Notre Dame Law Review

Volume 76 | Issue 4 Article 3

6-1-2001

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NOTE

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*Michael J. Hays**

INTRODUCTION

On June 30, 2000, President Clinton inserted a signature card into a computer and became the first President to electronically sign a bill into law.[1] With the President's point-and-click, the Electronic Signatures in Global and National Commerce Act (E-Sign)[2] descended onto the legal landscape, giving federally recognized legal effect to electronic signatures.[3]

With this newsworthy method of signing the Act into law,[4] President Clinton vividly demonstrated that the age of electronic signa-

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1 *See Electronic Signatures Given Legal Standing*, N.Y. TIMES, July 1, 2000, at C3.

2 Pub. L. No. 106-229, 114 Stat. 464 (2000) (to be codified at 15 U.S.C. §§ 7001–7006 (2000)).

3 "Electronic signatures," as used in this Note, draws from E-Sign's definition of that term: "an electronic sound, symbol, or process, attached to or logically associated with a contract or other record and executed or adopted by a person with the intent to sign the record." 15 U.S.C.S. § 7006(5) (Law. Co-op. Supp. 2001). For present purposes, note that this broad definition encompasses the more precise term, "digital signature." For further discussion of digital signatures, see *infra* notes 77–86 and accompanying text.

4 Note that as most provisions of E-Sign did not take effect until October 1, 2000, *see* § 107(a), 114 Stat. at 473, the President also hand-signed a paper version of the bill. *See Electronic Signatures Given Legal Standing*, *supra* note 1, at C3.

tures is finally upon us. Through the passage of E-Sign, Congress bravely ushered us into that age, or so the story goes. The conventional wisdom runs something like this: the Internet has revolutionized commerce and business transactions, increasingly making the conventions and laws of contracting outmoded; as the "e-sector" grows and takes on more complicated and sophisticated transactions, business people and other transactors fear (or feared) that their electronic transactions take place in a state of legal limbo; therefore, some degree of certainty is required, and the certainty ought to be uniform on a national, if not global, scale. As one observer explained, "Here is the key policy problem: American business is eager to get rid of paper contracts . . . ." But "[b]efore electronic commerce can reach its full potential, business must be provided assurance that traditional signature law encompasses electronic authentication."[5] Enter the E-Sign Act.

The substitution of electronic for handwritten signatures might seem like a legal non-event. After all, society has witnessed the substitution of shopping in bookstores for amazon.com; it has accepted e-mail as a valid and often more convenient substitute for posted mail; and society recognizes online stock-market trades as a preferable substitute for dealing with brokerage firms. Electronic signatures could be viewed as a correlative legal development of little consequence. Indeed, the abstract concept of electronic signatures makes great sense. But legislation is not an abstract concept; new laws are rarely thought of as non-events, and the commentary surrounding the Act's passage underscores its perceived significance. Just weeks before the Act was passed, then-Senator Spencer Abraham commented on E-Sign, saying, "I have become more convinced than ever that this legislation will revolutionize the way consumers, industry, and government conduct business over the Internet."[6] This Note examines E-Sign's impact from the perspective of more traditional contract law concerns.

Before thoroughly examining the Act, however, one might question these claims of importance by reference to certain elementary

5 *Electronic Signatures in Global and National Commerce (E-Sign) Act: Hearings on H.R. 1714 Before the Subcomm. on Courts and Intellectual Property of the House Comm. on the Judiciary*, 106th Cong. 33, 35 (1999) (statement of David Peyton, Director of Technology Policy for the National Association of Manufacturers (NAM)) (quoting from a NAM letter to Senator Abraham).

6 Andrew J. Glass, *Electronic Signatures May Soon Bind*, AUSTIN AM.-STATESMAN, June 14, 2000, at D5; *see also* Juliet Eilperin & John Schwartz, *Electronic Signatures Bill Passes the House: Measure Could Spur Online Commerce*, WASH. POST, June 15, 2000, at A1 (reporting that E-Sign is "hailed by backers as one of the most significant pieces of high-tech legislation of this legislative session").

principles of law. For example, is a statute authorizing electronic signatures really even necessary? The Uniform Commercial Code, a version of which governs commercial transactions in most states,[7] defines a signature as "any symbol executed or adopted by a party with present intention to authenticate a writing."[8] That definition is seemingly broad enough to encompass an electronic signature.[9] Moreover, even admitting that electronic signing is an area ripe for statutory action does not explain why America needs a *federal* act. After all, contract law is typically considered a province of the states,[10] and many laws on the subject pre-date E-Sign.[11]

Thus, a number of other assumptions underlie the adoption of E-Sign and its importance: conventional wisdom holds that the Internet is uniquely market-driven and that so far as is practicable, government should avoid trying to regulate it. Specifically, calls for "bottom-up,"

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7 *See* ALAN SCHWARTZ & ROBERT E. SCOTT, SALES LAW AND THE CONTRACTING PROCESS 2 (2d ed. 1991) (reporting that the U.C.C. "has been adopted in every state (except Articles 2 and 6 in Louisiana), and in the District of Columbia").

8 U.C.C. § 1-201(39) (1989).

9 The "symbol" part of the definition is extremely broad, and I think an electronic signature, however defined, would likely fall under it. Further, the U.C.C.'s requirement of a "writing" may also be fulfilled by an electronic transaction. *See In re* RealNetworks, Inc., Privacy Litig., No. 00C 1366, 2000 U.S. Dist. LEXIS 6584, at *11 (N.D. Ill. May 11, 2000) (holding that an electronic license agreement satisfies the Federal Arbitration Act's requirement of a written agreement); *see also infra* notes 37–48 and accompanying text (discussing the *RealNetworks* case in greater detail); *cf.* 15 U.S.C.S. § 7006(5) (Law. Co-op. Supp. 2001) (defining electronic signature as "an electronic sound, symbol, or process, attached to or logically associated with a contract or other record and executed or adopted by a person with the intent to sign the record").

10 *See* Sanu K. Thomas, Note, *The Protection and Promotion of E-Commerce: Should There Be a Global Regulatory Scheme for Digital Signatures?*, 22 FORDHAM INT'L L.J. 1002, 1026–27 (1999) ("[T]raditionally in the United States, issues of enforceability and authenticity of signatures and agreements are primarily governed by state and not federal law.") (citing Robert G. Ballen & Thomas A. Fox, *Electronic Banking Products and Services: The New Legal Issues*, 115 BANKING L.J. 334, 339 (1998)).

11 Prior to 2000, a number of states had enacted some form of electronic or digital signature statute. The first was Utah, in 1995. *See* UTAH CODE ANN. §§ 46-3-101 to 46-3-602 (1998 & Supp. 2000). For a comprehensive look at state electronic signature law, see *UPDATE: Survey of State Electronic and Digital Signature Legislative Initiatives*, *at* http://www.ilpf.org/digsig/update.htm (last visited Mar. 29, 2001) (stating that all states except Arkansas, South Carolina, and South Dakota "have considered or enacted some form of electronic authentication law"). In addition to state legislatures, non-governmental bodies have also been busy with electronic signature legislation. *See, e.g.*, *Digital Signature Guidelines*, 1996 A.B.A. SEC. SCI. & TECH. INFO. SEC. COMM., *available at* http://www.abanet.org/scitech/home.html (last visited Apr. 26, 2001); *see also* UNIF. ELEC. TRANSACTIONS ACT §§ 1–20, 7A pt. 1 U.L.A. 17 (Supp. 2000) [hereinafter UETA].

"minimalist," and "technology-neutral" legislation dominated the Congressional hearings on E-Sign.[12] It seems that Congress's goal was to create a better electronic signature law and, in so doing, to satiate the seemingly conflicting goals of the Internet world: assurance of legal validity *and* lack of regulation. Insofar as those interests can be reconciled, E-Sign addresses both of them. The Act presents very straightforward conditions for legal validity[13] while simultaneously remaining minimalist[14] and deferring to the recognized role of the states in contract law.[15] At bottom, the Act appears to be an effort to promote electronic commerce through a comprehensive, national law.[16]

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12 *The Electronic Signatures in Global and National Commerce Act: Hearings on H.R. 1714 Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Commerce Comm.*, 106th Cong. 19, 22 (1999) (statement of Donald W. Upson, Secretary of Technology, Commonwealth of Virginia) ("Where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist . . . and simple legal environment for commerce."); *see also id.* at 28 (statement of Daniel Greenwood, Deputy General Counsel, House Commerce Committee) (calling for a "minimalist, non-regulatory, and technology-neutral stance").

13 *See* 15 U.S.C.S. § 7001(a)(1) (Law. Co-op. Supp. 2001) ("[A] signature, contract, or other record relating to such transaction may not be denied legal effect, validity, or enforceability solely because it is in electronic form.").

14 The Act sets out virtually no "positive" requirements or regulatory provisions; rather, it operates in the negative by saying electronic signatures, contracts, and the like "may *not be denied legal effect.*" *Id.* (emphasis added). Furthermore, the Act's definition of electronic signature sets a minimal standard. *See id.* § 7006(5).

15 Section 102 of the Act, *id.* § 7002, defines the extent to which the Act preempts state law, expressly allowing states the opportunity to create their own electronic signature regimes so long as they are either consistent with E-Sign or amount to a wholesale adoption of the UTEA. *See id.*

16 *See Electronic Signatures in Global and National Commerce (E-Sign) Act: Hearings on H.R. 1714 Before the Subcomm. on Courts and Intellectual Property of the House Comm. on the Judiciary*, 106th Cong. 29, 31 (1999) (statement of Scott Cooper, Manager for Technology Policy, Hewlett-Packard Company) ("The continued growth of electronic commerce depends on the development of a legal framework of electronic contract law that will supply uniformity and legal certainty to transactions in the electronic marketplace."); *id.* at 5 (statement of Howard Coble, Chairman, Subcommittee on Courts and Intellectual Property, Committee on the Judiciary) ("Industry representatives assert that the differences and the lack of legislation between States are an impediment to the growth of e-commerce . . . ."); *The Electronic Signatures in Global and National Commerce Act: Hearings on H.R. 1714 Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Commerce Comm.*, 106th Cong. 19, 21 (1999) (statement of Donald W. Upson, Secretary of Technology, Commonwealth of Virginia) ("Sound policy . . . is essential for both the Internet and on-line commerce to reach their full potential."); *id.* at 28 (statement of Daniel Greenwood, Deputy General Counsel for the Information Technology Division, Commonwealth of Massachusetts) ("[I]t seems clear that the objectives of this legislation are wholly consistent with the

If in fact E-Sign represents a well-calculated attempt to promote e-commerce, it will probably succeed. As one observer explained, "[T]his new law sends a message to the business community that e-signatures are O.K."[17] If nothing else, the Act should increase business simply because a Congressional statement on legal validity emboldens those who feared the "legal uncertainty" of electronic signatures. But what of the *legal* consequences of the Act? If E-Sign is as important as many claim, one would expect it to have greater impact than promoting business. And indeed it does. This Note explores the legal impact of the Act's provisions regarding signatures. E-Sign covers more than just electronic signatures,[18] but as the popular name implies, the thrust of the Act is on signing documents and making them legally binding without using paper or pen. Thus, E-Sign falls generally into the realm of contract law and specifically into the law of formalities.

Every first-year law student knows that a contract, at its simplest, is formed by mutual assent plus consideration.[19] Nothing about this traditional understanding involves signatures, and in many cases a contract may be legally valid without either a signature or a written document.[20] Signed, written agreements are nonetheless required in many cases. Sometimes the transacting parties require a signature because they wish to have some record of the agreement for future use. Sometimes the law of a state or other jurisdiction requires that con-

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Commonwealth's policy to assure a sound foundation for electronic commerce."). This theme, which runs throughout the Congressional testimony is echoed in the law review literature. *See, e.g.*, Thomas, *supra* note 10, at 1005 ("E-Commerce will achieve its full potential only if a modern legal infrastructure exists . . . ."); Stephen Leal Tupper, Note, *From Seal to Cyber-Notary: Uncertainty in Electronic Commerce and the Case for a Digital Signature Law in Michigan*, 45 WAYNE L. REV. 237, 238 (1999) ("Parties seeking to enter into contracts by electronic means face uncertainty . . . . This condition can chill commerce . . . .").

17 Barnaby J. Feder, *E-Signing Law Seen as a Boon to E-Business*, N.Y. TIMES, July 4, 2000, at C1 (quoting Kevin M. Coleman, Internet Security Specialist for KPMG); *see also* Eilperin & Schwartz, *supra* note 6, at A1 (arguing that E-Sign "could set the stage for a dramatic expansion of e-commerce beyond such activities as buying books and CDs online").

18 The Act provides that "a signature, *contract, or other record* . . . may not be denied legal effect." 15 U.S.C.S. § 7001(a)(1) (Law. Co-op. Supp. 2001) (emphasis added).

19 *See* CHARLES L. KNAPP ET AL., PROBLEMS IN CONTRACT LAW, CASES AND MATERIALS 95 (4th ed. 1999) (noting that Anglo-American law requires consideration in order to make mutually assented to promises enforceable).

20 *See, e.g.*, Hamer v. Sidway, 27 N.E. 256, 259 (N.Y. 1891) (upholding an oral promise to pay $5000 as a binding contract).

tracts be either written or signed, or both.[21] In either case, whether required by law or by agreement, the writing and the signature are formalities—something required in addition to the baseline definition of contract in order to "formalize" the agreement.[22] E-Sign gives us a new formality: the electronic signature. Perhaps the most famous and most instructive discussion of the uses and importance of legal formalities is Professor Lon Fuller's *Consideration and Form*,[23] published in 1941. Long before the Internet, renowned legal scholars set their minds to examining and explaining the importance of formality in the law.[24] It is to Professor Fuller's timeless work that this Note turns for examining E-Sign.

Before an examination is in order, however, one requires a careful understanding of the Act and the law of signatures more broadly. Accordingly, Part I of this Note explores the limited case law dealing with electronic signatures, as well as the ways in which the common law of contracts has adapted to previous technological innovations. This Part will seek to ascertain what general legal principles, if any, might appropriately govern the law of electronic signatures. Part II continues by examining the major statutory approaches to electronic signature law. This Part will outline the provisions of E-Sign in detail and analyze the two competing philosophies of electronic signature legislation.[25] Part III will build upon the legal frameworks previously

21 This is the Statute of Frauds. Although state formulations of the Statute vary, two common statements of this ancient writing requirement can be found in RESTATEMENT (SECOND) OF CONTRACTS § 110 (1981) and U.C.C. § 2-201 (1989). In general, the Statute provides that certain classes of contracts will not be enforced unless "there is a written memorandum." RESTATEMENT (SECOND) OF CONTRACTS § 110 (1981).

22 In the law of contracts, formalities such as written documents and signatures are often invoked voluntarily. However, in other fields of law (and in contracts that fall under the Statute of Frauds) formalities are legally required. In the required context, "formality" means something like non-substantive, mandatory legal rules. However, *I* use the term to mean non-substantive legal conventions of a mandatory *or* voluntary nature.

23 Lon L. Fuller, *Consideration and Form*, 41 COLUM. L. REV. 799 (1941).

24 In addition to Fuller's important work, see Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685, 1738–66 (1976); Duncan Kennedy, *Legal Formality*, 2 J. LEGAL STUD. 351, 358–59 (1973); and Richard A. Posner, *Gratuitous Promises in Economics and Law*, 6 J. LEGAL STUD. 411, 419–20 (1977).

25 More than two electronic signature laws have been passed in this country, *see supra* note 11, but they seem to fall (with varying degrees of congruence) into two major categories. The first, I call the "Uniform Law Approach." Laws in this model draw their philosophical underpinnings (if not their precise textual provisions) from the UETA, a product of the National Conference of Commissioners on Uniform State Law. *See infra* notes 61–64 and accompanying text. E-Sign is a Uniform Law Approach statute. *Compare* 15 U.S.C.S. §§ 7001–7006 (Law. Co-op. Supp. 2001), *with*

examined and assess each as a legal formality. Finally, the Note concludes that E-Sign, though well suited to its e-business aims, fails to preserve many of the formal functions historically important to contract law.

I. COURT CASES: THE COMMON LAW'S APPROACH TO ELECTRONIC SIGNATURES

Currently, there is very little case law dealing with electronic signatures. In fact, the bulk of existing disputes involve patent controversies over competing signature technology.[26] However, a few electronic signature cases touch on some aspects of contract law and offer a hint into how E-Sign will impact the legal landscape. In addition to the limited law of electronic signatures, one might find a ready analogy, or set of guiding principles, in the case law addressing other technological advances. The common law would appear to be a ripe ground for creation of electronic signature law because, as Louis Brandeis once wrote, "the common law, in its eternal youth, grows to meet the demands of society."[27] We shall see, however, that the cases provide an unsatisfactory resolution and merely underscore the perceived necessity behind Congress's passage of E-Sign.

A. The Case Law of Past Technological Innovations

Courts seeking guidance in assessing electronic signatures might look to judicial treatment of past technological innovations on the "ink-and-pen" contract. Although such an examination provides an interesting lesson in history, modern courts addressing the validity of electronic documents and signatures have not utilized it.[28]

UETA, *supra* note 11, §§ 1–20. The second view of electronic signature laws I call the "ABA Approach." Statutes in this model hew closely to the American Bar Association's *Digital Signature Guidelines*. *See Digital Signature Guidelines*, *supra* note 11, *available at* http://www.abanet.org/scitech/home.html; *see also infra* notes 75–86 and accompanying text.

26 *See, e.g.*, Voice Techs. Group, Inc. v. VMC Sys., Inc., 164 F.3d 605, 616 (Fed. Cir. 1999) (reversing a grant of summary judgment on a technology dispute involving "telephone emulation" as a sort of electronic signature); Surety Techs. v. Entrust Techs., Inc., 71 F. Supp. 2d 520 (E.D. Va. 1999) (addressing an infringement claim surrounding digital time-stamping of documents); Schlafly v. Pub. Key Partners, No. 94-20512 SW, 1997 U.S. Dist. LEXIS 15251 (N.D. Cal. Sept. 2, 1997) (addressing an infringement controversy between competing digital signature techniques).

27 Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 193 (1890).

28 *See infra* Part I.B.

Perhaps the first innovation on a traditional contract was an agreement signed in pencil. In *Executors of Clason v. Bailey*,[29] the New York Court for the Correction of Errors upheld a pencil-signed contract, asking, "[W]hat have we to do with the kind of instrument which the parties employed . . . ?"[30] In a discussion of historical techniques for "express[ing] our ideas by letters visible to the eye,"[31] the court intimated that judges and lawmakers have no place defining the technology appropriate to contract formation. Rather, in the court's words, "This has been left to be governed by public convenience and usage; and as far as questions have arisen on this subject, the courts have, with great latitude and liberality, left the parties to their own discretion."[32]

This view would easily support common-law acceptance of electronic signatures and would obviate the need for legislative action. Indeed, the technological innovations beyond the use of pencils in 1817 have met with similar approval. Courts have upheld the use of telegrams in contract formation since at least 1867,[33] and the case law has not wavered on this point.[34] Much like telegrams, the use of facsimile machines in place of traditional documents does not seem to raise serious evidentiary concerns.[35] In general, the judicial approach to non-traditional documents and writings seems to follow the *Clason* court's image of "great latitude and liberality." However, the transition to computers has proved more complicated. One court has clearly distinguished computer-generated evidence from facsimiles,[36] and, as the following paragraphs show, the judicial approach to computer-generated signatures is extremely varied.

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29 14 Johns. 484 (N.Y. 1817), 1817 N.Y. LEXIS 136.

30 *Id.* at 491, 1817 N.Y. LEXIS 136, at *14–15.

31 *Id.*, 1817 N.Y. LEXIS 136, at *15.

32 *Id.*, 1817 N.Y. LEXIS 136, at *16.

33 Trevor v. Wood, 36 N.Y. 307, 310 (1867), 1867 N.Y. LEXIS 47, at *7 (holding that because the parties agreed to communicate by telegram, "the sending of the dispatch must be regarded as an acceptance of the respondents' offer").

34 *See, e.g.*, Petroleum, Inc. v. Liberty Petroleum Corp., 505 F.2d 1384, 1385 (6th Cir. 1974) ("[T]he correspondence, cablegrams and telegrams passing between the parties were sufficient to take the case out of the operation of the Ohio statute of frauds.").

35 *See, e.g.*, People v. Hagan, 556 N.E.2d 1224, 1239–40 (Ill. App. Ct. 1990) (holding that admission of a faxed document into evidence was proper without a foundation concerning the reliability of the fax equipment; analogizing to telegrams, the authenticity of which may be shown by indirect and circumstantial evidence) (citing 29 AM. JUR. 2D *Evidence* § 883 (1967)).

36 *See id.* at 1238–39 ("In the case of computer records, this court has held that foundation proof is required to show that the generating system was standard, unmodified, and properly operated.").

B. *The Case Law of Electronic Signatures*

A notable step towards the "liberalizing" approach to electronic signatures can be found in *In re RealNetworks, Inc., Privacy Litigation*.[37] In that case, the United States District Court for the Northern District of Illinois held that an electronic license agreement could amount to a "writing" within the meaning of the Federal Arbitration Act.[38] The *RealNetworks* case grew out of a privacy controversy involving two Internet-based products: RealPlayer and RealJukebox.[39] The plaintiff class complained that installing these products allowed RealNetworks to secretly intercept information from users' computers.[40] RealNetworks sought and obtained an order to compel arbitration, consistent with the products' license agreements.[41] Subsequently, David Keel intervened as a party plaintiff and presented additional arguments in opposition to arbitration.[42] Along with other theories, Keel argued that the arbitration clause in RealNetworks's license agreements was unenforceable because it was not "written."[43] The Federal Arbitration Act requires that agreements to arbitrate be written in order to be enforceable.[44] Keel argued that because the agreement to arbitrate was in electronic form, it could not satisfy the Act's standard.[45] Even without E-Sign, the court disagreed, noting that Congress's then current discussions over E-Sign address only "the '*uncertain*' legal effect of an electronic record or an electronic signature."[46] Based on this reasoning, the court decided that it could resolve the present uncertainty without Congressional action, and it concluded that Congress's use of the term "written" in 1925 encompasses an electronic transmission on a computer screen.[47] Despite this conclusion, the court was careful to note, "the Court does not now find that all electronic communications may be considered 'writ-

37 No. 00C 1366, 2000 U.S. Dist. LEXIS 6584 (N.D. Ill. May 11, 2000).

38 *See id.* at *11; *see also* 9 U.S.C. § 2 (1994) (requiring that enforceable agreements to arbitrate must be written).

39 *In re* RealNetworks, Inc., Privacy Litig., 2000 U.S. Dist. LEXIS 6584, at *2.

40 *Id.* at *1.

41 *See* Lieschke v. RealNetworks, Inc., No. 99C 7274, 2000 U.S. Dist. LEXIS 1683 (N.D. Ill. Feb. 11, 2000), *cited in In re* RealNetworks, Inc., Privacy Litig., 2000 U.S. Dist. LEXIS 6584, at *2.

42 *See In re* RealNetworks, Inc., Privacy Litig., 2000 U.S. Dist. LEXIS 6584, at *2

43 *Id.* at *3. The "agreement" appears on the computer screen in a pop-up window during installation of the software, and a user "agrees" to its terms as part of the installation process. *See id.* at *8.

44 *See* 9 U.S.C. § 2 (1994).

45 *In re* RealNetworks, Inc., Privacy Litig., 2000 U.S. Dist. LEXIS 6584, at *5.

46 *Id.* at *10–11 (emphasis added) (citing H.R. REP. No. 106-341(I) (1999)).

47 *See id.* at *6–8.

ten.' Rather, the Court examines the contract at issue in this action . . . ."[48]

The hesitancy of the *RealNetworks* court is echoed in the law concerning electronic formation of contracts. In *Ballas v. Tedesco*,[49] a federal district court held, "[T]he exchange of e-mails, however, does not satisfy the statutory requirement of a written instrument signed by the Defendants."[50] Yet, in *Barman v. Union Oil Co.*,[51] another federal district court ruled that "numerous e-mail messages and memoranda" amounted to "other writings constituting a contract."[52] Although there are *some* factual differences in the cases,[53] they still reach fundamentally opposite results. Even the limited judicial response to electronic transactions makes it clear that the concern over the "legal uncertainty of an electronic signature"[54] was a valid one. On this front, the common law is inconclusive.

II. THE E-SIGN ACT: ITS PROVISIONS AND ITS PREDECESSORS

With the case law inconclusive, legislative action seemed the most appropriate method for addressing the need for "a regime of electronic signatures that has both legal certainty and widespread consumer acceptance . . . ."[55] E-Sign is probably the most dramatic

48 *Id.* at *8.

49 41 F. Supp. 2d 531 (D.N.J. 1999).

50 *Id.* at 541.

51 No. 97-563-AS, 1999 U.S. Dist. LEXIS 13973 (D. Or. Aug. 13, 1999) (unpublished opinion).

52 *Id.* at *28.

53 The differences are less obvious than one might imagine. In *Barman*, defendant Union Oil Company and Mr. Barman were involved in lengthy negotiations over the purchase of filling station properties and equipment. *See id.* at *4–13. Some of that negotiation involved the exchange of e-mails and the preparation of intra-office e-mails. *Id.* at *8–9. In holding that a contract was formed, the court considered the exchange of e-mail messages as one part of a larger course of negotiations. *See id.* at *28. In *Ballas*, by contrast, the parties negotiated a "deal" (the court's words) to produce a music CD through the exchange of e-mails over a period of nine months. *See Ballas*, 41 F. Supp. 2d at 534 & n.5. After the business relationship broke down, the parties' subsequent actions led to a copyright dispute. *Id.* at 534. Plaintiffs contended, among other things, that the exchanged e-mails granted them an exclusive license to market the recordings. *Id.* at 541. The court disagreed, holding that exchanged e-mails were insufficient to form such a contract. *Id.*

54 H.R. REP. No. 106-341, pt. 1, at 7 (1999), *available at* http://thomas.loc.gov/cp106/cp106query.html (last visited Apr. 26, 2001).

55 *Electronic Signatures in Global and National Commerce (E-Sign) Act: Hearings on H.R. 1714 Before the Subcomm. on Courts and Intellectual Property of the House Comm. on the Judiciary*, 106th Cong. 29, 31 (1999) (statement of Scott Cooper, Manager for Technology Policy, Hewlett-Packard Company).

legislative action to date. However, it is not the only attempt at electronic signature law. The following paragraphs will explore the specific provisions of E-Sign and contrast the Act with a philosophically different legal regime, the Utah Digital Signature Act.

A. The Provisions of E-Sign

The Electronic Signatures in Global and National Commerce Act is sub-divided into two titles. The first governs "Electronic Records and Signatures in Commerce,"[56] and the second pertains to "Transferable Records."[57] This Note's exploration of electronic signatures necessarily focuses on Title I.[58] Section 101 of that title spells out the

> General Rule of Validity: Notwithstanding any statute, regulation, or other rule of law . . . with respect to any transaction in or affecting interstate or foreign commerce—a signature, contract, or other record relating to such transaction may not be denied legal effect, validity, or enforceability solely because it is in electronic form.[59]

As mentioned previously, this "General Rule of Validity" does not provide any positive requirements for a legally valid signature. Though the Act contains many more provisions, none expand upon the electronic signature concept except for the equally vague definition of an electronic signature: "an electronic sound, symbol, or process, attached to or logically associated with a contract or other record and executed or adopted by a person with the intent to sign the record."[60] This lack of specificity is due to Congress's acceptance of the legal philosophy embodied in the Uniform Electronic Transactions Act.[61] Because of its origins, this vague philosophy of electronic signatures could be called the "Uniform Law Approach."[62] This approach

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56 *See* 15 U.S.C.S. §§ 7001–7006 (Law. Co-op. Supp. 2001).

57 *See id.* § 7021.

58 *See* Electronic Signatures in Global and National Commerce Act, Pub. L. No. 106-229, §§ 101–107, 114 Stat. 464 (2000) (to be codified at 15 U.S.C. §§ 7001–7006 (2000)).

59 15 U.S.C.S. § 7001(a).

60 *Id.* § 7006(5).

61 Most of the provisions of the UETA, *supra* note 11, are the same as those of E-Sign. For example, Section VII of the Uniform Act provides, "A record or signature may not be denied legal effect or enforceability solely because it is in electronic form." *See* UETA, *supra* note 11, § 7(a). Additionally, despite its greater length, UETA offers no more insight than E-Sign as to what constitutes a legally valid electronic signature. Perhaps the only relevant provision of UETA not copied in E-Sign explains: "This [Act] applies only to transactions between parties each of which has agreed to conduct transactions by electronic means." *Id.* § 5(b).

62 I have labeled this philosophy "Uniform Law Approach" for convenient identification. When I discuss the "philosophy" of this approach, I make no pretense of

believes that the private sector can determine the specifics of electronic signatures in the laboratory of the marketplace.[63]

The Uniform Law Approach has no intention of specifying the contours of a legal signature beyond a simple statement that they are valid.[64] What *is* particularly illuminating about this approach, however, at least as embodied in E-Sign, is its list of exceptions. Among other things, E-Sign does not apply to wills, transactions pertaining to adoption, court orders, notices of the cancellation of utility services, and notices of the cancellation of health insurance.[65] The common thread among each of these exceptions is their extreme importance. Loss of health insurance, dispensation of assets upon death, adoption, and the like are legal events with severe, often irrevocable, and intensely personal consequences. In recognition of this, the Act does not permit these transactions to occur solely on the basis of an electronic signature. Professor Fuller would explain these exceptions by reference to his "cautionary function."[66] To put it simply, important transactions require a "circumspective frame of mind,"[67] and by excepting certain important transactions, E-Sign impliedly admits that its legal regime, one that revolves around a casual understanding of "signature," fails to preserve the "legalism" of some important

speaking on behalf of the National Conference of Commissioners on Uniform State Laws. Rather, I offer as an act's "philosophy," my deductions from the textual provisions and other reasonable inferences based on the legislative history of E-Sign.

63 *See The Electronic Signatures in Global and National Commerce Act: Hearings on H.R. 1714 Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Commerce Comm.*, 106th Cong. 19, 30 (1999) (statement of Daniel Greenwood, Deputy General Counsel for the Information Technology Division, Commonwealth of Massachusetts) ("Ultimately, as national standards and practices emerge, they will be based upon actual proven market experience and they will be far better than any scheme anyone can dream up today through central planning.").

64 *See id.* (favoring the "minimalist" approach of E-Sign) ("In narrow cases where legislation is dealing with specific user communities (like a Securities context . . .) then it may be appropriate to specify more specific requirements, but general legislation . . . should never distort the competitive and open market for electronic signature and records technologies."); *see also* H.R. REP. No. 106-341, pt. 1, at 5 (1999), *available at* http://thomas.loc.gov/cp106/cp106query.html (last visited Apr. 26, 2001) ("The legislation is narrowly drawn so as to remove barriers to the use and acceptance of electronic signatures . . . without establishing a regulatory framework that would hinder the growth of electronic commerce.").

65 *See* 15 U.S.C.S. § 7003 (Law. Co-op. Supp. 2001).

66 Fuller, *supra* note 23, at 800 (describing the cautionary function as a "check against inconsiderate action"); *see infra* notes 107–17 and accompanying text.

67 Fuller, *supra* note 23, at 800.

events.[68] Interestingly, the legislative history of the Act offers very little insight into why these exceptions were created.[69]

The exceptions, however, may not last forever. According to E-Sign, the Secretary of Commerce "shall review the operation of the exceptions in subsections (a) and (b) to evaluate, over a period of 3 years, whether such exceptions continue to be necessary for the protection of consumers."[70] Only time will tell how this provision of the Act will impact electronic transactions and the operation of the exceptions. However, the fact that the legislators contemplated a gradual phase-out of these exceptions suggests they believed that the cautionary gap created by E-Sign is only a temporary problem. This may be an overly optimistic view.[71] Perhaps Congress was not thinking of Fuller's cautionary function but rather created the exceptions upon recognizing the difficulty of crafting a signature scheme that would work for all types of transactions. However, with only some slight modifications (notarization and attestation, for example), ink-and-pen signatures *do* work for all transactions. Inasmuch as an electronic signature regime falls short of this, it represents an incomplete transition to the digital age.

Some of the questions or potential problems raised by E-Sign grow out of more than the fact that the Act is new and untested. Rather, because E-Sign was designed to be minimalist, non-regulatory, and "bottom-up,"[72] it was meant to be a law without any rules. And under that standard, E-Sign is a success. It does not presume to tell people what to do. Accordingly, one attempting to describe the law and practice of electronic signatures can do little more than quote the provisions of the Act. But E-Sign is not the only approach; some states view electronic signature law as an area fit for traditional, prescriptive, regulatory rules.

B. An Alternative Approach to Electronic Signature Law

If E-Sign represents the minimalist, bottom-up philosophy of electronic signature law, then the Utah Digital Signature Act is a good,

68 Inadequate preservation of the cautionary function is E-Sign's primary flaw. This will be explored in more detail at *infra* notes 140–62 and accompanying text.

69 *See* H.R. REP. No. 106-341, pt. 1, at 13–19 (1999), *available at* http://thomas.loc.gov/cp106/cp106query.html (last visited Apr. 26, 2001) ("Section-by-Section Analysis of the Legislation"); *id.* at 15 (offering no analysis of Section 103 other than a recitation of the exceptions).

70 15 U.S.C.S. § 7003(c).

71 *See generally infra* notes 107–17 and accompanying text.

72 *See supra* note 12.

old-fashioned regulatory law.[73] The Utah Act will serve as the prime example of a legal approach to electronic signatures that contrasts with E-Sign. Utah is a good example because it acted first in this developing area of the law[74] and because the Utah Act represents the approach to electronic signatures that Congress rejected in passing E-Sign. This legal regime could be called the "ABA Approach."[75] A clear difference between the Utah Act and E-Sign can be immediately observed—while the federal law is entitled "*Electronic* Signatures in Global and National Commerce Act," the Utah statute is a "*Digital* Signature Act." The choice between these two adjectives is a significant one, and out of the simple selection of a modifying term arises two completely different legal frameworks.

The federal definition of electronic signature has been discussed previously. Under that broad standard, something as simple as a typed name at the bottom of an e-mail message, as well as the more complicated "digital signature" would be legally sufficient.[76] The

73 *See* UTAH CODE ANN. §§ 46-3-101 to 46-3-602 (1998 & Supp. 2000).

74 *See id.* § 46-3-101, notes (explaining that the Act "became effective on May 1, 1995"); *see also* R. Jason Richards, *The Utah Digital Signature Act as "Model" Legislation: A Critical Analysis*, 17 J. MARSHALL J. COMPUTER & INFO. L. 873, 875 (1999) ("The first state to address the matter was Utah, which resulted in the adoption of the Utah Digital Signature Act in 1995.").

75 The ABA Approach, the opposite of the Uniform Law Approach, is also named for its originator. *See Digital Signature Guidelines*, *supra* note 11, *available at* http://www.abanet.org/scitech/home.html, *cited in* Edward D. Kania, *The ABA's Digital Signature Guidelines: An Imperfect Solution to Digital Signatures on the Internet*, 7 COMMLAW CONSPECTUS 297, 302–04, nn.53–82 (1999) (describing the Guidelines' proposed asymmetric cryptography system). Asymmetric cryptography is the technology behind a digital signature, which is discussed at *infra* notes 77–86 and accompanying text. The Utah Act is also a good example of the ABA Approach because before E-Sign, one commentator noted that "the common thread that runs through [state electronic signature laws] is that they replicate, or at least mimic, Utah's approach." Richards, *supra* note 74, at 875.

76 Consider the following:

> Dear Sirs,
>
> My company has agreed to purchase two thousand widgets from your company at the price of fifteen dollars ($15.00) per unit. You may ship the goods to my attention at 123 Main Street, Anytown, USA as soon as possible. Please include an invoice and your billing address with the shipment. Assuming the widgets are satisfactory, you will receive a check for payment in full by the first of the month.
>
> Sincerely yours,
> Jane Doe

An e-mail containing this message would be electronically signed under the definition from E-Sign. *See* 15 U.S.C.S. § 7006(5) (Law. Co-op. Supp. 2001). This message alone probably does not give rise to a binding contract (there is no promise on

phrase "digital signature," by contrast, has a very precise meaning: "'Digital signatures' are a subset of electronic signatures that . . . use encryption technology to create a secure form of the electronic signature."[77] The Utah Act codifies, in some detail, the digital signature process.[78] That process requires two "keys," a public key and a private key.[79] The "keys" are computer-generated, mathematical algorithms that are unique to the individual using them. The digital signer uses her private key (an algorithm to which only she has access) to encrypt the message.[80] Once encrypted, the signer sends her message to the intended recipient, who must access the public key in order to decode the message.[81] A neutral third party, usually referred to as the "certification authority," maintains the public keys.[82] The recipient obtains the public key from the certification authority and uses it to decode the message.[83] This process ensures the validity of both the sender

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the part of the shipping company), but if this message amounted to the acceptance of an e-mailed offer, we would have not only a binding contract, but an electronically signed one as well. *See also* William A. Tanenbaum, *Paperless Contracts Are Here*, N.Y. L.J., Apr. 24, 2000, at S4, S10 (describing *electronic* signature as "a lowest common denominator term . . . . An example is a typed name such as '/s/ John Doe' . . . ").

77 Tanenbaum, *supra* note 76, at S10.

78 *See, e.g.*, UTAH CODE ANN. § 46-3-401(1) (1998) ("Where a rule of law requires a signature, or provides for certain consequences in the absence of a signature, that rule is satisfied by a digital signature if: (a) that digital signature is verified by reference to the public key . . . (b) that digital signature was affixed by the signer . . . ."); *see also id.* §§ 46-3-301 to 46-3-310 (outlining the "Duties of Certification Authority and Subscriber").

79 *See* Kania, *supra* note 75, at 300–01.

80 *Id.* at 300.

81 *Id.*

82 *See* UTAH CODE ANN. § 46-3-103(4); Kania, *supra* note 75, at 300.

83 Contrary to the *electronically* signed example at *supra* note 76, a *digitally* signed message might look like the following, taken from John C. Anderson & Michael L. Closen, *Document Authentication in Electronic Commerce: The Misleading Notary Public Analog for the Digital Signature Certification Authority*, 17 J. MARSHALL J. COMPUTER & INFO. L. 833, 851 n.110 (1999) (citations omitted):

- BEGIN SIGNED MESSAGE -
Name: Chicago Widget Corp.
Order No: 2523
Date: June 2, 1999
This document is an order for 500 blue widgets at the price of $100 /each.
- END SIGNED MESSAGE -
Public ID# 7Y4737Y34874
Public key available at:
http://www.certification authority.com/chicagowidget/publickey.html
- BEGIN SIGNATURE -
I86T7887tj6UJSLkj78342gd56ET445e098Ujhf65R987yur5UpFTf4ERD897
gW35Yfd1Oafavg4tggg54fglIJG23o9kj120goND1998

and the document in that "if the message was originally forged (a private key which does not correspond to the public key was used to sign the message), the public key will not properly interact . . . ."[84] Furthermore, "if one alters the message prior to its receipt, then it will alter the hash result and one cannot recreate the original message from the public key."[85] The use of a neutral third party adds a heightened degree of legalism to the whole affair, much like having a paper document notarized.[86]

While a digital signature satisfies E-Sign's definition of "electronic signature," so do many other things. The primary difference between the "minimalist," "technology-neutral" approach of E-Sign and the opposite tack embodied in the Utah Act is the degree of *required* technological security. E-Sign allows the contracting parties to determine for themselves how to electronically sign a document while the Utah Act imagines that electronically signed documents must live up to the rigorous standards of the digital signature. More specifically, the Utah Act provides, "A message is as valid, enforceable, and effective as if it had been written on paper, if it: (a) bears in its entirety a digital signature; and (b) that digital signature is verified by the public key . . . ."[87] The Utah Act, unlike E-Sign, does not provide for any excepted transactions. Additionally, the Utah Act provides that "nothing in this chapter precludes any symbol from being valid as a signature under other applicable law,"[88] and it "does not limit the authority of the State Tax Commission to prescribe the form of tax returns or other documents filed with the State Tax Commission."[89] With these provisions, Utah allows for some flexibility in its rules that are, by design, very demanding. These demanding rules, however, are not without benefits: with greater particularity in signature creation comes greater certainty in the results. Contrary to the vague "may not be denied

- END SIGNATURE -

84 Kania, *supra* note 75, at 301.

85 *Id.* The basic technology behind a digital signature is cryptography, the mathematical process of scrambling and unscrambling information. In the case of a digital signature, the scrambling and unscrambling is achieved through the pair of "keys" described above. For a more detailed discussion of this technology, see Anderson & Closen, *supra* note 83, at 850–53, and citations therein. *See also* Kania, *supra* note 75, at 300–02.

86 *See generally* Anderson & Closen, *supra* note 83 (referring to the certification authority as a "cybernotary" and arguing that the position must be one of respect and professionalism).

87 UTAH CODE ANN. § 46-3-403 (1998). Note that "message" is defined under the Utah Act as "a digital representation of information." *Id.* § 46-3-103(18).

88 *Id.* § 46-3-401(2).

89 *Id.* § 46-3-402(3).

legal effect . . . *solely* because it is in electronic form,"[90] a properly executed digital signature in Utah is "as valid . . . as if it had been written on paper."[91]

Utah's provision allowing for the use of "other applicable law" is interesting because in May 2000, Utah adopted a version of the UETA.[92] Thus, while this discussion focuses on Utah as an example of the ABA Approach, in contrast to the E-Sign and the Uniform Law Approach, in truth, the separation is not so neat. By enacting a Uniform Law-styled *electronic* signature law to work in conjunction with its *digital* signature law, the state of Utah does not mandatorily require the more rigorous provisions of the digital signature (or so it would seem). Utah's recent action may demonstrate that one commentator was correct: "Despite a brief fad in the mid-1990s favoring a regulatory, technology-specific approach to electronic commerce, the vast majority of state governments have recently opted for a minimalist, non-regulatory and technology-neutral stance."[93] However, the most popular trend in law does not necessarily equate with what is best.[94]

C. *Electronic Signatures Versus Digital Signatures: The Benefits and Burdens*

Some of the attractive points of the competing electronic signature philosophies surfaced in the discussion above, but it would be wise to briefly explore the benefits of each, particularly with respect to

90 15 U.S.C.S. § 7001(a)(1) (Law. Co-op. Supp. 2001) (emphasis added). The implication is that other, unspecified reasons may be sufficient to "den[y] legal effect." *Id.*

91 UTAH CODE ANN. § 46-3-403.

92 *See id.* §§ 46-4-101 to 46-4-501 (Supp. 2000).

93 *The Electronic Signatures in Global and National Commerce Act: Hearings on H.R. 1714 Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Commerce Comm.*, 106th Cong. 28 (1999) (statement of Daniel Greenwood, Deputy General Counsel of Information Technology Division, Commonwealth of Massachusetts).

94 The full implications of Utah's action remain to be seen. It is premature, however, to view the Utah version of the UETA as a denunciation of its *digital* signature philosophy. Both laws remain on the books. *See* UTAH CODE ANN. §§ 46-3-101 to 46-3-602 (1998); *id.* §§ 46-4-101 to 46-4-501 (Supp. 2000). Allowing the two regimes to work in tandem will likely provide a more nuanced electronic signature law. Transacting parties can obtain true certainty by utilizing a digital signature, thereby making the contract "as valid . . . as if it had been written on paper," *id.* § 46-3-403, or they can opt for a less technologically secure standard, knowing that the electronic form will be insufficient to "den[y] legal effect," *id.* § 46-4-201(1). This coordination of legal schemes appears to be Utah's intent. *See id.* § 46-4-106 ("This chapter must be construed and applied: (1) to facilitate electronic transactions consistent with other applicable law.").

formalities. The primary benefit of the Uniform Law approach (beyond legal vogue) is flexibility: laws such as E-Sign allow contracting parties to choose for themselves what constitutes a satisfactory "signature" while also allowing the technology of electronic signing to evolve without the requirement of a new law. The problem with such expansive flexibility is that virtually *everything* amounts to a valid electronic signature. Contracting parties cannot submit a typed "Jane Doe" to handwriting analysis, and oftentimes, neither will they be able to locate a witness to the "signing."[95]

The ABA Approach, on the other hand, may be too inflexible for many. Whereas E-Sign and similar laws allow contracting parties to practice as much or as little technological security as they like, laws such as the Utah Digital Signature Act set up a mandatory set of standards that every "sound, symbol, or process" must meet in order to rise to the level of a legal signature. Not only does this shoehorn transactors into technology they may not be able to afford, but it also leaves little room for substantial technological innovation over the years.[96] The ABA Approach presents other problems that are well-documented by R. Jason Richards.[97] For example, the Utah Act explicitly reverses certain evidentiary presumptions: "the general rule when challenging the authenticity of a signature is that the signature is presumed invalid, but is subject to being rebutted . . . . However, the Utah Act obviates this traditional standard by clothing a verifiable digital signature with a presumption of validity that the challenger must counter."[98] This concern, along with questions about the Act's

95 This is why the law of evidence views e-mails with some degree of skepticism. *See* JOHN W. STRONG ET AL., MCCORMICK ON EVIDENCE § 225 (5th ed. 1999) [hereinafter MCCORMICK] ("[E]-mail can be viewed as roughly analogous to an unsigned letter written on letterhead stationery. In both instances, the indication of the source of the communication is susceptible to misappropriation and unauthorized use, and, accordingly, some further evidence of authenticity should arguably be required.").

96 Certainly digital signature technology might improve, but totally new techniques for "signing" electronic documents would probably require either a new law or substantial amendment of existing law.

97 *See generally* Richards, *supra* note 74 (criticizing the Utah Act's status as "model legislation").

98 *Id.* at 905 (citations omitted); *cf.* UTAH CODE ANN. § 46-3-406.

allocation of liability,[99] was echoed in the Congressional hearings on E-Sign.[100]

The problems that Richards and others[101] point out need to be taken seriously, but they center on aspects of the legal regime beyond the signatures themselves. For present purposes—assessing the competing signature philosophies as legal formalities—those questions can be set aside. Furthermore, there is a positive side to laws like the Utah Act; the ABA Approach gives a heightened degree of security and trustworthiness to electronic transactions.[102]

On the whole, one shouldn't over-emphasize the kinds of differences discussed above because contract *law* is secondary to the act of contracting. That is, contracting parties can choose for themselves whether to prioritize issues of security or of flexibility or legal certainty or whether to use an electronic signature, or even whether to sign an agreement at all; the legal system only gets involved when there is a dispute.[103] At that level, though, the ABA and Uniform Law Approaches represent two very different ways of resolving contract disputes. These legal regimes also take divergent views of how to best "computerize" the traditional legal formality of a signature. Drawing upon Lon Fuller's explanation of the importance of legal form, I now turn to an examination of the competing philosophies.

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99 *See* Richards, *supra* note 74, at 902 (noting the Utah Act's limit on recovery due to certification authority negligence to direct compensatory damages (not punitive damages, lost profits, or pain and suffering) and commenting that "[l]imiting liability in such a manner is ill-advised").

100 *See The Electronic Signatures in Global and National Commerce Act: Hearings on H.R. 1714 Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Commerce Comm.*, 106th Cong. 19, 29 (1999) (statement of Daniel Greenwood, Deputy General Counsel of Information Technology Division, Commonwealth of Massachusetts) (arguing that a digital signature law "should not tamper with rules of evidence and liability apportionment as an industrial policy setting mechanism").

101 *See, e.g.*, Kania, *supra* note 75, at 310 (reviewing the ABA *Guideline*'s reliance factors and their codification in the Utah Act and concluding that they represent "an improper attempt to re-allocate risk for these commercial transactions").

102 Even though Edward Kania raises some criticisms against the ABA Approach, he must also admit that "[t]he 'digital signature' system accomplishes the necessary authentication requirements for a legally-binding signature." *Id.* at 301.

103 *See* KNAPP ET AL., *supra* note 19, at 17 ("[T]he vast majority of disputes that the rules of contract law *could* solve are *never submitted to a court for decision.*").

III. ELECTRONIC SIGNATURES AS LEGAL FORMALITIES

A. Fuller's Concept of Legal Formalities

In 1941, the *Columbia Law Review* prepared an entire issue on the usefulness of the consideration doctrine in contract law.[104] Each of the contributors explored the history and value of the consideration doctrine, assessing whether American contract law should abandon consideration as a requirement for enforceable contracts.[105] For some, this question could turn on whether consideration is a "substantive" provision of contract law or whether it is "just a formality."[106] Taking up this strain of the argument, Lon Fuller explained that consideration has both formal and substantive aspects.[107] Unlike many, however, he did not believe that only its substantive aspects recommend the doctrine of consideration. Rather, concluding that American law ought not to abandon the doctrine,[108] Fuller explained how the "merely" formal aspects of law serve great value.[109]

According to Fuller, legal formalities serve three important functions—the evidentiary, cautionary, and channeling functions.[110] As to the evidentiary function, Fuller explains, "The most obvious function of a legal formality is, to use Austin's words, that of providing 'evidence of the existence and purport of the contact, in case of controversy.'"[111] In addition to evidence, formalities fulfill a cautionary

104 *See* 41 COLUM. L. REV. 777 (1941).

105 *See* K.N. Llewellyn, *On the Complexity of Consideration: A Foreword*, 41 COLUM. L. REV. 777, 779–82 (1941) (introducing the articles to follow and emphasizing the importance of studying the consideration doctrine). Llewellyn noted that "we are faced with a body of doctrine about *day to day transactions* which originated in Elizabeth's time . . . . Surely such a body of doctrine vitally needs such critical restudy." *Id.* at 782.

106 *See* Fuller, *supra* note 23, at 799 (explaining that "a significant relationship between consideration and form is a proposition not here suggested for the first time; indeed the question has been raised (and sometimes answered affirmatively) whether consideration cannot in the end be reduced entirely to terms of form").

107 *Id.*

108 *Id.* at 824.

109 *See id.* at 800–06.

110 *Id.* at 800–01. For a more recent conclusion that formalities serve at least *seven* functions (many of which could be placed under Fuller's three), see Eric Mills Holmes, *Stature and Status of a Promise Under Seal as a Legal Formality*, 29 WILLAMETTE L. REV. 617, 626 (1993) (arguing that formalities serve the following functions: "ceremonial, evidentiary, security, cautionary, deterrent, channeling or earmarking, clarification and certainty, and economic efficiency").

111 Fuller, *supra* note 23, at 800 (quoting John Austin, *Fragments—On Contracts*, *in* 2 LECTURES ON JURISPRUDENCE 939–44 (London, J. Murray, 4th ed. 1879)).

function;[112] they give a sense of importance to the transaction and cause the transactor to take pause before entering into a legal obligation. The most traditional of formalities, the seal, best performed this function: "The affixing and impressing of a wax wafer—symbol in the popular mind of legalism and weightiness—was an excellent device for inducing the circumspective frame of mind appropriate in one pledging his future."[113] Finally, in what Fuller believes to be an often-ignored function, formalities serve a channeling role—they quickly and easily distinguish the legal from the non-legal.[114]

In expanding upon these aspects of legal form, Fuller explores how the three often interrelate with one another,[115] but he also emphasizes the importance of understanding the differences, because, in his view, deciding "borderline cases of compliance may turn on our assumptions as to the end primarily sought by a particular formality."[116] Finally, before turning to the substantive aspects of the doctrine of consideration, Fuller briefly discusses when legal formalities are needed. He explains, "The need for investing a particular transaction with some legal formality will depend upon the extent to which the guaranties that the formality would afford are rendered superfluous by forces native to the situation out of which the transaction arises . . . ."[117]

B. Other Views and Theories on Legal Formalities

Fuller offered perhaps the most succinct and clear exposition of the importance and usefulness of legal form of anyone before or since. In exploring the formality of the electronic signature, this Note

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112 *Id.* at 800.

113 *Id.*; *see also* Holmes, *supra* note 110, at 622 (describing usage of the seal as "an awesome, special formality—a mystical solemnity of the ceremonial melting of hot wax, a signet ring that personified the promisor, and a writing the reified legal obligation").

114 Fuller, *supra* note 23, at 801; *see also* Posner, *supra* note 24, at 419–20 (arguing, on economic grounds, that the formality of the seal advances courts' interests in efficiency).

115 Fuller, *supra* note 23, at 803–04.

116 *Id.* at 804. This can be clearly seen in the case of the Statute of Frauds. If one believes that the formal requirement of having some contracts in writing serves merely evidentiary functions, then she is likely to enforce the agreement in the teeth of the Statute if other evidence indicates an intent to be bound. However, if the Statute also realizes cautionary or channeling goals, then a court may have reason to deny enforcement to an agreement that does not comply with the Statute even if the parties clearly intended an obligation. *Cf. id.* (discussing the same concept with respect to the parol evidence rule).

117 *Id.* at 805 (emphasis omitted).

draws primarily from Professor Fuller. However, he is by no means the only scholar to comment on the subject. To fully appreciate legal formalities, a few other concepts deserve mention.

1. Definition of Formality

Fuller's discussion of formality assumes a working understanding of the topic.[118] Duncan Kennedy, however, tries to formulate a definition. He explains, "Formality consists in the attempt to accomplish substantively rational results . . . through substantively rational formulation and mechanical application of rules rather than directly through substantively rational decision processes."[119] More simply, this means that formalities are mechanical, that is non-substantive, rules designed to substitute for the difficult task of determining whether the substantive requirements of a given transaction were fulfilled. In terms of a contract law example, this means that formalities save judges the task of exploring whether or not two contracting parties intended to be bound. Rather, a judge simply looks to a formality (for example, a signature, a written contract, or a document under seal) and mechanically ascertains intent.

2. Formalities in the Law of Wills

Like sealed documents,[120] the process of creating a valid will involves a heightened degree of formality.[121] This fact has inspired a great deal of commentary on formalism in the wills context,[122] and the crossroads of Fuller's and Kennedy's thoughts on formality can be found in Professor Bruce Mann's examination of the most prominent formality in the law of wills: attestation.[123] Having witnesses attest to a will certainly serves the evidentiary, cautionary, and channeling func-

118 *See id.* at 799 ("What is attempted in this article is an inquiry into the rationale of legal formalities."). With this opening phrase, Fuller is off on an extended discussion of formality.

119 Kennedy, *Legal Formality*, *supra* note 24, at 358.

120 *See supra* note 113 and accompanying text.

121 *See* James Lindgren, *The Fall of Formalism*, 55 ALB. L. REV. 1009, 1009 (1992) ("The fear that [people] might improvidently give away their property at death has left a legacy of formalism unmatched in American law.").

122 *See generally* John H. Langbein, *Substantial Compliance with the Wills Act*, 88 HARV. L. REV. 489 (1975); Lindgren, *supra* note 121; Bruce H. Mann, *Formalities and Formalism in the Uniform Probate Code*, 142 U. PA. L. REV. 1033 (1994); C. Douglas Miller, *Will Formality, Judicial Formalism, and Legislative Reform: An Examination of the New Uniform Probate Code "Harmless Error" Rule and the Movement Toward Amorphism*, 43 FLA. L. REV. 167 (1991) (part 1); *id.*, 43 FLA. L. REV. 599 (1991) (part 2).

123 *See* Mann, *supra* note 122, at 1041–43.

tions: witnesses give clear evidence that a will was in fact signed, they provide an aura of caution and ceremony to the will-signing process, and they quickly and clearly distinguish legal from non-legal wills.[124] However, attestation fares poorly as Kennedy's "rational realization of substantive determinations." While this formality provides a quick and easy demarcation between valid and invalid wills, it may, and often does, exclude documents that bear all of the substantive aspects of a will.[125] This is particularly true when a will is attested to but the attestation is legally flawed in some respect. Professor Mann writes, "It is thus depressingly common to see courts . . . rejecting elaborate wills drafted by attorneys and signed in formal execution ceremonies where the testator or witnesses happened to sign in the wrong place or in the wrong order."[126] For this reason, Mann and others applaud the diminished importance of formalities under the 1990 Uniform Probate Code.[127]

If the underlying determination can be made without the form—as in the case of testamentary intent—then the formality begins to act like a handicap, especially if it is strictly and mandatorily applied.[128] However, in the contracts realm, formalities are not always mandatory.[129] Thus, contract formalities often are not "rules" as in the Kennedy definition, and even those that rise to the rule-level, for example the Statute of Frauds, are riddled with exceptions.[130] For these reasons, contract formalities need not carry the stigma of judges mechanically applying centuries-old rules that merely frustrate the obvious intentions of the parties, and an electronic signature law conse-

124 *See generally id.* (discussing the role of attestation in the law of wills).

125 *See id.* at 1042.

126 *Id.* (citations omitted).

127 *See, e.g.*, Lindgren, *supra* note 121, at 1024–30 (calling for the complete abandonment of the attestation requirement). *See generally* Langbein, *supra* note 122 (calling for a standard of "substantial compliance" in judging a will's compliance with legal formalities). Langbein's work is considered to be the impetus behind the 1990 revisions of the Uniform Probate Code. *See* Mann, *supra* note 122, at 1033.

128 This realization may have influenced the "minimalist" and "technology-neutral" impetus behind E-Sign. *See supra* notes 12, 64, and accompanying text. Indeed, "minimalist" in contract legislation may simply be one way of saying "anti-formalist."

129 *See, e.g.*, Hamer v. Sidway, 27 N.E. 256, 259 (N.Y. 1891); *supra* text accompanying note 20 (discussing enforceability of contracts in the absence of a written document). By most accounts, the formality of consideration *is* mandatory, and this fact inspired the works in the May 1941 issue of the *Columbia Law Review*.

130 *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 129 (1981) ("A contract for the transfer of an interest in land may be specifically enforced *notwithstanding failure to comply with the Statute of Frauds*."(emphasis added)); *id.* § 139(1) ("A promise . . . is enforceable notwithstanding the Statute of Frauds if injustice can be avoided only by enforcement . . . .").

quently need not be anti-formalist. Rather, contract formalities generally serve the functions recognized by Lon Fuller. Indeed, the formality of a written document has attained such prominent use not because the law requires it, but because businesspeople impose the requirement on themselves.

3. Formalities and E-Sign

In describing the interrelationship of formal functions, Fuller explained: "Generally speaking, whatever tends to accomplish one of these purposes will also tend to accomplish the other two. He who is compelled to do something which will furnish a satisfactory memorial of his intention will be induced to deliberate."[131] In the twenty-first century, this is no longer true. Computers are notoriously effective in providing memorials of what transpires,[132] but the click of a mouse is extremely casual and non-deliberative. Thus, because electronic transactions differ in this important respect—the cautionary function—legislation creating a computerized legal formality must take affirmative steps to preserve formal functions that thrived naturally in the ink-and-pen world.

C. Contracts Under E-Sign: What Would Professor Fuller Say?

The discussion to this point has focused on the theoretical differences between a *digital* signature and an *electronic* signature, along with a brief discussion of legal formality. In the remaining paragraphs, we will see how the theoretical grounds of legal formalities point to the superiority of the ABA Approach.

The first of Fuller's functions is *evidence.* The evidentiary superiority of the ABA Approach has been addressed previously,[133] and it hardly comes as a surprise. An encrypted computer message verified by a neutral third party goes much further in establishing "evidence of the existence and purport of the contract"[134] than does a typed e-mail,

131 Fuller, *supra* note 23, at 803.

132 Increasingly, law enforcement agencies rely on the "memorials" contained inside a computer to track or prosecute suspects. *See, e.g.*, David Johnston & Marc Lacey, *Justice Officials Begin an Inquiry into White House*, N.Y. TIMES, Mar. 24, 2000, at A1 (reporting that "all incoming [White House] e-mail messages were now recorded in a form that made them searchable"); Matt Richtel, *Canada Arrests 15-Year-Old in Web Attack*, N.Y. TIMES, Apr. 20, 2000, at C1 (describing how the F.B.I. utilized a "crucial piece of evidence"—a suspicious computer from the University of California at Santa Barbara—in order to trace the attacker to Canada).

133 *See supra* note 95 and accompanying text.

134 Fuller, *supra* note 23, at 800 (quoting John Austin, *Fragments—On Contracts, in* 2 LECTURES ON JURISPRUDENCE 939–44 (London, J. Murray, 4th ed. 1879).

which is "roughly analogous to an unsigned letter written on letterhead stationery."[135] However, this evidentiary superiority comes at the expense of legal flexibility and may require expensive investments in computer technology. Thus, the superiority of the ABA Approach in this realm may not be sufficient to recommend it as a legal philosophy.

The second of Fuller's functions is *channeling*. Again, the ABA Approach is more effective. Formalities often serve to channel certain disputes into the legal system and leave others out.[136] Under E-Sign's overly broad definition of electronic signature and equally generalized language concerning legal validity, nearly every electronic transaction can become a legally cognizable contract. The courts may not be ready for the workload this could create, and a legal regime along Utah's model would more clearly distinguish the legal from the non-legal.[137] Nevertheless, formalities acting solely as an earmark of legality, or a Kennedy-style legal shorthand, fall victim to many of the criticisms launched by scholars in the law of wills.[138] Indeed, contract law has moved steadily away from this kind of formality through such movements as the abolition of the seal and the establishment of the Uniform Commercial Code.[139] Under this analysis, E-Sign's lack of formalism could be viewed as an element of progress. Thus, again, the superiority of the ABA Approach does not de-legitimize E-Sign. Yet, one function remains.

The last of Fuller's functions is *caution*. Here, the ABA Approach is most dominant, and E-Sign is most wanting. Consider, for example, the *RealNetworks* case.[140] Although it did not arise under E-Sign, the "signature" at issue would more than likely satisfy the Act's definition of an electronic signature.[141] But the losing parties probably believed, quite sensibly, that they were not dealing with a legal signature.

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135 MCCORMICK, *supra* note 95, § 225.

136 *See supra* note 113 and accompanying text; *see also* Posner, *supra* note 24, at 420 (discussing the value of the seal (a formality) as a simple way of ensuring legal enforceability).

137 *See supra* text accompanying note 91 (citing UTAH CODE ANN. § 46-3-403 (1998)) (noting the certainty of legal status under Utah's Digital Signature Act).

138 *See supra* notes 120–30 and accompanying text.

139 *See* SCHWARTZ & SCOTT, *supra* note 7, at 48 (arguing that the U.C.C. "deemphasizes formalities and directs attention to 'the true understanding of the parties as to the agreement'").

140 *See In re* RealNetworks, Inc., Privacy Litig., No. 00C 1366, 2000 U.S. Dist. LEXIS 6584 (N.D. Ill. May 11, 2000); *see also supra* notes 37–48 and accompanying text.

141 *See In re* RealNetworks, Inc., Privacy Litig., 2000 U.S. Dist. LEXIS 6584, at *11 (holding that the electronic agreement amounted to a "writing" and noting the then-current Congressional discussions over E-Sign).

RealNetworks involved a familiar set of facts to anyone who has ever downloaded or installed computer software: before installation can be completed, a verbose "Agreement" appears on the screen, and the user is compelled to click "I Agree" if she wishes to use the software. The act of clicking one's mouse on the "I Agree" button probably amounts to a "signing" of the agreement under E-Sign.[142] Yet, it is likely that few of the plaintiffs imagined they were entering into a binding legal contract that would significantly affect their rights.[143] Digital signatures, by contrast, evoke a much greater degree of caution because they require both the use of a special "key" that the sender must keep secret and the registration of one's public key with an important official.[144] If during the process of downloading software one is required to utilize her public key to "sign" an agreement with the software maker, this will trigger a notion of legalism inherent in the signing event. Further, the very decision to invest in key-pair encryption technology is a costly one that will likely remind the user of the legal seriousness involved in using that technology.

Other cases in the electronic signature realm emphasize that a casual definition of electronic signature, such as the one utilized by E-

142 Clicking the "I Agree" button is very clearly "an electronic . . . process, attached to or logically associated with a contract or other record." 15 U.S.C.S. § 7006(5) (Law. Co-op. Supp. 2001). However, the act of clicking may or may not be "executed or adopted by a person with the intent to sign the record." *Id.* This is true because intent is unique to each individual and each transaction. Furthermore, the verb "to sign" is not defined in E-Sign. Thus, it is unclear what kind of intent a person must have. However, a literal understanding of intention has a very small role to play in modern contract litigation. For example, in *RealNetworks*, it is extremely unlikely that plaintiff class members truly *intended* to sign away their rights to a judicial forum. However, the enforceability of the arbitration clause turned on more technical considerations; the court was uninterested in what plaintiffs intended. It is likely that the same would be true of documents "signed" under E-Sign.

143 Here, plaintiffs were held to have "agreed" to submit all of their disputes to arbitration. *See In re* RealNetworks, Inc., Privacy Litig., 2000 U.S. Dist. LEXIS 6584, at *21. In effect, they "signed away" their rights to a judicial forum without having ever signed anything. My critique is directed to this phenomenon—the casual signature. One might criticize the way that courts find "agreement" in standard adhesion contracts regardless of how such "agreements" are signed. *See, e.g.*, Carnival Cruise Lines, Inc. v. Shute, 499 U.S. 585, 585, 596–97 (1991) (upholding a forum selection "agreement" found in the small print on the back of a cruise ticket). This Note, however, expresses no opinion on that topic.

144 *See generally supra* notes 79–86 and accompanying text. As to how the Certification Authority lends a sense of legalism to a digitally signed transaction, see Anderson & Closen, *supra* note 83, at 839–40 (comparing the certification authority to a notary public and arguing "that lawmakers more carefully guard the office of certification authority to ensure it is held as a position of respect to help assure cybernotarized documents will be accepted both domestically and internationally").

Sign, presents problems. In *Caronna v. Sweeney*,[145] the New York Unemployment Insurance Appeal Board denied plaintiff's unemployment benefits.[146] The State had permitted Caronna to certify his continuing eligibility for unemployment by means of a telephone call.[147] Caronna received "a confidential personal identification number [PIN] to serve as his electronic signature."[148] Because plaintiff violated the rules of the telephone registration and allowed his wife to use the PIN, the State revoked his eligibility for unemployment, and the Appellate Division affirmed its decision.[149] If Mr. Caronna considered his personal identification number to be a signature, he might have thought twice about allowing his wife to use it, because her use of a *true* signature belonging to someone else might be considered a kind of forgery.[150] Again, the use of a more complex and "legalistic" process, such as a digital signature, would have alerted Caronna to the seriousness of the transaction.

Outside of the limited case law, one can imagine a variety of other technologies that might also satisfy E-Sign's simple requirements. Shortly after President Clinton's "e-signing" of the Act, Barnaby J. Feder, of *The New York Times*, speculated on new electronic signature techniques that might become popular under the law.[151] Feder discusses a company called Signature-mail.com and its technique for attaching a picture of one's actual signature to an e-mail message, but adds, "The company's founders figure such a device may well be unacceptable as a legal e-signature since anyone could hit the computer key to send it and hackers might easily forge it."[152] Feder and his sources at Signature-mail.com seem to have confused "legal" with "reliable." They have legitimate concerns over the e-mailed picture of a signature. Such a device, because of the opportunity for forgeries and unauthorized users, fails to convey either "signer

145 660 N.Y.S.2d 171 (App. Div. 1997).
146 *Id.* at 171.
147 *Id.*
148 *Id.*
149 *See id.*
150 *See* United States v. Miller, 70 F.3d 1353, 1355 (D.C. Cir. 1995) (upholding a forgery conviction on a finding that the defendant's use of the victim's "PIN, which acts as a sort of electronic signature authorizing an ATM to release available funds . . . is tantamount to cashing a check with a forged signature").
151 *See* Feder, *supra* note 17, at C1.
152 *Id.*

authentication" or "document authentication,"[153] but it would satisfy E-Sign's minimal standards.[154]

What all of these examples point to is the fact that electronic signature technology, in all of its forms, "looks nothing like a scrawled John Hancock"[155] or any other traditional legal formality. Contrary to "an awesome, special formality—a mystical solemnity of the ceremonial melting of hot wax, a signet ring that personified the promisor, and a writing the reified legal obligation,"[156] we are now faced with a gray "I Agree" button hovering under the mouse pointer, a faceless telephone system into which the caller punches a string of numbers, or a "click here to attach signature" icon. Even the third, which is admittedly less common than the first two, is a casual, seemingly insignificant event. There is nothing mystical, reifying, or even (to the careless observer) *legal* about any of these. A more responsive approach to electronic signature law would recognize the apparent lack of legality in many electronic transactions and attach legal significance to events that follow a popular perception of significance. However, E-Sign does not allow for such leeway. It explains that "electronic form," in all of its many varieties, is no reason to "den[y] legal effect."[157]

Lon Fuller's largely theoretical discussion of formality recognized the importance of this commonsense aspect to the law. He explained, "The need for investing a particular transaction with some legal formality will depend upon the extent to which the guaranties that the formality would afford are rendered superfluous by forces native to the situation out of which the transaction arises."[158] In a more recent analysis of "a federal digital signature law and . . . the structure that such a law should take,"[159] Edward D. Kania explores the forces native to the situation of electronic commerce.[160] Kania argues that those forces alone are not sufficient: simply affixing a casually-defined "signature" at the end of a document will not suffice because "the signature will possess no unique characteristic that will ensure the identity

153 *See* Kania, *supra* note 75, at 299 (explaining that a signature "denote[s] who has signed the written document . . . [and] identif[ies] the data the signatory accepted so one may not alter the data after the signature has occurred").

154 *See* 15 U.S.C.S. § 7006(5) (Law. Co-op. Supp. 2001) (defining "electronic signature").

155 Feder, *supra* note 17, at C1.

156 Holmes, *supra* note 110, at 622.

157 15 U.S.C.S. § 7001(a)(1).

158 Fuller, *supra* note 23, at 805.

159 Kania, *supra* note 75, at 298.

160 *See generally id.* at 300–02.

of the signatory."[161] Drawing upon this, Kania emphasizes that electronic signatures must meet more rigorous standards. Though his article focuses almost exclusively on security features and technology, Kania reaches the same conclusions compelled by Fuller's cautionary function: "The '*digital signature*' *system* [in contrast to a system like E-Sign] accomplishes the necessary authentication requirements for a legally binding signature."[162]

CONCLUSION

A degree of "legal uncertainty"[163] certainly did mar the law of electronic signatures before the passage of E-Sign. And the common law, potentially a fruitful source of legal innovation, did not move quickly or decisively in this area. Perhaps legislation was the correct move, but Congress faced two major legislative philosophies in providing for legally-recognized electronic signatures: the *digital* signature model and the *electronic* signature model. Congress rejected the digital signature approach and, with it, Lon Fuller's cautionary function. In fact, E-Sign falls far short of a digital signature law, such as Utah's, in preserving all three of the traditional functions of formality. Yet, many legal scholars reject formality as a valid consideration for modern law,[164] and this attitude has been a strong part of many trends in the law of contracts.[165] However, the formality of a signature seems to be different. Contracting parties make extensive use of it though contract law only requires it for certain types of agreements,[166] and for this reason, this Note has argued that any variations on a traditional signature must fulfill the traditional functions of formality.

Those traditional functions—Fuller's cautionary, evidentiary, and channeling functions—were not the concerns driving Congress to pass E-Sign. Rather, Congress hoped to encourage electronic transac-

161 *Id.* at 300 (citations omitted).

162 *Id.* at 301 (citations omitted) (emphasis added). Kania's emphasis on questions of "security" should be understood to involve many of the same concerns as my discussion of the cautionary function. The importance of Kania's conclusion is that something *less than* the digital signature system offers insufficient protection. Indeed, he offers modifications beyond the legal protections embodied in the ABA *Digital Signature Guidelines*. *See generally id.* at 305–13.

163 H.R. REP. No. 106-341, pt. 1, at 7 (1999), *available at* http://thomas.loc.gov/cp106/cp106query.html (last visited Apr. 26, 2001).

164 For a sampling of commentators advancing this view, see *supra* note 122.

165 *See supra* note 139 and accompanying text.

166 *See* RESTATEMENT (SECOND) OF CONTRACTS § 110 (1981) (listing classes of contracts for which enforceability requires "a written memorandum").

tions.[167] The literature calling for electronic signature laws[168] has consistently argued that "the new electronic infrastructure is likely to transform the face of American commerce"[169] and that "the legal requirements that allowed traditional communications to bind parties are uncertain when applied to their newer electronic counterparts."[170] Congress believed in this and crafted a law that would provide certainty with minimal standards and specifics. And it will probably work; E-Sign's less rigorous standards may in fact stimulate Internet business and electronic transacting.[171] The law is also extremely flexible, allowing "industry to lead"[172] and technology to adapt over time. Amazingly, all of these various objectives fit easily under the Act. And this is what Congress had in mind; E-Sign is an extremely *functional* law, but the upshot of this approach is that more and more people will find themselves "signing" things without realizing they have entered into legally binding transactions.

It is possible that this analysis is overstated; the cliché warns us not to place form over function. From this perspective, the sheer novelty of the Internet and electronic transactions may mean that Lon Fuller is the wrong source. He wrote in an age before computers, let alone the Internet. Perhaps his views are inappropriate here, and perhaps E-Sign represents a progressive adaptation to a new reality rather than an incautious break with formal traditions. But Professor Fuller was careful not to limit himself to the realities of his day. He wrote, "Whether there is any need . . . to set up a formality designed to induce deliberation will depend upon the degree to which the factual situation, innocent of any legal remolding, tends to bring about the

167 *See supra* note 16 and accompanying text.

168 *See, e.g.*, Tupper, *supra* note 16.

169 *Id.* at 237 (citations omitted).

170 *Id.* at 238.

171 *See* Feder, *supra* note 17, at C1 ("This new law sends a message to the business community that e-signatures are O.K." (quoting Kevin M. Coleman, Internet Security Specialist for KPMG)). If nothing else, a Congressional statement on legal validity raises public interest (and presumably also public confidence) in electronic signatures.

172 *The Electronic Signatures in Global and National Commerce Act: Hearings on H.R. 1714 Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Commerce Comm.*, 106th Cong. 19, 22 (1999) (statement of Donald W. Upson, Secretary of Technology, Commonwealth of Virginia) (arguing that Congress should follow Virginia's approach, which is based on "principles, which reflect the need for global cooperation spurred by technological and market-driven solutions . . . : 1. The private sector should lead").

desired circumspective frame of mind."[173] We have seen that the modern-day computer world falls far short of this.[174]

Taking Fuller's own words, then, a signature law inside the computer and Internet world must "set up a formality." This is precisely what the Utah Digital Signature Act does. It provides for a state official to maintain and verify an essential element of the digital signature;[175] it specifically lists the requirements of a valid digital signature;[176] and it enumerates the consequences of meeting those requirements.[177] All of this creates a legal environment that injects caution into the normally casual world of the Internet and alerts transactors to the "legal" (that is, serious) nature of a digitally signed transaction. As noted previously, the Utah Act is not flawless,[178] but it is a step in the right direction. A federal law based on this model would go much further in striking the proper balance between function and form.

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173 Fuller, *supra* note 23, at 805.

174 *See supra* notes 155–57 and accompanying text.

175 UTAH CODE ANN. § 46-3-104 (1998); *see also id.* §§ 46-3-201 to 46-3-310 (outlining the "Licensing and Regulation of Certification Authorities" and the "Duties of Certification Authority and Subscriber").

176 *Id.* § 46-3-401(1) (requiring that a digital signature be verified by a public key that is listed in a valid certificate, issued by a certification authority, and affixed by the signer with intent to sign).

177 *Id.* § 46-3-403(1) (explaining that a valid digital signature is "as valid, enforceable, and effective as if it had been written on paper"). *Contra* 15 U.S.C.S. § 7001(a)(1) (Law. Co-op. Supp. 2001) (stating only that an electronically signed document "may not be denied legal effect").

178 *See supra* notes 97–100 and accompanying text. By enacting a version of the UETA, see UTAH CODE ANN. §§ 46-4-101 to 46-4-501 (Supp. 2000), the State of Utah may have gone a long way in remedying the flaws of its Digital Signature Act. In fact, though much of this Note portrays a philosophical struggle between the electronic and digital signature models, time may show that a dual system (as Utah now has) actually gives transacting parties the best of both worlds.