Perspective

Legal Admissibility of Electronic Records as Evidence and Implications for Records Management

SARA J. PIASECKI

Abstract: As civilization develops, both socially and technologically, the laws that govern human action must change accordingly. This paper examines the current legal debate over the nature of electronic records and their legal admissibility as evidence in light of past debates on the admissibility of microfilm, photocopies, and written documents themselves. The author sees contemporary judicial thinking as following the historical trend of relying on personal testimony and "dependable systems" to ensure documentary veracity and validity. The conclusion stresses the impact of the legal status of electronic records on records management programs and the need for records managers to be aware of the foundations of current legal thought.

About the author: *Sara J. Piasecki received her B.A. in medieval studies from Reed College in 1992. She is a 1994 graduate of the College of Library and Information Services at the University of Maryland at College Park. This paper was originally written in spring 1994 for Dr. Frank Burke's course on archives, libraries, and the law.*

THROUGHOUT HISTORY, societies have created rites and procedures through which individuals could achieve social and legal validation for their actions. In the Middle Ages, social acceptance and individual honor were defined and articulated in courts of law through the oral testimony of witnesses, who were called to verify the social standing and moral character of an individual. Conversely, legal acceptance of an individual's actions was predicated on his or her place in the fabric of society as shown in this oral testimony, and not necessarily on determinations of the legality or illegality, or commission or noncommission, of a deed. The strongest legal evidence was oral testimony by honorable citizens, and accountability was socially constructed and communally enforced.

Over the course of centuries, written documents have slowly been introduced as a secondary form of evidence. These texts, too, testified by personal statement: elaborate seals and signatures accommodated the oral tradition's emphasis on the identity and status of the witness, rather than on the content of the evidence itself. Formal aspects of the text—such as layout, design, and script, as well as written formulae—supplemented seals and signatures in identifying the authority behind the document. This authority, established internally, allowed the document to provide evidence of an external event.

Modern society has tended to move away from oral testimony, or at least to have placed a far greater faith in, and emphasis on, written records. While witnesses may and often do perjure themselves on the stand, judicial thinking on written records is that they provide documented facts, and the mechanisms for enforcing accountability have become record-based. Michael Buckland has observed that "[modern] society seems to have decided that you can make people honest by requiring enough documentation—or, at least, that you can make them more accountable."[1]

Certain legal theories and practices, however, remain rooted in a culture, or system, of reliance on oral testimony. The rule of hearsay is one such orally based practice, defined as "written or oral statements or assertions by way of non-verbal conduct *made by persons not testifying* [which] are inadmissible if tendered as proof of their truth or implicit assertions."[2] The rule is based on conceptions of the validity and veracity of direct oral testimony and a distrust of information delivered second-hand, including, theoretically, all written documents. Historically, the hearsay rule has hindered efforts to introduce more kinds of records into evidence, and its foundation in theories of oral testimony has hampered the legal recognition and accommodation of technological advances in systems and methods of documentation. The accumulation of a body of case law has been required at each step to ensure legal acceptance of new technologies into evidence and to solidify the legal foundations of admissibility against objections based on technicality and conflicting judicial decisions.

This legal system, which has taken years to accept paper records as primary evidence, has done so on the basis of strict guidelines that promote a continued reliance on personal accountability. Thus the specter of electronic records—records and documents created, manipulated, and/or maintained on digital technologies, such as the personal computer—has quickly cast its shadow on judicial thinking about the nature of records and their admissibility as evidence. Insecurity and ambivalence

[1]Michael K. Buckland, "Records Management in Its Intellectual Context: Experience at Berkeley," *Records Management Quarterly* 16 (October 1982): 26.

[2]Mark Hopkins, "Records and Records Keepers Judicially Considered: Credibility or Convenience?" *Archivaria* 18 (Summer 1984): 155. Emphasis added.

about the reliability of electronic records and their inherent truth has caused an uneasiness about their value as evidence. When first introduced into judicial proceedings, written documents gave ample testimony to their own authority—by means of seals and the like—as well as testimony concerning the case at hand. In contrast, the apparent lack of internal validation of electronic records renders their testimony about external events all the more suspect. Hugh Taylor sees the proliferation of electronic records and communication as the advent of a "post-literate" era, in which high-speed linkages will foster modes of communication analogous to those of oral cultures.[3] If his prediction proves correct, electronic records may shed the few remaining structural and formal properties they share with paper documents, further confounding current legal rules of evidence, which recognize the formal and systematic properties of records and record systems more than the contents of the documents themselves.

During the early development and growth of electronic technologies in recordkeeping systems, many predicted that electronic records would replace paper and result in the "paperless office," but this has not yet come to pass. In fact, the volume of paper records seems to be growing, and estimates show that 95 percent of business records are currently produced and kept on paper. A projection for 1999 sees the volume of paper records falling only slightly, to 92 percent of total records, whereas electronic records are expected to climb only slowly, to 5 percent of total records.[4] Will this be a steady trend, indicating that paper records, far from being replaced by electronic records, will continue to thrive, and slowly make way for electronic records as coexisting records? Or, as Taylor sees it, are we witnessing a "vast hang-over of paper, . . . a kind of super-nova paper explosion before the flip into largely terminal activity?"[5]

This is no idle question, for its answer may determine the legal identity of electronic records. If electronic records remain tied to paper—especially if some retain paper-based input or output—they may retain their textual similarities, and the law may continue to treat electronic records as paper records, modifying rules and procedures only slightly to allow electronic records into evidence. If, however, electronic records do emerge as the sole (or dominant) documentary medium, they may continue to evolve away from their roots in paper documentation and may develop protocols and characteristics so alien to paper records as to be unclassifiable by current legal definitions. J. Timothy Sprehe has reflected that most current laws concerning documentation "apparently entailed an unquestioning assumption that the records medium would remain constant, that records would always be maintained on paper."[6] When this assumption is obviated, the law may become untenable; some observers have even expressed concern that the U.S. Constitution may be, in part, so flawed in its basis and may require amendment to accommodate electronic technologies.[7]

The issue of the legal acceptance of electronic records, and the theoretical and prac-

[3]Hugh Taylor, "'My Very Act and Deed': Some Reflections on the Role of Textual Records in the Conduct of Affairs," *American Archivist* 51 (Fall 1988): 457.

[4]Whit Minkler, presentation on micrographics given at the University of Maryland, College Park, 26 April 1994.

[5]Taylor, "'My Very Act and Deed'," 466.

[6]J. Timothy Sprehe, "The Significance of 'Admissibility of Electronically Filed Federal Records as Evidence,'" *Government Information Quarterly* 9 (April 1992): 153.

[7]James Daly, "Constitutional Scholar Calls for High-Tech Amendment," *Computerworld,* 1 April 1991, 99; Robert Ritter, "E-mail Laws Changing: Judicial and Legislative Notice of the New Ways We Communicate," *Quill* 81 (October 1993), 24.

tical bases on which that acceptance is to be granted, is important not only to those who must create and interpret the law but also to those who must obey the law and seek justice in its confines. Into this latter category fall records managers, who are keenly aware of the legal requirements and obligations of their records programs and of the need to establish the legality and admissibility into evidence of the documents in their care. The outcome of judicial decisions and legal wranglings over the admissibility of electronic records will have a considerable impact on records management programs in public and private organizations. It will do so whether electronic records remain a small percentage of all records kept or grow to replace paper records for the majority of organizations' transactions. An understanding of the history and present state of judicial decisions informing ongoing debates may help records managers follow current legal reasoning. That understanding may also make it easier to anticipate directions in which records management programs may need to develop to meet changing requirements for the handling of electronic records.

A History of New Technologies: Years of Change and Resistance

Taylor has observed that as new technologies are introduced into society, the "new medium is deeply distrusted until it becomes established and takes on a life of its own."[8] The legal questions being raised about the legal admissibility of electronic records recall previous debates over the introduction of two other technologies: photocopies and microfilm. Both of these technologies were distrusted as evidence until the law was able to establish bases for authenticating them as true reproductions of paper originals.

During the early usage of photocopiers in the conduct of business, photocopies were regarded only as copies of original records, or secondary evidence, whereas original records and carbon copies alone were accorded status as primary evidence.[9] A 1938 U.S. federal court decision found that "recordak" microfilm photographic copies of documents kept as "regular records" were admissible under the Federal Business Records Act (28 USC Sec 1732–33), even though not specifically provided for by that act. However, the Illinois Supreme Court ruling in 1942 on the use of the same technology refused to accord photocopies a legal status for admissibility identical to that of carbon copies. Conflicting judicial precedents were finally settled in 1949 with the passage of the Uniform Photographic Copies of Business and Public Records as Evidence Act, or UPA (9a Uniform Laws Anno. 580), as an amendment to the Federal Business Records Act. The act stated that if an organization

> in the regular course of business or activity has kept or recorded any memorandum, writing, entry, print, representation or combination thereof, of any act, transaction, occurrence or event, and in the regular course of business has caused any or all of the same to be recorded, copied, or reproduced by any photographic, photostatic, microfilm, micro-card, miniature photographic, or other process which accurately reproduces or forms a durable medium for so reproducing the original, the original may be destroyed in the regular course of business unless held in a custodial or fiduciary capacity or unless its preservation is required by

[8]Taylor, "'My Very Act and Deed'," 457–459.

[9]The following discussion is based on the treatment of photocopies in Charles C. Scott, *Photographic Evidence: Preparation and Presentation,* 2nd. ed., vol. 3 (St. Paul, Minn.: West Publishing Company, 1969), especially sections 1381–92.

> law. Such reproduction, when satisfactorily identified, is as admissible in evidence as the original itself.

The key phrase of the act is "in the regular course of business." For a photocopy not made in the regular course of business to be admitted, proof must be given that (1) the original document would have been admissible; (2) the original document is not producible; and (3) the photocopy is a reliable copy of the wording of the original. Admission of such irregular photocopies was therefore more difficult to obtain.

Although proof of admissibility of irregular photocopies clearly relied on the testimony of witnesses as to the contents and whereabouts of the original document, proof of an established system of photocopying records in the regular course of business also required personal testimony. The records manager, or another employee in charge of the program or activity, would need to testify as to the procedures and methods of the system. It has been asserted that the provisions for admissibility of documents created in the regular course of business have allowed the courts to "move from a reliance on people to a reliance on paper in proving business facts," but only because the "documents are made under standardized conditions usually verified by independent sources."[10] Personal accountability remains, however, whether legally or administratively, with the program manager, who has control over all the procedures and methods by which copies of documents are made and can verify them.

The situation is substantially the same for microfilm copies of documents. The 1949 UPA provided for the admissibility of microforms as originals, given the same necessary conditions of production in the regular course of business by a process that "accurately reproduces" the original document. By 1971, however, no judicial decision had been handed down concerning the retention of originals from which microfilm copies had been made in the regular course of business or the legal status of copies made from computer-output microfilm (COM).[11] The question of the legality of COM copies has been further complicated by the fact that the original document is computer-generated, introducing concerns about the reliability of records created and manipulated electronically. Articulating a deep-seated fear about computer-generated documents, one report on the admissibility of microfilm asserted that paper documents themselves are coming under suspicion:

> It is generally assumed that paper offers security because a signature can be proved, handwriting and paper dating analysis can be done and typewriters identified. But now word processing machines can alter the text on reproductions of originals. One no longer has to recruit a typist to create a forgery; one simply has to be able to instruct the word processing machine to change the text as desired. The machine will then print out the required changes, producing a record identical in every detail to the original except that the desired information has been changed.[12]

Microfilm and photocopies have been assimilated into the laws of evidence based

[10] "Microfilm as Documentary Evidence," *Consensus* 6 (4), reprinted in *Legal Aspects of Micrographics,* Special Interest Package no. 7, (Silver Spring, Md.: National Micrographics Association, 1982), 7–76. NMA changed its name to Association for Information and Image Management (AIIM); 1100 Wayne Avenue, Suite 1100, Silver Spring, Md. 20910.

[11] *Admissibility in Evidence of Microfilm Records,* prepared by Nixon, Hargrave, Devans, and Doyle for Eastman Kodak Co. (Rochester, N.Y.: Eastman Kodak Co., 1971), 7, 13.

[12] "Microfilm as Documentary," 7–76.

on their ability to reproduce accurately a paper original. Standards for the methods and processes by which they reproduce the original can be established and effectively evaluated. Equally important, both photocopies and microfilm, although products of mechanical technologies, are readable without the aid of a machine. The UPA is predicated on the concept of the reproduction of a paper original, by carefully monitored systems in the regular course of business, which can be verified by a program manager. The reproductions of the documents are perceptible as such by the naked eye—as full-size or reduced images of a paper original. How is the law to accommodate a technology that creates its own documents in electronic form; is able to add, alter, or delete sections of information or whole documents; works by means of processes embedded in programming codes; and produces records that are indecipherable without the aid of the technology on which they were created?

Perhaps the one common denominator that will emerge from comparisons of these disparate technologies will be the implicit reliance, articulated in the UPA as the "regular course of business," on what one report termed "dependable systems . . . which can guarantee the accuracy of the information contained in the documents they produce."[13] It remains to be seen how the law will handle electronic records. Early evidence indicates that it is seeking to stress the similarity of electronic records to paper and microfilm records and to define conditions for the establishment of "dependable systems" of electronic recordkeeping.

Legal Statements and Judicial Decisions as Precedents

No specific legislation dealing with the admissibility of electronic records has yet been proposed. As with photocopies and microfilm, legal practice and judicial decision have begun to set precedents in the absence of specific legislation. Lawyers and judges have agreed in practice to include electronic records in discovery proceedings as part of "all records" requests, admitting them as evidence, just as paper memos and letters would be admitted.[14] Inclusion in discovery proceedings confers on electronic records a "quasi-legal status" as evidence,[15] but full legality as records of organizational functions and activities requires the acceptance of electronic records under specific legislation.

Such acceptance came informally in 1990 when the U.S. Justice Department issued a white paper on the rules of evidence as applied to electronic records.[16] This paper, prepared to provide guidance to federal records managers on the legal aspects of creating and maintaining electronic records, asserts that these records are provided for under the Federal Records Act of 1950 (44 USC Ch. 21, 29, 31, 33). The Justice Department cites the statutory definition of federal records, which includes "machine-readable materials," as well as the injunction to agencies to carry out "economical and efficient management" of their records, which "appears to encourage the use of information processing technology such as computers and micrographics as records management tools." The paper discusses the relationship of electronic records to the rules of best evidence and hearsay

[13]"Microfilm as Documentary," 7–76.

[14]Ritter, "E-mail Laws Changing," 25; Junda Woo, "E-mail Archives Provide Windfall for Lawyers Seeking Evidence," *Wall Street Journal,* Eastern Ed., 4 January 1993, B5.

[15]Timothy J. Sprehe, "The Significance of 'Admissibility of Electronically Filed Federal Records as Evidence,'" *Government Information Quarterly* 9 (April 1992): 153.

[16]Systems Policy Staff, U.S. Dept. of Justice, Justice Management Division, Washington, D.C., "Admissibility of Electronically Filed Federal Records as Evidence," *Government Information Quarterly* 9 (April 1992): 155–67.

(as defined in the Federal Business Records Act and the UPA), finding that, while "the rules of evidence are no different for electronically filed records than for paper records," judicial thinking should be tempered by knowledge of the ease with which electronic records can be manipulated and altered. Thus, the paper recommends that records managers take special care in creating procedures for the control and maintenance of electronic records programs, since "inadequate documentation or inability to explain these controls in laymen's terms can have dire consequences either in getting such evidence admitted or in the weight it is accorded in terms of probative value."

Indeed, because electronic records are perceived as being even less reliable than photocopies or microfilm, records managers and attorneys must take great care in laying a proper foundation for their admission into evidence. The Justice paper cites several conflicting opinions that have been handed down concerning the admissibility of electronic records. *United States v. Scholle* (558 F.2d 1109, 8th Cir, 1977) stressed the differences between electronic and other record media, asserting that "[e]ven where the procedure and motive for keeping business records provide a check on their trustworthiness . . . , the complex nature of computer storage calls for a more comprehensive foundation." Conversely, the differences between electronic records and paper records were downplayed in *United States v. Vella* (673 F.2d 86, C.A. Tex., 1982), which held that "computer data compilations . . . should be treated as any other record of regularly conducted activity."

Faced with these conflicting precedents, the Justice paper turns to the decision in *United States v. Russo* (480 F.2d 1228, 6th Cir, 1973), "which appears to be a leading case" on the admissibility of electronic records. In handing down its decision, the court held generally that

> the Federal Business Records Act was adopted for the purpose of facilitating admission of records into evidence where experience has shown them to be trustworthy. It should be liberally construed to avoid the difficulties of an archaic practice which formerly required every written document to be authenticated by the person who prepared it. . . . The Act should never be interpreted so strictly as to deprive the courts of the realities of business and professional practices.

The decision then sets out three requirements for admission of electronic records: (1) illustration of input procedures used; (2) tests for accuracy and reliability; and (3) proof that records were created in the regular course of business.

Based on these precedents, the Justice Department report concludes that the creation and maintenance of electronic records in federal agencies was permissible from a legal standpoint, and it identifies the foundations on which electronic recordkeeping programs can be justified and recognized in the eyes of the courts. Its recommendations, which were based on an analysis of judicial precedent, lacks refinement in their specific provisions. This refinement is supplied in large part by the performance guidelines for the legality of electronic records as evidence issued by the Association for Image and Information Management (AIIM) in 1992 (AIIM TR 31/1). These guidelines cover "information preserved by any technique in any medium, now known or later developed, that can be recognized by ordinary human sensory capabilities either directly or with the aid of technology."[17] The AIIM standard, like the Russo decision, sets out three requirements for the admission of electronic records:

[17]Minkler presentation.

1. Written procedures on input and output
2. Education programs for users of the systems
3. An audit system

The AIIM guidelines are an industry standard for ensuring a "high probability for legal admissibility,"[18] but they do not carry statutory authority.

Court cases continue to be decided on the legality of electronic records as evidence. Recent debates have focused on electronic mail systems and the status of e-mail messages as records. Currently, only one piece of legislation relates specifically to electronic mail: the Electronic Communications Privacy Act of 1986 (Public Law 99-508). As the name indicates, the act protects the privacy of e-mail communications by outlawing unauthorized interception and intrusion. Exceptions are made for government access to these records, which law enforcement agencies can subpoena under court order if they can show reason to believe that the records contain information relevant to an enquiry. To ensure that such records will be available if a law enforcement agency requests them, the act requires that the system subsequently make back-up copies of all requested electronic information.[19]

Most e-mail systems now have the capability to create back-up tapes of messages sent and received in the regular course of business. Oliver North seemed unaware of that fact when he used the IBM Profs e-mail system of the National Security Council (NSC) to communicate with others involved in the Iran-Contra dealings. A *New York Times* article charged the NSC and other federal agencies with encouraging the use of electronic mail communications because "they believed that unlike paper records, computer records did not have to be preserved."[20]

Concerned citizens acted to hold federal agencies accountable and to preserve e-mail communications concerning the Iran-Contra scandal by filing a lawsuit against the government on the last day of the Reagan administration. *Armstrong v. Executive Office of the President* (810 F. Supp. 335, DDC 1993) was decided on 3 January 1993 in favor of the plaintiffs, as the court found that the defendants had failed to preserve records under the Federal Records Act and had failed to establish procedures for the creation, maintenance, and disposition of electronic records.[21] The government appealed, but the appellate court upheld the decision of the lower court (62 USLW 2109, 1993 WL 304567), finding that "all electronic mail records must initially be considered federal records since they were prepared in the conduct of federal business." The court further found that "since no approved procedures existed to distinguish which records were not federal records, none of the electronic mail records could be destroyed under prevailing practices."[22] The court held that "since there are often meaningful differences in content between paper and electronic versions of records, the electronic versions must be managed."[23]

The appellate court's acknowledgment of the potential disparity between electronic records and paper records—in that electronic records may contain a wealth of

[18]Sprehe, "Significance of 'Admissibility of Electronically Filed Federal Records as Evidence,'" 154.

[19]Joanne Goode and Maggie Johnson, "Putting Out the Flames: The Law and Etiquette of E-mail," *Online* 15 (November 1991): 63.

[20]Stephen Labaton, "Preserving History, and Trivia, in Computer Files," *New York Times* 8 January 1993, B14.

[21]"Court Holds E-mail Is Federal Record," *News Media and the Law* 17 (Fall 1993): 6.

[22]Donald S. Skupsky, "The Law of Electronic Mail—The Impact of the White House Case on You!" *Records Management Quarterly* 28 (January 1994): 36.

[23]"Court Holds E-mail Is Federal Record," 7.

information about sender, receiver, date, actions, and the like, which is not always transferable (due to system design or user choice) to paper copy—is the first indication that the courts may begin to treat electronic records in fundamentally different ways. Previous decisions have often sought to place electronic records within a paper-based theory of documentation. Many reports and articles continue to counsel agencies to retain paper copies of electronic records, without suggesting the necessity for proper system design to address the difficulties involved in capturing much of the pertinent information.[24]

Scholars and journalists, as well as the Justice Department, have found that courts tend to treat electronic records the same as their paper counterparts,[25] and the very wording of the *Russo* decision—its reliance on assurances that electronic records have been produced in the regular course of business—recalls earlier debates on the legality of paper-based documentary media. These attempts to find a common legal ground on which to discuss both paper-based and electronic records seem, indeed, to have embraced the concept of "dependable systems," by seeking to enforce the establishment of documented procedures for the creation and maintenance of records on all media, and thus to have bridged the gap between the new technologies and the old.

Impact on Records Management

Those in charge of developing and implementing these "dependable systems" are the records managers, who are responsible for ensuring organizations' compliance with all legal requirements and obligations for adequate documentation. Reports such as the Justice Department white paper and the standards promulgated by AIIM give records managers some guidance in establishing proper methods and procedures for the creation, maintenance, and disposition of electronic records. Although the Profs case applies only to federal records protected under the Federal Records Act, the private sector must also tread carefully when disposing of electronic records: no legislation requires private organizations to retain copies of e-mail messages in the regular course of business, but judicial decisions and the ECPA indicate that businesses should establish records retention programs to protect themselves in case of litigation.[26]

One of the primary concerns of emerging electronic records scheduling may be the identification, by both public and private agencies, of the records that are permanently valuable, and the procedures by which such records, slated for retention, will be removed from the mass of nonrecord information for preservation. The development of systems of "digital signatures,"[27] and the extension of security labeling systems—such as that used by the U.S. Department of Defense in classifying electronic information[28]—to the private sector, may enable systems programmers to create better procedures for the computerized scheduling of all electronic records as they are created.

"Dependable systems" are deemed de-

[24]Kenneth Chasse, "The Legal Issues Concerning the Admissibility in Court of Computer Printouts and Microfilm," *Archivaria* 18 (Summer 1984): 166–201, 192, Karen Dawley Paul, *Records Management Handbook for United States Senators and Their Repositories* (Washington D.C.: United States Bicentennial Publication no. 2, 1985), 28.

[25]Ritter, "E-mail Laws Changing," 24; Woo, "E-mail archives Provide Windfall for Lawyers Seeking Evidence;" "Admissibility of Electronically Filed Federal Records as Evidence," 156, 160–61, 165.

[26]Skupsky, "The Law of Electronic Mail," 40.

[27]John Markoff, "U.S. Electronic Data Move Challenged on Privacy Issue," *New York Times* 29 June 1991, 46.

[28]J. P. L. Woodward, "Exploiting the Dual Nature of Sensitivity Labels," in *Proceedings of the 1987 IEEE Symposium on Security and Privacy* (Washington, D.C.: Computer Society Press of the IEEE, 1987), 23–30.

pendable only by proper testimony; they are neither self-authenticating nor self-validating. Thus, legal practice returns once again to a reliance on personal testimony and personal accountability, just as it was when records managers were required to testify as to the methods and procedures by which photocopied or microfilm records were created. Unlike photocopying or microfilming, however, electronic systems are often difficult to control or monitor, and protocols are often forgotten or circumvented during input and output. Mark Hopkins shares his concern over the dependence on the testimony of records managers in his article, "Records and Records Keepers Judicially Considered: Credibility or Convenience?" Citing instances of misleading or fraudulent recordkeeping practices in Canada and the United States, Hopkins asks: "Given business pressures and corporate loyalty, is the records keeper, who is often lacking authority and rank, likely to be the trustworthy vehicle for entering or adducing evidence?"[29]

Hopkins's distress over the lack of accountability for electronic systems is echoed by Kenneth Chasse, who asserts that records managers must be accorded status as expert witnesses in judicial proceedings so that their testimony concerning electronic records systems can remove the need to ensure the reliability of the electronic records themselves.[30] Chasse states: "I argue that for records-keeping systems that are to produce documents for proof in court proceedings, the law of evidence should be changed to ensure that *professional accountability* is not taken away by computerization."[31]

Chasse and Hopkins both may be misplacing the responsibility for control over electronic records on the records manager, since the rise of the microcomputer has led to the large-scale decentralization of recordkeeping functions to individual creators of records. Their concerns do reflect, however, the prevalence and tenacity of traditional attitudes toward documentary validity and the difficulty of rethinking the paradigm of legally acceptable evidence in order to accommodate electronic records.

This insecurity and tension over the nature and use of electronic records is similar to that which has greeted each new technology that has been introduced into legal proceedings, from written documents onwards. The uniquely unsettling characteristics of anonymity given to electronic records, which lack formal textual aspects of signature and seal and, indeed, lack almost all sense of materiality, make the fears that greet their growing prevalence all the more difficult to assuage. Judicial precedent has tended to treat electronic records the same as their paper counterparts, ignoring the complex circumstances under which electronic records are created and maintained. The decision of the District of Columbia Circuit of the U.S. Court of Appeals in the Profs case, which recognized the potential disparity between electronic records and the paper copies thereof, pointed the way to a highly contentious legal future. The court's ruling now forces executive branch agencies to manage their electronic records in accordance with Federal Records Act provisions, but private organizations and other government agencies remain unconstrained by this decision in the development of records management programs. Systems do exist which capture all electronic information—such as e-mail identifiers of time, sender, and the rest—and convert it to decipherable paper copy. However, no legislation currently mandates the use of these systems. Further, if electronic communications systems continue to

[29]Hopkins, "Records and Records Keepers Judicially Considered," 163.

[30]Chasse, "The Legal Issues Concerning the Admissibility in Court of Computer Printouts and Microfilm," 167.

[31]Ken Chasse, "A Reply to A. F. Sheppard's Commentary on the Admissibility in Court of Computer Printouts," *Archivaria* 20 (Summer 1985): 160. Emphasis added.

grow in size and complexity, the multiple linkages and capabilities for simultaneous access and activity may confound attempts at two-dimensional, hard-copy representation. Eventually, the divergence between electronic records and paper-based records may begin to wear at the bridge linking the different media and may crack the foundations of current legal theories of "dependable systems." In the absence of guiding legislation, records managers must continue to be involved in the development and implementation of novel systems of electronic recordkeeping, which will ensure a "high probability" of admissibility into evidence of electronic records.