most of it will be incomplete. Given questionable or untested evidence, several analytical processes can be called into play. These include applying basic logic, determining the credibility of the sources, counting the number of times the same observation is repeated, and assessing the overall coherence of the entire collection of evidence. By means of these processes, an effort is made to determine the internal consistency of the evidence and the degree to which it agrees with evidence accumulated from external and other sources. There is an important guideline to follow, however, during this data evaluation phase: throughout this critique the facts themselves—and not an a priori theory—must dominate the final judgment. When this stage of the research is complete, the facts will have been verified and distilled and hopefully used to impose some meaningful order on the original material. (Mason et al., 1997b, p. 314-315)

As historians reconstruct past events, they compare among different sources by “listening to many voices” and make conscious decisions about which accounts to use and why (Howell & Prevenier, 2001, p. 69). As they go through the evidence, they check that it is consistent and corroborated. According to McKenney et al. (1997), inconsistent evidence included conflicting dates of events; varying times for hardware upgrades; differing volume figures, non-matching recollections of members in attendance at meetings; and divergent cost figures. They report using the techniques described by Mason et al. (1997b) (see above) several times.

Porra et al. (2006) report that, in their Texaco IT history, they used several basic techniques to assure internal coherence of the recorded evidence. Specifically, they applied logic, systems thinking, basic investigative techniques (i.e., determining the credibility of the sources), and convergence (i.e., counting the times similar information was available from several sources). They used specific analytical techniques. For example, they plotted, reported, and estimated data on performance and IT budgets and confirmed this evidence by using multiple sources. They relied heavily on interviews and published statements by credible key participants based on their experience and knowledge on what constitutes reliability in the IS field at large⁴³.

While all these practices are acceptable in today's history-writing process, social scientists have been criticized for accepting evidence in their familiar domains too easily (Marwick, 1970). From the traditional historians' perspective, their ways may thus seem amateurish and distorted by tendencies to glorify the past (Novick, 1988). Interpretivist historians have also been accused of not being specific enough about the steps they take on being critical of historical evidence (Smith & Lux, 1993).

In this respect, IS historians can learn from the history field. According to the scientific tradition, critiquing the evidence consists of external and internal criticism (Golder, 2000). External criticism's purpose is to determine who wrote each document, where, when, and under what circumstances (Shafer, 1974). At this stage, historians examine documents to assess if they are originals or the best available copies; to determine authorship, place, and time of the document's origins; and to classify sources (Langlois & Seignobos, 1898). In general, a document is considered authentic if:

- a) it was written or rely on records written close to the event being investigated
- b) it was written for the sole purpose of making a record (i.e., legal documents)
- c) it was written for confidential communication

⁴³ From a pragmatic perspective, these techniques were largely borrowed from Mason et al. [1997b] and complemented by techniques the researchers had used in the IS field before and techniques that found in the history field. They were applied because researchers were familiar with these techniques and using them made sense to the researchers at this stage of the process.

- d) it was written for communicating with a small number of people (i.e., personal correspondence)
- e) it was written for a personal record or memory aid (i.e., diary)
- f) it was written for making a public record (i.e., newspapers and magazines), or
- g) it was written by experts with broad knowledge of the events of interest (Gottschalk, 1969).

Internal criticism has several purposes. First, it is used to identify what is credible in the evidence (Golder, 2000; Gottschalk, 1969). For this aim documents are evaluated for deliberate and unintentional errors (Shafer, 1974). This process is called interpretive criticism or determining what the author meant (Langlois and Seignobos, 1898). This step must be based on an understanding of the authors' culture and the period of the events. All testimony must be considered in its full context rather than in isolation (Elton, 1967). The second purpose of the internal criticism is negative internal criticism or evaluating the veracity of the statements in the evidence. This phase calls on the historians' judgment regarding the authenticity of expressions of beliefs and perceptions about past events in the evidence. The third purpose of internal criticism is to evaluate the independence of observations. Historians should prefer testimony from multiple, independent witnesses. Such witnesses should be evaluated based on five criteria:

- a) Competence (how correctly are names, geographical, and temporal aspects of events reported?)
- b) Expertness (how familiar is the witness with the subject?)
- c) Objectivity (how willing is the witness to report correct information?)
- d) Reliability (does the witness have a reputation for integrity? Is the document free from self-contradictions?), and
- e) Corroboration (is there confirmatory evidence from equally credible witnesses?).

Evidence is considered credible if it passes all five criteria (Gottschalk, 1969).

It also makes sense to study the old techniques for comparing sources by Bernheim (1889) and Langlois and Seignobos (1898)⁴⁴. These are:

- If several sources agree about an event, the event exists.
- Majority does not rule. Not all events that are mentioned in several sources took place.
- When part of an account can be verified by outside sources, it can be trusted in its entirety if the entire account cannot be verified.
- When two sources disagree on a particular point, the historian will agree with the source with most authority (i.e., an eyewitness).
- Eyewitnesses (individuals who participated in the event) are preferred sources.
- If two independently created sources agree on a matter, the reliability of the matter is enhanced.

⁴⁴ Adapted.

- When two sources disagree on the matter (and there are no other means of evaluation), historians take the source that seems to accord best with common sense.

4.4.6. Determine Patterns

The fifth task of the history writing process is to organize the evidence so it reveals interesting pattern about past events:

History is more than a mere chronology and body of facts. The assemblage of admissible and ordered facts must be interpreted and its meaning comprehended. The value added by historians is to interpret the facts, explain them, and infer "the interlogic of events" from them. Carr, in his classic What is History, explains: The study of history is a study of causes. The historian continuously asks the question: Why?; and, so long as he hopes for an answer, he cannot rest (1961, p. 113). At this stage, the research turns from mainly empirical to inductive and becomes more philosophical and theoretical. The task is to explain what happened and how and why it happened. The final outcome of an historical study, consequently, is an account: a comprehensive story, a complete episode that has a beginning, a middle and an end. As the account unfolds, it illuminates the events, forces, and personalities that brought about the circumstances detailed by the facts. It also identifies the immutable forces that remained unchanged throughout the transformations and were sources of the continuities observed. (Mason et al., 1997b, p. 315-317).

Collected evidence in its unprocessed state is of little value but gains its meaning when historians interpret it for their narratives (Munslow, 1997). Pieces of evidence gain further meaning when historians organize them into strands of a story that have a particular, appealing, and easy-to-follow relationship. A history is a written explanation of that perceived relationship. As historians study the evidence for patterns, they rely on change theory and other theoretical lenses to assemble the pieces into a storyline.

Determining patterns requires trying on theories that provide patterns⁴⁵ and viewing the evidence through these lenses, which is a creative, not well-understood process. Munslow (1997) calls this part of doing history "emplotment", which simply means assembling a series of historical events into a narrative with a plot (p. 8). Because today's historians have near endless freedom to choose theories, ideas, and concepts to apply as their interpretive lenses as they compose their story, their cultural, professional, and social views usually emerge at this stage (if not earlier) to influence the process and the product.

In this phase, an approach such as pragmatism is critical for carrying the process over the methodological blank spots in theory selection, assembling the evidence strands, and selecting and organizing the evidence to support the storyline. Munslow (1997, p. 8) puts it candidly: "The inference of meaning emerges as we organize, configure and emplot data. It does not, I would argue, just turn up or suggest itself as the only or most likely conclusion to draw". An approach can moderate between evidence, lenses, and historians' personalities as they create their perspectives on the past.

Determining patterns requires consciously choosing theoretical lenses. Until this point, evidence—not theory—should have driven the inquiry as much as possible. In reality, no historian is free from bias. Every observation is already based on some theory whether acknowledged, understood or not (Giddens & Turner, 1987). Pure observation is considered to be all but impossible (Eldredge & Gould, 1972). Historians invariably influence the patterns they see in the evidence. Today, historians generally accept that they are part of the stories they construct (cf., Berger & Luckmann, 1967). As such, theories become an integral part of history writing. Indeed, for us, a theoretical lens seems somewhat of a necessity.

⁴⁵We use the word theory here in a broad sense, which includes concepts, general ideas, and formal theories.

In the BofA history, McKenney et al. (1997) applied two different theoretical lenses. First, they applied a Schumpeterian change theory. Schumpeter (1934, 1942, 1954) called those events that change entire organizations and industries and result into a new dominant design “creative destruction”. As a type of change theory, this theory is a radical change theory (see our discussion of types of change theories in Section 4.3.1). They then applied another interpretive lens, a conceptual framework⁴⁶, in order to organize the evidence into a plausible plot. Specifically, they designed the BofA story around concepts of dominant design, leader, maestro, supertech, and cascade. McKenney et al. are rare among IS historians in that they describe their lenses in detail in Mason et al. (1997a). They do not, however, discuss the specifics of how they applied them in order to produce the narrative.

Porra et al. (2005) also used several interpretive lenses in the Texaco IT history and openly discussed their theoretical choices. One important reason for such candor is that in this way other historians can examine the history and the lenses for conclusions and criticisms. For the change theory, Porra et al. applied a systems theoretical lens, which includes three archetypical change theories:

- 1) A colonial change theory (a punctuated equilibrium based radical change theory⁴⁷)
- 2) Incremental or gradual change theory (Mayr, 1982), and
- 3) Theory of no change⁴⁸ (Porra, 2010, 1999, 1996).

These three different types of change theories results in three distinct patterns that can be used to structure historical narratives. The Texaco IT history has all three different types of change patterns. Porra et al.’s (2005) thesis was that several change theories can provide a richer understanding of past events than just one.

Porra et al. (2005) describe how they produced the narrative. Applying their change theoretical lens, they identified nine eras⁴⁹ in the Texaco IT history (see Table 3).

Table 3. The Eight Eras in the Texaco IT History Timeline (Porra et al., 2005, 2006)

1. The early years of IT (1957–1966)
2. Forming the computer services department (1967–1978)
3. Growth—databases and networks (1979–1982)
4. End-user computing (1981–1983)
5. The user base explodes (1983–1984)
6. Cutting cost (1985–1986)
7. Giving up IT to the business units (1987)
8. The end of an IT era (1988–1989)
9. Downsizing, outsourcing, and cost cutting (1990–present)

Porra et al. (2005) found these eras by following a common practice among business historians who first find radical (colonial) change periods on the timeline and name them (J. Pratt, personal communication, February 12th, 1999, University of Houston, History Department); Giddens, 1984, 1977). These punctuations are then described in detail. These historians then typically move on to describing gradually changing times and stable eras in shorter sections that focus on fewer characteristic events. By following this technique, Porra et al. created a narrative outline with colonial, organic, and mechanistic story strands about Texaco, its IT function, and information technological developments.

⁴⁶ See Mason et al. (1997a) and Bloch (1953) for more about using conceptual frameworks.

⁴⁷ Cf. Eldredge and Gould (1972), Tushman and Romanelli (1985), Romanelli and Tushman (1994), and Gersick (1991).

⁴⁸ Cyclical change theories are included in theories of no change as a subset.

⁴⁹ Periodisation is historians’ attempt to analytically divide the past in a way that seems logical and in conformity with evidence (Marwick, 2001). Periodisation should be done relying on primary sources.

As Porra et al. (2005) describe, finding useful theories can take several iterations. For the Texaco IT history, they considered eight lenses but rejected them all (see Table 4)⁵⁰.

Table 4. Alternative Interpretive Lenses Considered by Porra et al. (2005)

1. Productivity paradox (Solow, 2002)
2. Efficiency (Strassman, 1995, 1985)
3. Business unit – IT relationship (Earl & Feeny 2000; Feeny & Willcocks, 1998; Peppard & Ward, 1999; Venkatraman & Loh, 1994)
4. IT leadership (Palmlund, 1997; Romanczuk & Pemberton, 1997)
5. IT organizational-form (Pastore, 1997; Strassmann, 1995; Lacity & Hirschheim, 1993; Willcocks & Lacity, 1998)
6. IT alignment (Sabherwal, Hirschheim, & Goles, 2001)
7. Inflexible technology (Land, 1982; Land & Somogyi, 1986)
8. Power (Hirschheim et al., 2003).

From a pragmatist vantage point, historians should choose a lens that works. One important reason for rejecting a theoretical lens is that the type of evidence the theory calls for is not available. Historians' can also change their theoretical lens while writing their history project. One lens may guide historians' preliminary research designs. but these can be changed mid-course, which leads to an entirely different interpretation from the one originally envisioned (Smith & Lux, 1993). This aspect of the historical method can again be compared to the hermeneutic circle, or a part-to-whole approach to interpretation (Bleicher, 1980). That is, the intended interpretive end is the whole that defines the parts of the research design, but, in executing that design, the interpretive end may change, which can lead in turn to changes in the design. As investigation and synthesis progress, how an historian ultimately interprets evidence through their chosen theoretical lenses may follow unexpected directions free from the methodological encumbrances that sometimes plague research in other fields.

4.4.7. Tell the Story—the Account

The sixth task in history writing is to compose a compelling narrative that the evidence supports

The penultimate step in an historical study is to tell the story. Ideally the account is presented in an interesting, as well as factual, way. Writing the narrative is, in large measure, an artistic undertaking. No matter how attractive the ideas are, however, and how eloquently they can be woven together to explain the facts, an historical narrative must, of course, be presented in a manner that maintains the integrity and consistency of the evidence. (Mason et al., 1997b, p. 317)

As is common among historians, McKenney et al. (1997) and Porra et al. (2005, 2006) do not discuss the specifics of creating their stories. How historians come to the eventual stories from boxes and boxes of evidence is relatively poorly understood. Pragmatism can help by illuminating some general aspects, but it leaves the creative detail to the author's judgment. Somehow, by dwelling on the evidence as described above, authors come to know what the stories are they want to write. Pragmatism encourages trusting one's judgment⁵¹.

Technically speaking, historians bring together the patterns and the evidence into an explanatory narrative with a distinct beginning and an end. Between these endpoints, historians' describe what changed and why and how it changed. The story illustrates what caused the change between the two historical moments (Smith & Lux, 1993). A good historical narrative is economical (Danto, 1985). It

⁵⁰ Pragmatism supports trying out different theoretical lenses opportunistically in order to find the one or ones that can support an interesting and useful historical narrative. Porra et al. (2005) includes a fuller discussion of their search for an interpretive lens.

⁵¹ At this point of the process, historians should have the evidence to support their judgment call on what story to write. Porra et al. (2006) arrived at this point as a result of going back and forth between the tentative story line and evidence to see if the story held in its greatest detail.

contains enough relevant evidence for answering historians' questions and no irrelevant evidence. The story is completed when it adequately explains the change under investigation.

Historical narratives are well structured and can have three causal levels (Smith & Lux, 1993). At the first level of the story are deep structural causes, which have their origins far removed in time from the focal event and thus provide continuity across episodes. In the Texaco IT story these types of causes included the initiation of the IT function (1960's), the initial events that led to the oil crisis (1970's), the invention of the IBM PC (1980's), and the outsourcing trend in the oil industry (1980's and 1990's). The second level contextual causes have a more proximate temporal relationship to the event being investigated (Bloch, 1953). In the Texaco IT history, these types of causes included IT strategic and five year plans, annual IT budgets, new technologies, and needs for accommodating skill sets. The third level or triggering causes are unique to each episode. In the Texaco IT story, the year 1994 is known for a drastic reduction of IT personnel by Bennett, the downsizer CIO (Hirschheim et al., 2003)⁵².

At this phase, historians also make decisions about the final story format. Historians most commonly present much of the evidence, analysis, and conclusions in a narrative form because this type of a presentation enables them to communicate a rich understanding of the events, especially when the evidence is primarily qualitative. Historical narratives can, however, also include a variety of other presentation formats such as chronologies, descriptive statistics, and model parameters (Golder, 2000). Porra et al. (2005, 2006) included diagrams that illustrate some key points about the colonial (radical), gradual, and nonexistent changes in Texaco's and its IT function's annual financial and employee figures over many decades. These diagrams helped visualize consequential long-term change, which thus made the story easier to follow and more believable.

4.4.8 Write the Transcript

The seventh and the last step in the history writing process, is to write the story

A transcript is literally something reduced to writing but for an historian it has a broader meaning as well: it is the placing of the historian's written words in the schema of those which were written before. Every historical account takes its place among an extended network of others, all of which relate to human beings' sense of the past and to the manifold relationships between living generations and their predecessors. Historians generally feel obliged to show how their work fits into this greater tradition. This places it in a context that helps future research proceed. (Mason et al. 1997b, p. 317)

McKenney et al. (1997) relate the BofA history to the work of Chandler, Schumpeter, Abernathy, and Utterback, and to strategic IS studies (Mason et al., 1997b). Porra et al. (2006) present the Texaco IT history in the context of prior oil companies histories (cf. Yergin, 1992) because there were no prior IT function histories available at the time. In both cases, there is relatively little IS historical tradition to build on.

In this section, we present the seven steps of interpretive historical research as if the process were a linear sequence. In reality, history writing is an iterative process whose steps and activities overlap (Mason et al., 1997b). Moreover, during the process, historians have to iterate between the four levels of their inquiry in order to ascertain how well their paradigms, approaches, and methodological and technical choices hang together as a whole. We also present the process as if it were nearly a purely pragmatic approach. The truth is that exclusively following one approach or another is a theoretical idea. Our approach can best be described as mostly pragmatic including pragmatic ideals, goals, and ways of tackling the task. Note that, should McKenney et al. (1997) and Porra et al. (2005, 2006) have chosen some other approach (i.e., critical, structural, or dialectic), the process and the resulting narratives would likely look different.

⁵² There are many different types of causes in addition to the ones mentioned here. For example, causes can be references to stages in the historical actors' minds (Smith & Lux, 1993) or individuals' conscious or unconscious motivations (Porra et al., 2005).

5. The Historical Method and IS Research Methods

In this section, we relate the historical method to some methods used in the IS field. Researchers commonly adapt the historical method to their field's methodological conditions to produce history in and of their own field (cf. Smith & Lux, 1993; Golder, 2000). In the IS field, Mason et al. (1997a, 1997b) have adapted the historical method to accommodate some characteristics of the field's interpretivist research paradigm. Interpretivism in the IS field is characterized by the incorporation of people's interpretations, perceptions, meanings, and understandings of past events into the research process (Mason, 2002)⁵³. Like other interpretivist methods, the IS historical research method attempts understanding (the hallmark of interpretive research) through in-depth analysis:

Our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools and other artifacts. Interpretive research does not predefine dependent and independent variables, but focuses on the complexity of human sense making as the situation emerges and attempts to understand phenomena through the meanings that people assign to them. (Klein & Meyers, 1999, p.69)

The central principles of interpretivism, which are consistent with the views of many researchers (cf. Avison, Lau, Myers, & Nielsen, 1999; Berger & Luckmann, 1967; Boland, 1991; Burrell & Morgan, 1979; Chua, 1986; Denzin & Guba, 1994; Lee, 1991; Lincoln & Guba, 1985; Tashakkori & Teddlie, 1998; Walsham, 1993), can be applied in IS historical research. But interpretivism is just one of the many possibilities. IS researchers who prefer more objectivist research stances can identify with the historical method. Like postmodernist historical research in general, IS historical research embraces a multitude of paradigms, approaches, methods, and techniques. Writing IS history thus translates into many forms of data gathering, data analysis, and sense making. In this section, we discuss how the historical method differs from the longitudinal case study, in-depth case study, field study, and ethnography.

Historical research may seem like longitudinal case studies because these seek to understand the meaning of events over time, often between 1 to 7 years (cf. Copeland & McKenney, 1988; McKenney et al., 1997; Watson, Pitt, & Kavan, 1998). The difference is that historical method is not centrally defined by the duration of the events under investigation. Thus, histories can accommodate any length of time from a brief moment (i.e., an hour or a day) to events covering centuries or even millennia. Another difference relates to how far in the past the events under investigation occur. Longitudinal case study is at its most beneficial when change unfolds contemporaneously (Mason, 2002). Historical studies may have contemporaneous and retrospective parts, but they are often also entirely about the past. Because some of the events in longitudinal studies can be about the past, they may rely on some archival materials. For historians, however, archival materials, written records, and other historical artifacts are often the sole source of information on what happened (Marwick, 2001). Not surprisingly, longitudinal case studies tend to rely heavily on contemporaneous materials and interviews, while these play a much smaller role in history writing.

There are also theoretical differences. Typically, in longitudinal case studies, theoretical lenses are applied earlier in the research process in order to direct the research design and data collection. In historical research, the use of theory is intentionally deferred. One important reason for this is that, in historical research, there tends to be considerably more materials to collect, organize, and process than in longitudinal case studies. Another central reason is that, in historical research, evidence and not theory drives the process. We summarize the central differences between historical research and longitudinal case studies in Table 5.

⁵³ We agree with one of the reviewers that, in the IS field, interpretivism is a relatively "innocuous sounding term that folds many different approaches and perspectives into one". However, IS researchers commonly discuss interpretivism as if the meaning of this term were clearly defined and shared. In this paper, we do not attempt to define what interpretivism means in the IS field, but rather refer to some of its central and widely agreed on aspects in the field.

Table 5. Some Differences Between Historical Research and Longitudinal Case Study

	Historical method	Longitudinal case study
Time period	Can be long term such as decades or centuries or about a short term (i.e., a history of an event). Often about past events.	Typically 1-7 years (cf. Watson et al., 1998; Copeland & McKenney, 1988; McKenney et al., 1997). Often about contemporaneous events (Mason, 2002).
Data	Often entirely archival materials, written records and artifacts (Marwick, 2001). Considerable amount of materials collected.	Can be entirely contemporaneous materials such as interviews. Often, only materials relevant to answering the research questions collected.
Use of theory	Deferred. Evidence not theory drives the research process.	Often, theoretical lenses are applied early to direct the information gathering process.

Historical research can also seem like traditional case studies because they answer similar research questions (how and why questions). They also share the lack of control of the behavioral events under study (Yin, 1994). There are, however, considerable differences. For example, context is important in both, but, in historical research, it is absolutely critical. It provides the material for historians' search for immediate/direct and distant/indirect causes for chains of events they are documenting⁵⁴. Thus, in history writing, historians broadly collect evidence around the events they are investigating and construct the context with great care in order to support a narrative (cf., Plotnick, 2010; Porra et al., 2005). In case studies, contexts tend to be more narrowly focused. They are mainly designed for presenting the results of an interpretation using a specific theoretical lens. In Table 6, we summarize the central differences of the historical and case methods because these methods are most commonly contrasted with one another⁵⁵.

⁵⁴ In the Texaco IT history, for example, the relevant context included over 150 years of the oil industry, the 100 years of the Texaco Corporation, the 50-year history of the IT industry, and the 40-year history of the corporate IT function (Porra et al., 2006, 2005).

⁵⁵ Note that our categorization of the historical method and case study are really archetypes or ideal types of these methods (Mitroff, 1980). We have attempted to highlight the key differences between the archetypes, but, in reality, they have much in common and their boundaries are often blurred. We also portray these methods as if a general agreement exists in the community on what these methods are. In reality, this implied agreement is perhaps not as wide spread as we portray. For example, we portrayed case study as an interpretive method. However, there are positivist case studies and descriptive case studies that are not necessarily consistent with our portrayal of a case study.

Table 6. Some Differences Between Historical Research and Case Study

	Historical method	Case study
Objective/focus	Reconstruction and interpretation	Sense making and explanation
Process	Investigates a phenomenon based on chronology. Researchers distill, reconstruct, and interpret circumstances, changes, and events in the time frame in which the history occurred (Munhall & Oiler, 1986). Helps us understand the sources of contemporary problems, tells us what they were, how they arose, and how events unfolded through time (Mason et al., 1997b). The historical method usually looks beyond immediate causes of events to determine underlying causes as well (Gottschalk, 1969; Shafer, 1974).	Investigates a contemporary phenomenon (an instance, an event or a process) in its real-life setting (Yin, 1994). Case study research normally concentrates on the immediate causes of events. In the process of understanding the contemporary phenomena, researchers may provide an account of a significant fragment of the past (i.e., the background information or history) to describe current phenomena. In this sense, history is not the main focus; rather history is treated as antecedent to explain current events.
Time period	Can be long term such as decades or centuries or about a short term (i.e., history of an event). The timeline is a key methodological tool needed to guide discussion and to organize data. As such, historical investigations must begin far enough back in time to determine the role that distant causes played in generating the current observed effects.	Varies, but typically relatively short term Chronological timeline may be used but is not the main focus; rather, the focus is in on the uniqueness of a particular event or an instance.
Data	Evidence comes mainly from historical sources such as textual documents, participants' recollection and reflection. Data are more "static" in nature and are already "out there" where they are open to public scrutiny and criticism. Researchers use analytical approaches to reexamine respective records to check their assertions against evidence or data (Hexter, 1971) According to Golder (2000) "The overriding characteristic of historical method is that all evidence is approached critically and skeptically" (p.158).	Evidence comes mainly from interviews and participants' expression of what they believed had happened. May also use secondary documents although these are not a primary focus. Data come from the investigation process and are more "dynamic" in nature focusing on explaining or gaining an understanding of the current phenomenon. Data are human constructions; they are the interpretations of the study's participants and are used to make sense of the subject of study. The researcher does not focus on proving that data are "correct".
Research questions	Historical questions and research procedures follow from historical data. According to Smith and Lux (1993) adjusting research questions after beginning data collection is not only desirable, but constitute the basis for the research design. In fact, the key to historical question framing is found in tailoring successive iterations of specific research questions to developments in research results. Success with historical analysis rests on fitting the research question to that story. Mason et al. (1997b) eschew the notion of "research questions": instead, they suggest the use of "focusing questions". These are a broad set of questions that provide the researcher with an idea of where to start.	Questions are asked and procedures selected before data collection begins. Adjusting research questions after beginning data collection is considered inappropriate in most circumstances.

Table 6. Some Differences Between Historical Research and Case Study (cont.)

	Historical method	Case study
Context	Broader and more detailed in nature. Context is used to help the historian understand the causes of events and to assess their relative importance (Gottschalk, 1969). Events must be understood in their full context (Elton, 1967)	Narrower, and typically focus on a particular event or situation. Context is used to help understand the particular event/situation but is not a primary focus.
Research validity	<p>Historians seek to generate knowledge that is falsifiable and provide:</p> <p>“an analytical understanding of human behavior [and where] historical analysis is used for seeking causal analysis of change through time” (Smith & Lux, 1993, p. 597).</p> <p>“The nature of ‘proof’ in history is like the legal model in which events are established beyond a reasonable doubt, ... similar to the five percent statistical significance rule [where] knowledge is accepted when it is highly likely rather than certainly true” (Golder, 2000, p. 157).</p>	<p>Case researcher does not focus on falsification, but rather on the insight that the case study generates. Three evaluative aspects are considered: intelligibility, novelty and believability. Intelligibility relates to the question how well the research approach and results are comprehensible (i.e. how closely others can follow them with similar qualifications). Novelty can be judged in at least three ways: (1) by the amount of new insight added, (2) by the significance of the research reported in terms of the implications it has for seeing important matters in a new light and/or provide a new way of thinking about the phenomenon under study, (3) by the completeness and coherence of the research report(s). Can the author provide an overall picture so that its components link up to each other without major holes in the picture that is being painted? Believability, on the other hand, relates to how well the research arguments make sense in light of our total knowledge (Hirschheim & Klein, 2000).</p>

Third, the historical method may look like the field study⁵⁶ because, like the historical research method, the field study aims to understand people engaged in their everyday activity in their natural environmental contexts in all areas of society. These methods too, however, have differences. For example, the field study tends to employ a narrower range of data collection methods (with both quantitative and qualitative data) than historical research. It tends to rely more on observation and field notes than the case study or historical research, which are rarely based on contemporaneous observation. The field study is mostly based on collecting data in contemporary world settings, whereas historical research may rely solely on archival sources. Traditionally, the field study has also had a narrower range of units of analysis than historical research because its focus is typically the social group. Historical research has no specific preferred unit of analysis. The field study has also been narrower in its philosophy and approaches than historical research, although recently these have expanded to include interpretivism, critical theory, and various form of constructivism (Hall, 2008). We summarize some central differences of the historical method and the field method in Table 7.

⁵⁶ In many texts, field study and case study are considered to be so similar that they are not always discussed as distinct methods (Babbie, 2004; Monette et al., 1998). Yin (2004), however, distinguishes field study from case study (and thus historical research) in terms of scope, methods of data collection, and role of theory.

Table 7. Some Differences Between Historical Research and Field Study

	Historical method	Field study
Data	Often archival data, written records and historical artifacts. Unit of analysis not restricted by the method. Often entirely archival materials, written records, and artifacts.	Tends to rely on observation and field notes. Relatively narrow set of units of analysis. Traditionally focus is a social group. Often data collected in contemporary real world settings.
Philosophy and approaches	Relatively open in terms of applicable research paradigms and approaches.	Relatively narrow philosophy and approaches. Interpretivism and constructivism relatively recent additions (Hall, 2008).

Finally, historical research may seem like ethnographic research⁵⁷ because it can emphasize detailed, focused descriptions of events and evidence. A central difference between historical research and ethnography is, however, that the latter usually requires long periods of time in the field and emphasizes detailed, observational evidence (Yin, 1994). A similar difference is found between the case study and the ethnography; Klein and Myers (1999) state:

Although there is no hard and fast distinction between the case study and the ethnography, their principle differences are the length of time the investigator is required to spend in the field and the extent to which the researcher immerses himself or herself in the life of the social group under study. (p.69)

Like historical research, ethnography is a study of social groups that places specific encounters, events, and understandings into a fuller more meaningful context (cf. Tedlock, 2003). However, historical research is different in that much of the evidence comes from historical rather than observational sources, whereas ethnography involves conducting field research using mostly observational methods. Ethnography can provide a richer context because it is contemporaneously constructed and meaningful detail can be recorded by the researchers during their often lengthy observation periods. Such detail is often unavailable for historians working on understanding historical contexts. Historians often cannot indulge in the contexts they are describing because these do not necessarily exist at the time of the research or do not exist as they once were. In historical research, constructivism is one ontological perspective amongst many. In comparison, being able to study social groups in their natural settings has made ethnography the favored approach among today's constructivists (Hall, 2008). We summarize some central differences of the historical method and ethnography in Table 8.

⁵⁷ Ethnography is an approach to field research that originated in anthropology but is also found in areas such as applied social science (i.e., organizational studies) (Hall, 2008). There is no single unified approach to ethnography, but Boyle (1994) has identified four kinds of ethnographies according to focus and approach. Also, Muecke (1994) distinguishes ethnography approaches based on methodological perspectives.

Table 8. Some Differences Between Historical Research and Ethnography

	Historical method	Ethnography
Data	Often entirely archival materials, written records and artifacts.	Usually requires long periods of time in the "field" and emphasizes detailed, observational evidence (Yin, 1994). Immersion of the researcher in the life of the social group under study.
Context	Broader in nature. Context is used to help historian understand the causes of events and to assess their relative importance (Gottschalk, 1969; Elton, 1967).	More detailed in nature. Emphasizes placing specific encounters, events and understandings into a fuller, more meaningful context (cf. Tedlock, 2003).

In this section, we illustrate some essential differences between the historical method and four other more commonly known research methods in the IS field. We have done this because of the confusion that exists in the IS field about what the key differences between the historical method and other "similar" methods. Hopefully, the reader has gained a broader understanding of how their preferred method compares with the characteristics of the historical method using our illustration of the historical method in this paper.

6. Some Conclusions

When a cognitive science PhD student, Wineburg (2001), wanted to review the literature on how historical narratives are created, his professor replied matter-of-factly: "Can't. There is no literature to review" (p. x-xi). Wineburg found the historiography literature and saw its usefulness in understanding historians' work. So have we. But this literature often focuses on the outcome of the historians' practice. It does not necessarily illuminate "what goes in the middle: the way stations of skilled historical practice, the false starts, the half-baked ideas, the wild goose chases that are edited out of historians' monographs as well as their methods books for novices." (p. xi).

In this paper, we show some of the aspects of how history is being produced by opening up the historical method for examination. For this purpose, we introduce a four-tiered research framework that can show what takes place at four interconnected levels of paradigms, approaches, methods, and techniques as historians go about doing their work. In this paper, we mainly discuss the historical method from an IS historians' viewpoint. While we have aspired for a broadest possible perspective on historical research (hence the four tiered research model), we admit that our perspective in this paper has largely been social relativist, interpretivist, and pragmatic. We make no apologies for this. We have done what we can in the space of one paper. We wish to invite other authors to join us in the discussion on the historical method as it relates to the paradigms, approaches, methods, and techniques of their preference and expertise. We believe we provide an adequate framework and starting point for this important future work.

The topic of this paper was born out of our own frustrations as IS historians to find useful resources for solving practical problems of an actual historical research project. We include in this paper many of the ideas that helped us along the way. As most IS researchers, we are students of the historical method with no formal training in the practice of history writing. Similarly, we are observers of the postmodernist debate but with a keen interest to make its contributions useful for the IS field and specifically to those IS researchers who are interested in contributing to the emerging IS historical tradition. Admittedly, we too are guilty of presenting a somewhat idealized version of what really went on in the decade-long process of delving into how historians produce their narratives. Our aim has been to reflect on what turned out to be most useful and relevant for producing a historical narrative ourselves.

One such revelation was our discovery of the importance of having a clearly articulated approach. For those places in the middle where paradigms, methods, theories, or techniques do not carry an historian's inquiry, a good approach is invaluable. Although no approach can completely eliminate times of indecision or learning from trial and error, it can help find direction amid what necessarily remains a creative and arduous process even when taking into account that the historical method is relatively well developed at all four levels of analysis. Today's historical method is richer and more powerful than ever before. If there is a problem with adopting the historical method in the IS field today, it is in the number of possible paradigms, methodological, and theoretical options to choose from.

The other side of having many options is that no matter what IS research background one comes from, it can be useful in the history writing process. Perhaps no one, including proper historians, was fully prepared for the revolution postmodernism initiated in the premises of historical research. The academic discourse for and against these influences has calmed down and been complemented with declarations of the entire postmodernist debate amounting to not much more than an ontological and epistemological paper tiger (Fernández-Armesto, 2002). At first, postmodernism seemed to threaten historians' truth and the language in which they expressed it. In retrospect, however, postmodernism has benefitted historical research by broadening the horizons of what history is and how and by whom it can be done. One sign of this is that IS history is now being more widely accepted as an integral part of the IS field.

Another important outcome of the historical method discourse has been that today's historians debate the nature of the historical narrative and its production process as much as they discuss the meaning of the past (Munslow, 1997). Creating knowledge about the past is no longer about choosing among a few paradigms, approaches, methods, or techniques deemed appropriate but rather acknowledging that there is power in diversity. Each different paradigm, approach, method, and technique has its unique contribution to make to the historical method and thus to the ever-evolving understanding of the past.

On a broader note, we believe that what is happening with the historical method may be indicative of the future direction of academic inquiry in general. The problems of the world today are such that more comprehensive ways of thinking about doing research about the past are needed in order to make progress with tackling the challenges facing humankind and its IS. Two founding members of the IS research field, C. West Churchman and Enid Mumford, left a legacy to the field by calling its attention to solving real and serious global problems such as poverty, illness, illegal drugs, and crime (Porra, 2001; Mumford, 1999). Comprehensive problems like these call for comprehensive research methods. Churchman warned IS researchers against compartmentalizing their research practices along paradigmatic lines because this sort of activity tends to blind the field from seeing relevant research questions. Along the same lines, Mumford was a vocal proponent that research questions and not methods should drive what IS researchers do. Our discussion of the historical method provides a perspective on research methods that emphasizes their portfolio nature. What paradigm, approach, method, theory, or technique one chooses to study the past or the future should depend on what questions one attempts to answer and for what purpose.

References

- Abernathy, W. J., & Utterback, J. (1978). Patterns of industrial innovation. *Technology Review*, 80(7), 40-47.
- Appleby, J., Hunt, L., & Jacobs, M. (1999). From the future of history in telling the truth about history. In L. Menand (Ed.), *Pragmatism—a reader* (pp. 457-468). New York: Vintage Books.
- Avison, D.E., & Fitzgerald, G. (1995). *Information systems development: Methodologies, techniques and tools* (2nd edn.). London: McGraw-Hill.
- Avison, D., Lau, F., Myers, M., & Nielsen, P. A. (1999). Action research. *Communications of the ACM*, 42(1), 94-97.
- Babbie, R. (2004). *The practice of social research*. Belmont, CA: Wadsworth.
- Bailyn, B. (1994). *On the teaching and writing of history. Responses to a series of questions*. Hanover, NH: University Press of New England.
- Becker, C. L. (1932). Everyman his own historian. *American Historical Review* 37, 233-255.
- Berger, P., & Luckmann, T. (1967). *The social construction of reality*. New York: Doubleday.
- Bernheim, E. (1889). *Lehrbuch der historischen methode und der geschichtsphilosophie* (Guidebook for Historical Method and the Philosophy of History). Leipzig: Drucker & Humblot.
- Bernstein R. J. (1999). Pragmatism, pluralism, and the healing of wounds. In L. Menand (Ed.), *Pragmatism—a reader* (pp. 382-401). New York: Vintage Books.
- Bleicher, J. (1982). The hermeneutic imagination: Outline of a positive critique of scientism and sociology. London: Routledge.
- Bloch, M. (1953). *The historian's craft*. New York: Vintage Books.
- Boland, R. (1991). Information systems use as a hermeneutic process. In H.-E. Nissen, H. K. Klein, & R. Hirschheim (Eds.), *Information system research: Contemporary approaches and emergent traditions* (pp.439-464). Amsterdam: North-Holland.
- Boyle (1994). Style of ethnography. In J. M Morse (Ed.), *Critical issues in qualitative research methods* (pp. 159-185). Thousand Oaks, CA: Sage.
- Breisach, E. (1983). *Historiography*. Chicago: University of Chicago Press.
- Brett, A. (2002). What is intellectual history now? In D. Cannadine (Ed.), *What is history now?* (pp. 113-131). London: Palgrave Macmillan.
- Brooks, P. C. (1969). *Research in archives*. Chicago: University of Chicago Press.
- Bryant, A., Black, A., Land, F., & Porra, J. (2013). What is history? What is IS history? What IS history? ... and why even bother with history? *Journal of Information Technology*, 28(1) 1-17.
- Burrell, G., & Morgan, G. (1979). *Sociological paradigms and organizational analysis*. London: Heinemann Books.
- Caminer, D., Aris, J., Hermon, P., & Land, F. (1998). LEO: The incredible story of the world's first business computer. New York: McGraw-Hill.
- Cannadine, D. (Ed.). (2002). *What is history now?* New York: Palgrave Macmillan.
- Carr, E. H. (1961). *What is history*. New York: Vintage Books.
- Cartledge, P. (2002). What is social history now? In D. Cannadine (Ed.), *What is history now?* (pp. 19-35). London: Palgrave Macmillan.
- Cattell, R. B. (Ed.). (1966). *Handbook of multivariate experimental psychology*. Chicago, IL: Rand McNally.
- Chua, W. (1986). Radical developments in accounting thought. *The Accounting Review*, 61(4), 601-632
- Colley, L. (2002). What is imperial history now? In D. Cannadine (Ed.), *What is history now?* (pp. 132-147). New York: Palgrave Macmillan.
- Collingwood, R. G. (1946). *The idea of history*. New York: Oxford University Press.
- Cooper, R., & Burrell, G. (1988). Modernism, postmodernism and organizational analysis: An introduction. *Organization Studies*, 9(1), 91-112.
- Copeland, D. G., & McKenney, J. L. (1988). Airline reservations systems: Lessons from history. *MIS Quarterly*, 12(3), 131-136.
- Copleston, S. J. (1994). The philosophy of C.S. Peirce. In S. J. Copleston, *Part VIII: Empiricism, idealism, and pragmatism in Britain and America* (pp. 304-329). New York: Image Book.
- Crump, C. G. (1928). *History and historical research*. London: G. Routledge & Sons.
- Danto, A. C. (1985). *Narration and knowledge*. New York: Columbia University Press.
- Danto, A. C. (1965). *Analytical philosophy of history*. Cambridge, UK.

- Deetz, S. (1996). Describing differences in approaches to organization science: Rethinking Burrell and Morgan and their legacy. *Organization Science*, 7(2), 191-207.
- Denzin, N. K., & Guba, E. G. (Eds.). (1994). *Handbook of qualitative research*. Beverly Hills, CA: Sage.
- Derrida, J. (1976). *Of grammatology* (G. C. Spivak, Trans.). Baltimore, MD: Johns Hopkins University Press.
- Dickson, G. (1981). Management information systems: Evolution and status. In M. Yovitz (Ed.), *Advances in computers* (Vol. 20, pp.1-29). New York: Academic Press.
- Earl, M., & Feeny, D. (2000). How to be a CEO for the information age. *Sloan Management Review*, 41(2), 11-23.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-50.
- Eldredge, N., & Gould, S. (1972). Punctuated equilibrium: An alternative to phyletic gradualism. In T. J. M. Schopf (Ed.), *Models in paleobiology*. San Francisco, CA: Freeman, Cooper & Company.
- Elton, G. (1967). *The practice of history*. New York: Thomas Cromwell Publishers.
- Evans, R. J. (2002). Prologue: What is history?—now. In D. Cannadine (Ed.), *What is history now?* (pp. 1-18). New York: Palgrave Macmillan.
- Fallace, T. D. (2010). John Dewey on history education and the historical method. *Education & Culture*, 26(2), 20-35.
- Feeny, D., & Willcocks, L. (1998). Core IS capabilities for exploiting information technology. *Sloan Management Review*, 39(3), 9-21.
- Fernández-Armesto, F. (2002). Epilogue: What is history now? In D. Cannadine (Ed.), *What is history now?* (pp. 148-161). New York: Palgrave Macmillan.
- Ferry, G. (2003). *A computer called LEO—Lyons teashops and the world's first office computer*. London: Fourth Estate.
- Fogel, R. W., & Elton, G. R. (1983). *Which road to the past? Two views of history*. New Haven, CT: Yale University Press.
- Friedman, A., & Cornford, D. (1989). *Computer systems development: History, organization and implementation*. Chichester: John Wiley & Sons.
- Gadamer, H.-G. (1960). *Warheit und methode*. Germany: Mohr.
- Geertz, G. (1973). *The interpretation of cultures*. New York: Basic Books.
- Gersick, C. J. G. (1991). Evolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review*, 16(1), 10-36.
- Giddens, A. (1984). *The constitution of society: Outline for a theory of structuration*. Cambridge: Polity Press.
- Giddens, A. (1977). *Studies in social and political theory*. London, UK: Hutchinson.
- Giddens, A., & Turner, J. H. (1987). *Social theory today*. Stanford, CA: Stanford University Press.
- Ginzburg, C. (1980). *The cheese and the worms: The cosmos of a sixteenth-century Miller*. London: Routledge.
- Golder, P. (2000). Historical method in marketing research with new evidence on long-term market share stability. *Journal of Marketing Research*, 37(2), 156-172.
- Goldkuhl, G. (2012). Pragmatism vs. interpretivism in qualitative information systems research. *European Journal of Information Systems*, 21(2), 135-146.
- Goles, T., & Hirschheim, R. (2000). The paradigm is dead...long live the paradigm: The legacy of Burrell and Morgan. *Omega*, 28(3), 249-268.
- Gottschalk, L. (1969). *Understanding history: A primer of historical method*. New York: Alfred A. Knopf.
- Grigg, S. (1991). Archival practice and the foundations of historical method. *The Journal of American History*, 78(1), 228-239.
- Hall, R. (2008). *Applied social research: Planning, designing and conducting real-world research*. South Yarra, Victoria: Palgrave Macmillan.
- Hexter, J. H. (1971). *The history primer*. New York: Basic Books.
- Hirschheim, R., & Klein, H. (2012). A glorious and not-so-short history of the information systems field. *Journal of the Association for Information Systems*, 13(4), 1-48.
- Hirschheim, R., & Klein, H. (2000). Information systems research at the crossroads: External vs. internal views. In R. Baskerville & J. Stage (Eds.), *IS2000: The social and organizational perspective on research and practice in information technology* (pp. 233-254). London: Chapman & Hall.
- Hirschheim, R., & Klein, H. (1989). Four paradigms of information systems development. *Communications of the ACM*, 32(10), 1199-1216.

- Hirschheim, R., Klein, H., & Lyytinen, K. (1996). Exploring the intellectual foundations of information systems. *Accounting, Management and Information Technologies*, 6(1/2), 1–64.
- Hirschheim, R., Porra J., & Parks, M. S. (2003). The evolution of the corporate IT Function and the role of the CIO at Texaco—how do perceptions of IT's Performance get formed? *Data Base*, 34(4), 8-27.
- Howell, M., & Prevenier, W. (2001). *From reliable sources—An introduction to historical methods*. Ithaca: Cornell University Press.
- Hufton, O. (2002). What is religious history now? In D. Cannadine (Ed.), *What is history now?* (pp. 57-79). New York: Palgrave Macmillan.
- Iivari, J., Hirschheim, R., & Lyytinen, K. (1998). Paradigmatic analysis contrasting information systems development approaches and methodologies. *Information Systems Research*, 9(2) 164-193.
- Jakobs, K. (2013). Why then did x.400 fail? Reasons and lessons to be learned. *Journal of Information Technology*, 28(1), 63-73.
- James, W. (1977). *A pluralistic universe*. Cambridge, MA: Harvard University Press.
- James, W. (1975). Philosophical conceptions and practical results. In F. H. Burkhardt (Ed.), *Pragmatism* (pp. 257-270). Cambridge, MA: Harvard University Press.
- James, W. (1909). *The meaning of truth*. New York: Longmans, Green, and Co.
- James, W. (1907). *Pragmatism*. New York: Longmans, Green, and Co.
- Johnson, A. (1934). *The historian and historical evidence*. New York: Charles Scribner's Sons.
- Jones, G., & Zeitlin, J. (2007). *The Oxford handbook of business history*. Oxford: Oxford University Press.
- Kessler-Harris, A. (2002). What is gender history now? In D. Cannadine (Ed.), *What is history now?* (pp. 95-112). New York: Palgrave Macmillan.
- Kieser, A. (1994). Why organization theory needs historical analysis—and how this should be performed. *Organization Science*, 5(4), 608-20.
- Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1), 67-94.
- Kuhn, T. S. (1962). *The structure of scientific revolutions* (1st edn.). Chicago: University of Chicago Press.
- Lakatos, I., & Musgrave, A. (1970). *Criticism and the growth of knowledge*. Cambridge: Cambridge University Press.
- Lacity, M., & Hirschheim, R. (1993). *Information systems outsourcing: Myths, metaphors and realities*. Chichester: John Wiley & Sons.
- Land, F. F. (2000). The first business computer: A case study in user-driven innovation. *IEEE Annals of the History of Computing*, 22(4), 16-26.
- Land, F. F. (1982). Adapting to changing user requirements. *Information & Management*, 5(2), 59-75.
- Land, F. F., & Somogyi, E. K. (1986). Software engineering: The relationship between a formal system and its environment. *Journal of Information Technology*, 1(1), 14-21.
- Langlois, C. V., & Seignobos, C. (1898). *Introduction to the study of history*. New York: Henry Holt and Co.
- Lee, A. (1991). Integrating positivist and interpretive approaches to organizational research. *Organization Science*, 2(4), 342-365.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Mann, F. C., & Williams, L. K. (1960). Observations on the dynamics of a change to electronic data-processing equipment. *Administrative Science Quarterly*, 5(3), 217-256.
- Markus, M. L. (1983). Power, politics and MIS implementation. *Communications of the ACM*, 26(6), 430-444.
- Marshall, G. (1994). *The concise Oxford dictionary of sociology*. Oxford: Oxford University Press.
- Marwick, A. (2001). *The new nature of history—knowledge, evidence, language*. Chicago, IL: Lyceum Books.
- Marwick, A. (1970). *The nature of history*. London: MacMillan.
- Mason, J. (2002). *Qualitative researching* (2nd edn). London: Sage.
- Mason, R. O., McKenney, J. L., & Copeland, D. G. (1997a). Developing an historical tradition in MIS research. *MIS quarterly*, 21(3), 257-278.
- Mason, R. O., McKenney, J. L., & Copeland, D. G. (1997b). An historical method for MIS research: Steps and assumptions. *MIS Quarterly*, 21(3), 307-320.
- Marx, K. (1867). *Das kapital*. Hamburg: Verlag von Otto Meisner.
- Mayr, E. (1982). *The growth of biological thought—diversity, evolution and inheritance*. Cambridge, MA: Harvard University Press.
- McCullagh, B. C. (1984). *Justifying historical descriptions*. New York: Cambridge University Press.

- McFarlan, F. W. (1984). *The information systems research challenge*. Boston: Harvard Business School Press.
- McKenney, J. L., Mason, R. O., & Copeland, D. G. (1997). Bank of America: The crest and trough of technological leadership. *MIS Quarterly*, 21(3), 321-353.
- Menand, L. (1997). The return of pragmatism. *American Heritage*, 48(6), 48-63.
- Mitroff, I. (1980). *Stakeholders of the organizational mind*. San Francisco: Jossey-Bass.
- Monette, D. R., Sullivan, T. J., & DeJong, C. R. (1998). *Applied social research: Tool for the human services*. Fort Worth: Harcourt College Publishers.
- Muecke, M. A. (1994). On the evaluation of ethnographies. In J. M. Morse (Ed.), *Critical issues in qualitative research methods* (pp. 186-209). Thousand Oaks, CA: Sage.
- Mumford, E. (1999). *Dangerous decisions—problem solving in tomorrow's world*. New York: Kluwer Academic Publishing.
- Mumford, E., Hirschheim, R., Fitzgerald, G., & Wood-Harper, T. (Eds.). (1985). *Research methods in information systems*. Amsterdam: North-Holland.
- Munhall, P., & Oiler, C. (1986). Language and nursing research. In P. Munhall & C. Oiler (Eds.), *Nursing research: A qualitative perspective* (pp. 19-40). Norwalk, CT: Appleton-Century-Crofts.
- Munslow, A. (1997). *Deconstructing history*. New York: Routledge.
- Novick, P. (1988). *That noble dream: The "objectivity question" and the American historical profession*. Cambridge: Cambridge University Press.
- Palmlund, D. (1997). In search of the ideal CIO. *Financial Executive*, 13(3), 37-39.
- Pastore, R. (1997). Rosenbluth's Dean Sivley on marrying the marketing and IS functions. *CIO*, 10(15), 118.
- Pedersen, S. (2002). What is political history now? In D. Cannadine (Ed.), *What is history now* (pp. 36-56). New York: Palgrave Macmillan.
- Peirce, C. (1991). *Peirce on signs: Writings on semiotic by Charles Sanders Peirce*. Chapel Hill: University of North Carolina Press.
- Peppard, J., & Ward, J. (1999). "Mind the gap": Diagnosing the relationship between the IT organization and the rest of the business. *Journal of Strategic Information Systems*, 8(1), 29-60.
- Pettigrew, A. (1973). *The politics of organizational decision making*. London: Tavistock Publications.
- Plotnik, R. (2010). Computers, systems theory, and the making of a wired hospital: A history of technicon medical information system, 1964-1987. *Journal of the American Society for Information Science and Technology*, 61(6), 1281-1984.
- Porra, J. (2010). Group level evolution and information systems: What can we learn from animal colonies in nature? In N. Kock (Ed.), *Evolutionary psychology and information systems research: A new approach to studying the effects of modern technologies on human behavior* (pp. 39-60). Springer.
- Porra, J. (2001). A dialogue with C. West Churchman. *Information Systems Frontiers*, 3(1), 19-27.
- Porra, J. (1999). Colonial systems. *Information Systems Research*, 10(1), 38-69.
- Porra, J. (1996). *Colonial systems, information colonies and punctuated prototyping* (Unpublished PhD dissertation). Department of Computer Science, University of Jyväskylä, Finland.
- Porra, J., Hirschheim, R., & Parks, M. S. (2006). Forty years of corporate information technology function at Texaco Inc.—a history. *Information and Organization*, 16(1), 82-107.
- Porra, J., Hirschheim, R., & Parks, M. S. (2005). The history of Texaco's corporate IT function—a general systems theoretical interpretation, *MIS Quarterly*, 29(4), 721-746.
- Romanczuk, J. B., & Pemberton, J. M. (1997). The chief information officer: Rise and fall? *Records Management Quarterly*, 31(2), 14-26.
- Romanelli, E., & Tushman, M. L. (1994). Organizational transformation as punctuated equilibrium: An empirical test. *Academy of Management Journal*, 37(5), 1141-1166.
- Rorty, R. (1979). *Philosophy and the mirror of nature*. Princeton, Princeton University Press.
- Rubin, M. (2002). What is cultural history now? In D. Cannadine (Ed.) *What is history now?* (pp. 80-94). New York: Palgrave Macmillan.
- Rundell, W., Jr. (1970). In pursuit of American history: Research and training in the United States. *Normati*, 3(20), 36-38.
- Sabherwal, R., Hirschheim, R., & Goles, T. (2001). The dynamics of alignment: The punctuated equilibrium model. *Organization Science*, 12(2), 179-197.
- Salvemini, G. (1939). *Historian and scientist*. Cambridge, MA: Harvard University Press.

- Saussure. (1967). *Cours de linguistique general*. Harrassowitz: Wiesbaden.
- Schumpeter, J. A. (1954). *History of economic analysis*. New York: Oxford University Press.
- Schumpeter, J. A. (1942). *Capitalism, socialism and democracy*. New York: Harper & Row.
- Schumpeter, J. A. (1934). *Theory of economic development*. Cambridge, MA: Harvard University Press.
- Shafer, R. J. (1974). *A guide to historical method*. Homewood, IL: The Dorsey Press.
- Silverman, D. (1970). *The theory of organizations: A sociological framework*. London: Heinemann.
- Smith, R., & Lux, D. (1993). Historical method in consumer research: Developing causal explanations of change. *Journal of Consumer Research*, 19(4), 595-610.
- Solow, R. (2002). The real source of the productivity boom. *Harvard Business Review*. Retrieved from <http://hbr.org/2002/03/the-real-source-of-the-productivity-boom/ar/1>
- Stone, L. (1992). History and post-modernism. *Past and Present*, 135(1), 189-194.
- Strassmann, P. (1995). *The politics of information management*. New Canaan, CT: The Information Economics Press.
- Strassmann, P. (1985). *Information payoff*. New York: Free Press.
- Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. London: Sage.
- Tedlock, D. (2003). *Rabinal Achi: A Mayan drama of war and sacrifice*. Oxford: Oxford University Press.
- Thompson, J. D. (1967). *Organizations in action*. New York: McGraw-Hill.
- Todd, W. (1972). *History as applied science*. Detroit: Wayne State University Press.
- Tosh, J. (2000). *The pursuit of history* (3rd edn.). Essex, UK: Pearson Education Ltd.
- Tosh, J. (1984). *The pursuit of history* (1st edn.). Essex, UK: Pearson Education Ltd.
- Topolski, J. (1976). *Methodology of history*. Dordrecht, NL: D. Reidel Publishing Company.
- Tuchman, B. (1981). *Practicing history*. NY: Alfred Knopf.
- Tushman, M. L., & Romanelli, E. (1985). Organizational evolution: A metamorphosis model of convergence and reorientation. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 7, pp. 171-222). Greenwich, CT: JAI Press.
- Venkatraman, N., & Loh, L. (1994). The shifting logic of the IS organization: From technical portfolio to relationships. *Information Strategy*, 10(2), 5-11.
- Von Bertalanffy, L. (1968). *General systems theory*. New York: George Braziller.
- Walsham, G. (1993). *Interpreting Information Systems in Organizations*, J. Wiley & Sons, Chichester.
- Watson, R. T, Pitt, L. F., & Kavan, C. B. (1998). Measuring information systems service quality: Lessons from two longitudinal case studies. *MIS Quarterly*, 22(1), 61-79.
- Weber, M. (1930). *The Protestant Ethic and the Spirit of Capitalism* (Talcott Parsons, Trans.). New York: Scribner.
- Weber, M. (1922). *Wirtschaft und Gesellschaft*. Tübingen: Mohr.
- Wicks, A. C., & Freeman, R. E. (1998). Organization studies and the new pragmatism. *Organization Science*, 9(2), 123-139.
- Willcocks, L., & Lacity, M. (Eds.). (1998). *Strategic sourcing of information systems*. Chichester: John Wiley & Sons.
- Wineburg, S. (2001). *Historical thinking and other unnatural acts—charting the future of teaching the past*. Philadelphia: Temple University Press.
- Yergin, D. (1992). *The prize: The epic quest for oil, money and power*. NY: Touchstone Books.
- Yin, R. (1994). *Case study research: Design and methods* (2nd edn.). Beverley Hills, CA: Sage.

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