
CHAPTER FOUR

WHAT IS AN “ELECTRONIC WILL”?

It is a truth universally acknowledged that “[t]he organizing principle of the American law of donative transfers is freedom of disposition.”¹ That is, “[p]roperty owners have the nearly unrestricted right to dispose of their property as they please.”² As the right to dispose of property extends beyond death, one way that a testator can make her wishes known is, of course, by creating a will that lays out her estate plan in detail. To ensure the authenticity of the wills that are presented to probate, however, a testator must follow a set of “formalities” in creating and executing a will (traditionally, these are writing, signature, and attestation).³ Formalities help ensure that only valid wills are admitted to probate by creating a standard form and method for will creation and execution, cautioning the testator of the gravity of the step she is about to take, and protecting the testator from those who may attempt to take advantage of her.⁴

For centuries, the formalities associated with wills underwent little modification.⁵ However, the rise of technology in recent years is likely to bring with it a flurry of previously unforeseen circumstances for probate courts to confront. American probate courts are slowly being asked to judge the validity of “electronic wills” — wills that have been written, signed, and/or attested using an electronic medium. Testators’ use of electronic media for wills is hardly surprising given a trend of increasing personal data storage on electronic devices⁶ and in “the cloud”⁷: one

¹ RESTATEMENT (THIRD) OF PROP.: WILLS & OTHER DONATIVE TRANSFERS § 10.1 cmt. a (AM. LAW INST. 2003).

² *Id.*

³ ROBERT H. SITKOFF & JESSE DUKEMINIER, WILLS, TRUSTS, AND ESTATES 142 (10th ed. 2017).

⁴ *Id.* at 144.

⁵ Christopher J. Caldwell, Comment, *Should “E-Wills” Be Wills: Will Advances in Technology Be Recognized for Will Execution?*, 63 U. PITT. L. REV. 467, 467 (2002) (“The law of wills has universally been slow to accept change.”).

⁶ Michael Lynch, *Leave My iPhone Alone: Why Our Smartphones Are Extensions of Ourselves*, THE GUARDIAN (Feb. 19, 2016, 6:29 PM), <https://www.theguardian.com/technology/2016/feb/19/iphone-apple-privacy-smartphones-extension-of-ourselves> [https://perma.cc/3LMR-YSLT] (“We’ve begun to see [internet-connected electronic devices] as extensions of ourselves. The Internet of Things has become the Internet of Us.”).

⁷ Heidi Seybert & Petronela Reinecke, *Internet and Cloud Services — Statistics on the Use by Individuals*, EUROSTAT (2014), http://ec.europa.eu/eurostat/statistics-explained/index.php/Internet_and_cloud_services_-_statistics_on_the_use_by_individuals [https://perma.cc/3J2W-EH3M] (“Services based on cloud computing technology allow users to store large files or use software on a server run over the internet.”).

popular cloud storage service, Dropbox, reported reaching 500 million users in 2016, for example.⁸

Although scholarship on electronic wills remains limited, scholars and practitioners have suggested a variety of options for courts and legislatures dealing with electronic wills.⁹ These run the gamut from continuing to interpret wills as requiring a handwritten document,¹⁰ to creating a centralized database regulated by the government that would store all electronic wills,¹¹ to using existing wills doctrines to authenticate electronic wills on a case-by-case basis,¹² to laying out a statutory regime that would allow for presumptively valid electronic wills in some situations.¹³

However, since scholars typically use the term “electronic will” to encompass a variety of situations that pose vastly different questions about validity, scholarly proposals on whether electronic wills should generally be considered valid or invalid — and under what standard — are hard to assess. As used today, an electronic will could mean any writing along a broad spectrum from a will simply typed into a word-processing program by the testator on a computer and stored on its hard drive¹⁴ to a will signed by the testator with an authenticated digital signature, witnessed or notarized via webcam, and stored by a for-profit company.¹⁵ This Chapter suggests that such a broad view obscures the critical distinctions between different situations in which a will is created and/or executed electronically. This Chapter therefore attempts to organize the discussion of electronic wills by providing an analytical framework for weighing their validity.

This Chapter disaggregates the one-size-fits-all term “electronic will” into three distinguishable categories of electronic wills: offline electronic

⁸ Drew Houston & Arash Ferdowsi, *Celebrating Half a Billion Users*, DROPBOX BLOG (Mar. 7, 2016), <https://blogs.dropbox.com/dropbox/2016/03/500-million> [<https://perma.cc/GC8S-SR9G>].

⁹ It is worth noting that law reform has begun in this area — in 2017, the Uniform Law Commission set up a Committee on Electronic Wills charged with drafting “a uniform act or model law addressing the formation, validity and recognition of electronic wills.” *Electronic Wills*, UNIF. LAW COMM’N, <http://www.uniformlaws.org/Committee.aspx?title=Electronic%20Wills> [<https://perma.cc/7V99-KYF6>]; see also Press Release, Unif. Law Comm’n, New Drafting and Study Committees to Be Appointed (Jan. 20, 2017), <http://www.uniformlaws.org/NewsDetail.aspx?title=New%20ULC%20Committees%20to%20be%20Appointed> [<https://perma.cc/M9AW-7HL4>].

¹⁰ See David Horton, *Tomorrow’s Inheritance: The Frontiers of Estate Planning Formalism*, 58 B.C. L. REV. 539, 577 (2017) (suggesting courts and legislatures should “tread carefully as they decide whether to loosen the ‘writing’ and ‘signature’ elements of the Wills Act”).

¹¹ Keven DuComb, *The Promise of Electronic Wills*, MTTLR BLOG (Nov. 26, 2007, 10:59 AM), <http://blog.mttl.org/2007/11/promise-of-electronic-wills.html> [<https://perma.cc/RG2K-C39G>].

¹² See Scott S. Boddery, *Electronic Wills: Drawing a Line in the Sand Against Their Validity*, 47 REAL PROP. TR. & EST. L.J. 197, 199 (2012) (suggesting that “[a]dopting the harmless error doctrine to validate, where appropriate, electronically drafted documents is a more efficient solution than expanding probate codes to the uncertain and vulnerable arena of purely electronic wills”).

¹³ *Modernizing the Law to Enable Electronic Wills*, WILLING, <https://willing.com/guide/modernizing-the-law-to-enable-electronic-wills/> [<https://perma.cc/W6NM-VRKE>].

¹⁴ Cf. *Taylor v. Holt*, 134 S.W.3d 830, 830 (Tenn. Ct. App. 2003).

¹⁵ WILLING, *supra* note 13 (arguing, inter alia, for legal recognition of attestation via webcam).

wills, online electronic wills, and qualified custodian electronic wills. Offline electronic wills are those that are simply typed (or “handwritten” via a stylus) onto an electronic device by the testator herself, signed by way of the testator typing her name or putting another signatory mark into the electronic document, and stored on the electronic device’s local hard drive — they are typically never printed, traditionally attested, or uploaded onto a website. By contrast, online electronic wills are those that incidentally bring another private actor (a technology company, a cellphone service provider, etc.) into the mix — for example, where a testator logs into an existing social media account and creates a post that is intended to serve as the testator’s will. Such wills are those typically stored on the private actor’s servers or in “the cloud,” subjecting them to statutes regulating the management and retention of personal data as well as the private actor’s own policies — but also ensuring that a neutral third party is able to provide objective evidence on critical questions such as when a document was created. Electronic wills of the third type are created where a company becomes a “qualified custodian” that would create, execute, and store the testator’s will, subject to rules and regulations put forth by a state. In addition to identifying these three electronic will categories as separate and distinct, this Chapter suggests that each category raises unique evidentiary and other functional issues that create special concerns for courts and policymakers to keep in mind when regulating electronic wills.

Section A provides an initial overview of will formalities, the functions they serve, and the compliance standards that are currently used by American courts. Section B discusses each proposed category of electronic wills (offline, online, and qualified custodian) in turn, highlighting the practical disputes that are likely to arise under each category as well as, where possible, how courts in other countries have attempted to deal with such issues. Section C concludes by connecting the issues discussed in this Chapter to a general trend of increasing personal data storage online, emphasizing one last time the need for — and importance of — a clear, predictable framework for electronic wills.

A. Will Formalities

1. *Functions of Will Formalities.* — When presented with a purported will, a probate court must confront “two broad issues of testamentary intent: did the decedent intend to make a will, and if so, what are its terms?”¹⁶ A critical question that immediately arises is of course one of authenticity. Determining authenticity and solving “the problem of discerning the bona fides of a purported act of testation”¹⁷ are essential to ensure that a testator’s true estate plan is given effect. Thus, to

¹⁶ John H. Langbein, *Substantial Compliance with the Wills Act*, 88 HARV. L. REV. 489, 491 (1975).

¹⁷ SITKOFF & DUKEMINIER, *supra* note 3, at 141.

ensure that a will that is allowed to be probated is, in fact, a valid will, the law requires that a testator follow a fairly rigid set of requirements in the creation and execution of a will — that is, the will must “be in writing, signed and witnessed by two individuals.”¹⁸ These “formalities” are at the core of what makes a will valid and trace back centuries.¹⁹

The main purpose of the formalities — writing, signature, and attestation — that are part of the Wills Act of every state is “to enable a court easily and reliably to assess the authenticity of a purported act of testation.”²⁰ Thus, the formalities mainly serve an evidentiary purpose, “enabl[ing] a court to decide, without the benefit of live testimony from the testator, whether a purported will is authentic [(the *evidentiary* function)].”²¹ For example, the attestation requirement assures that at least two impartial parties attest to the authenticity of a will,²² thereby fulfilling the evidentiary function. And for holographic wills,²³ the requirement that the will be handwritten serves an analogous evidentiary purpose, as the will becomes a writing sample that can be readily examined for authenticity.²⁴

However, “[t]he formalities are also said to serve several secondary functions: [t]hey standardize the form of wills [(the *channeling* function)]; they impress upon the testator the significance of making a will [(the *cautionary* function)]; and they protect the testator from manipulative imposition [(the *protective* function)].”²⁵ By requiring a testator to put her estate plan in writing and acknowledge the existence of such a plan to at least two other people, the formalities decrease the likelihood of fraud²⁶ and ensure that a testator thinks carefully about the disposition of her property.

2. *Compliance Standards for Will Formalities.* — Traditional law required a testator to execute a will in “strict compliance with all the formal requirements of the applicable Wills Act.”²⁷ Over time, some states adopted less harsh rules, excusing noncompliance with will formalities in some circumstances. The substantial compliance doctrine

¹⁸ Gökalp Y. Gürer, Note, *No Paper? No Problem: Ushering in Electronic Wills Through California's "Harmless Error" Provision*, 49 U.C. DAVIS L. REV. 1955, 1961 (2016).

¹⁹ *Id.*; Langbein, *supra* note 16, at 490.

²⁰ SITKOFF & DUKEMINIER, *supra* note 3, at 141.

²¹ *Id.* at 144; *see also* Lon L. Fuller, *Consideration and Form*, 41 COLUM. L. REV. 799, 800 (1941); Ashbel G. Gulliver & Catherine J. Tilson, *Classification of Gratuitous Transfers*, 51 YALE L.J. 1, 6–9 (1941); Langbein, *supra* note 16, at 491–93.

²² Langbein, *supra* note 16, at 493.

²³ A holographic will is a will that is handwritten and signed by the testator.

²⁴ Langbein, *supra* note 16, at 493.

²⁵ SITKOFF & DUKEMINIER, *supra* note 3, at 144; *see also* Fuller, *supra* note 21, at 800–03; Gulliver & Tilson, *supra* note 21, at 5–13; Langbein, *supra* note 16, at 493–97.

²⁶ *See* Gerry W. Beyer & Claire G. Hargrove, *Digital Wills: Has the Time Come for Wills to Join the Digital Revolution?*, 33 OHIO N.U. L. REV. 865, 875–78 (2007).

²⁷ SITKOFF & DUKEMINIER, *supra* note 3, at 146 (emphasis omitted).

arose as a result of criticisms levied against the strict compliance requirement by scholars in the 1970s. Professor John H. Langbein, for example, argued that the “insistent formalism of the law of wills [was] mistaken and needless” and that the courts should instead examine whether a purported will was in fact intended by the testator to be a will and whether probating the will would serve the purposes of Wills Act formalities.²⁸ Under the doctrine of substantial compliance, a court could deem a will compliant with the Wills Act even if it was noncompliant in a minor way.²⁹ Over time, however, courts began to interpret this rule narrowly, rarely finding wills substantially compliant with the Wills Act.³⁰

Then rose the significantly more generous harmless error rule. Under this rule, courts had dispensing power, allowing them to excuse non-compliance where there was clear and convincing evidence of the testator’s intent to have the document in question serve as her will.³¹ The harmless error rule has been incorporated into section 2-503 of the Uniform Probate Code: a “document or writing is treated as [compliant with formalities] if the proponent of the document or writing establishes by *clear and convincing evidence* that the decedent intended the document or writing to constitute [a new will or an adjustment to a previous will].”³² Today, a version of the harmless error rule (requiring clear and convincing evidence) has been adopted by eleven states.³³

Given the divergence in their interpretation of “traditional” wills, it is hardly surprising that American courts do not currently deal with electronic wills in any systematic way. Generally, in determining if a will is authentic, almost all states begin with strict compliance with will formalities and interpret the writing and signature requirements as needing a physical, tangible document: “[i]n [forty-nine states] (with laws varying somewhat state-to-state), as a general rule all wills must be on paper, either typed (and printed) or handwritten.”³⁴ Some states then layer on the substantial compliance or harmless error doctrines that may relax the above requirements. In general, however, very few American

²⁸ Langbein, *supra* note 16, at 489; *see also* Gürer, *supra* note 18, at 1965–66.

²⁹ SITKOFF & DUKEMINIER, *supra* note 3, at 170–71.

³⁰ *See, e.g.*, *Martina v. Elrod*, 748 S.E.2d 412, 414 (Ga. 2013) (“The doctrine of substantial compliance, though tolerant of ‘variations in the mode of expression’ utilized to satisfy statutory requisites, nonetheless requires ‘actual compliance as to all matters of substance.’” (quoting *Gen. Elec. Credit Corp. v. Brooks*, 249 S.E.2d 596, 602 (Ga. 1978))); *Smith v. Smith*, 348 S.W.3d 63, 63 (Ky. App. 2011) (holding that the doctrine of substantial compliance could not be used to deem a will compliant where it was signed by only one witness and two were usually required).

³¹ SITKOFF & DUKEMINIER, *supra* note 3, at 174.

³² *Id.* at 177 (emphasis added) (quoting UNIF. PROBATE CODE § 2-503 (amended 2010)).

³³ *Id.* at 176.

³⁴ Gürer, *supra* note 18, at 1958.

courts have faced difficult fact patterns involving electronic wills to date.

Although there is “scant authority”³⁵ in American law on electronic wills currently, probate courts will likely be faced with more cases in this area going forward — and the evidentiary and other functional issues posed by electronic wills will also become more difficult to manage. Such concerns are more salient for some types of electronic wills than for others.

B. Three Types of Electronic Wills

Consider the following scenarios:

Person A creates a Word document on her computer, titles it “MyWill.doc,” and types out how she wants her property to be disposed of. At the end of the document, she types: “Signed, Person A.”

Person B logs into her Facebook account and uses the messaging interface to send a message to a friend: “Hey I’m in the hospital. Just in case something happens to me I want all my property and items to go to my mom. Don’t delete this message.”

Person C creates an account on the website of a startup that helps people create electronic wills. She fills out a basic form, from which the startup generates a “Last Will and Testament” document. The startup then performs an online will execution ceremony, allowing two other people to “witness” the will and a notary to notarize the will via webcam. The startup promises to keep the will safely stored on its server in an accessible, electronic format for the next thirty years for a flat fee that Person C pays upfront.

Under current law, it is unclear whether any of the above scenarios could result in a valid will that would be admitted to probate. In considering the writing, signature, and attestation requirements, some states would apply strict compliance and refuse to honor electronic completion of a requirement as valid. Others, applying substantial compliance or harmless error, may honor electronic completion of a requirement given sufficient evidence of authenticity and testamentary intent.

No scholarship has yet distinguished between the types of electronic wills that the scenarios above present — rather, the term “electronic will” has been used as an umbrella, covering not only the hypothetical scenarios outlined above but many others as well. However, each of the scenarios above preserves a different amount of evidence of authenticity and testamentary intent — it may be significantly more likely that sufficient evidence to meet a clear and convincing evidence standard is preserved in one situation than another. The purported wills from each of the scenarios above also vary, for example, in whether and how they

³⁵ SITKOFF & DUKEMINIER, *supra* note 3, at 195.

can be analogized to “traditional” or “nonelectronic” wills. Some of them may be governed by other federal or state statutes such as the Stored Communications Act³⁶ or the Revised Uniform Fiduciary Access to Digital Assets Act;³⁷ some may implicate Terms of Service agreements that govern the relationship between the testator and a third party; and some may pose significant issues in determining authenticity whereas others may present such strong evidence of testamentary intent as to be appropriately treated as presumptively valid.

The hypothetical scenarios laid out above are emblematic of the three subcategories lurking under the umbrella term “electronic will.” Under current law, however, should a state wish to systematically treat one or more of the above scenarios as a valid will, its courts and legislature would likely need to make common law or statutory changes to enable such wills’ creation. And throughout the process, courts and legislatures will need to be thoughtful about the situations in which electronic wills in some categories may overlap with existing federal and state laws intended to govern online activity.

I. Offline Electronic Wills. — Offline electronic wills are those that are simply typed (or “handwritten” via a stylus) onto an electronic device by the testator herself, signed by the testator typing her name or putting another signatory mark into the document, and stored on the electronic device’s local hard drive — they are usually not printed, traditionally attested, or uploaded onto a website.

This category is intended to cover, for example, situations where the testator simply opens a word-processing program on her computer, types out a will, then saves the document onto her computer’s local hard drive. It is also intended to cover situations where the testator may not use a traditional desktop computer — she may use an electronic device such as a laptop, a tablet computer, or any other device that is capable of storing typed-in text or text that has been “handwritten” into a document via a stylus or similar writing utensil. This category is *not* intended to cover any situation where a third-party private actor’s actions affect the creation, execution, or storage of the purported electronic will.

Offline electronic wills, then, are best analogized as the modern version of holographic wills. The following scenario provides an example:³⁸ A testator, while in the hospital, dictates the terms of his will to a friend, who hand-writes the dispositions using a stylus onto an electronic document that is saved on a tablet computer. The testator then signs the document using the stylus in the presence of two witnesses, who also sign the document. The electronic file created by the testator is an off-line electronic will.

³⁶ 18 U.S.C. §§ 2701–2712 (2012).

³⁷ REVISED UNIF. FIDUCIARY ACCESS TO DIG. ASSETS ACT (UNIF. LAW COMM’N 2015).

³⁸ This hypothetical is based on *In Re: Estate of Javier Castro, Deceased*, No. 2013ES00140 (Ohio Ct. Com. Pl. June 19, 2013), discussed *infra* pp. 1800–01.

(a) *Functional Difficulties Posed by Offline Electronic Wills.* — For a probate court that is willing to honor electronic completion of the writing, signature, and/or attestation requirements (i.e., which is not bound by a statute or case law requiring a will to be a physical document), the primary difficulty that offline electronic wills present is evidentiary. Specifically, the main evidentiary issues posed by such wills are those of potential fraud and obsolescence.

Under the harmless error rule, those offering an offline electronic will for probate may find it difficult to prove that the will is, in fact, authentic under a clear and convincing evidence standard. When electronic wills first emerged as a possibility, scholars sounded the alarm that they may be particularly susceptible to fraud: “Because computers are the perfect copying machine, every copy is a perfect copy, indistinguishable from the original, making it very easy to make changes and very hard to prove which version of a file is the original.”³⁹ In addition to the problem of identifying one true original version of a will, scholars also worried about the possibility of hacking and tampering that may be hard for a probate court to detect.⁴⁰

There is at least one technological solution available today to evaluate whether an offline electronic will is authentic: the “metadata” (i.e., data about data) associated with an electronic document. Metadata, which can include “the information needed to manage, archive and preserve a resource, such as when it was created, whether it has been altered and who can access it,” can help resolve authenticity disputes by “address[ing] concerns about the corruption or alteration of wills stored electronically in domestic settings, such as on a testator’s computer.”⁴¹ However, litigation involving metadata is likely to be onerous and expensive, “plung[ing] the court into the minutiae of the decedent’s life and circumstances [and] requir[ing] detailed testimony from numerous witnesses.”⁴²

And, even where metadata exists, a probate court must put that evidence into context to make a determination of validity under a clear and convincing evidence standard. In this way, the analogy to traditional holographic wills continues. Metadata cannot reveal, for example, if someone else was looking over the testator’s shoulder as she typed her purported will and dictating clauses to her at gunpoint. It also cannot reveal if someone else with access to the testator’s computer simply created and hid a document purporting to be a last will and testament (i.e., simple fraud). Thus, metadata evidence cannot be a panacea —

³⁹ Beyer & Hargrove, *supra* note 26, at 891.

⁴⁰ See, e.g., Boddery, *supra* note 12, at 206–07.

⁴¹ WILLING, *supra* note 13.

⁴² Horton, *supra* note 10, at 575.

rather, just like courts do with traditional holographic wills, they must weigh technological or expert evidence in context.

An additional wrinkle related to the storage of wills in an electronic format is obsolescence. Wills are typically intended to be used years or decades after they are created, so it is imperative that the physical embodiment of the testator's wishes is preserved through time.⁴³ In fact, one reason for the writing requirement in the first place is that it ensures that the testator's estate plan is preserved.⁴⁴ Although paper documents are subject to degradation over time, electronic files are especially vulnerable: "accessing a digital document not only requires an intact copy, but also requires hardware and software capable of reading the data and translating it into a readable format."⁴⁵ Offline electronic wills are even more susceptible to this issue than online files, since the *only* copy of the testator's will, by definition, resides on a local hard drive of an electronic device. Over time, the testator may unwittingly get rid of the device without backing up the files that existed on it, or the device may be damaged and the files lost.

It is also worth considering whether, and to what extent, offline electronic wills serve the channeling, cautionary, and protective functions of will formalities. Although it is possible that a testator may use a standardized form to generate an offline electronic will, it is much more likely that such wills will need to be evaluated by the court on a case-by-case basis. Thus, offline electronic wills do not serve the channeling function well. The same reservations expressed by Langbein for holographic wills also apply here: "[T]he required formalities [for such wills] are less likely to resolve whether the document was meant as a will," since the language used in them is "closer to the patterns of ordinary nontestamentary communication."⁴⁶

Offline electronic wills also do not serve the cautionary or protective functions well, again recalling the functional criticisms levied against holographic wills. Just as a holographic will "may be casual and offhand or considered and testamentary,"⁴⁷ so may an offline electronic will — a probate court would need to determine whether there was true testamentary intent on a case-by-case basis. In the hypothetical example above, a significant amount of evidence related to testamentary intent was preserved due to the existence of witnesses who could confirm that

⁴³ Beyer & Hargrove, *supra* note 26, at 866.

⁴⁴ *Id.* at 878 ("At the point the court is called upon to carry out the intentions of the testator, he will not be available to express his intent, as he will, of course, be dead — therefore, the writing requirement is essential to ensure that the testator's intentions . . . [are] documented in permanent form.")

⁴⁵ *Id.* at 893.

⁴⁶ Langbein, *supra* note 16, at 494.

⁴⁷ *Id.* at 495.

the testator did indeed dictate her dispositions, that the testator considered her dispositions thoughtfully, and that she had the mental capacity to create a valid will. For many offline electronic wills, such evidence is unlikely to exist. And offline electronic wills, like holographic wills, are “obtainable by compulsion as easily as a ransom note.”⁴⁸ However, offline electronic wills may have significant additional evidence in the form of metadata — if available and examined thoroughly, evidence may be gathered from the electronic device that contains an offline electronic will that simply would not be possible with a holographic will.

(b) *Offline Electronic Wills Outside the United States.* — Courts in other countries that have relaxed strict compliance requirements for wills have been increasingly faced with situations involving offline electronic wills. In *Macdonald v. The Master*,⁴⁹ a 2002 case from South Africa, the court found a valid will where the testator committed suicide, leaving a note that read: “I, Malcom Scott Macdonald, ID 5609065240106, do hereby declare that my last will and testament can be found on my PC at IBM”⁵⁰ Although the court noted that the will in question would have obviously failed to satisfy the standard requirements for a valid will set forth in South Africa’s Wills Act, it determined that Macdonald was the only one who could have drafted the document and therefore embraced his intent by finding the will valid.⁵¹

Cases involving offline electronic wills have also come up in Australia. *Mahlo v Hehir*,⁵² a 2011 case from the Supreme Court of Queensland, is an example of the complicated situations that can arise where traditional, printed wills and offline electronic wills intersect. In *Mahlo*, the testator saved an electronic document titled “This is the last will and testament of Karen Lee Mahlo.docx” on her computer.⁵³ The testator also told her father that she was working on a will; one day, “she handed him a piece of paper saying words to the effect [of] ‘this is my will,’” at which time her father “looked at [the will] and saw that [she] had signed it.”⁵⁴ Upon the testator’s death, “no paper version [of her will was] produced,” and the electronic file itself was offered for probate.⁵⁵ Under these circumstances, the court refused to probate the electronic document saved on the testator’s computer as a valid offline

⁴⁸ See Gulliver & Tilson, *supra* note 21, at 14.

⁴⁹ 2002 (5) SA 64 (N) (S. Afr.).

⁵⁰ *Id.* at 67 H.

⁵¹ *Id.* at 70 I, 71 H–J.

⁵² [2011] QSC 243 (19 Aug. 2011) (Austl.), <https://archive.sclqld.org.au/qjudgment/2011/QSC11-243.pdf> [<https://perma.cc/L45K-U7ZW>].

⁵³ *Id.* ¶ 4.

⁵⁴ *Id.* ¶ 27.

⁵⁵ *Id.* ¶ 5.

electronic will.⁵⁶ The court's decision turned on its view that the testator had either printed and signed (or had intended to print and sign) a paper copy of the document; consequently, the court found that the testator "knew that in making a new will, she had to do more than type or modify a document upon her computer."⁵⁷

In a contrasting case, *Yazbek v Yazbek*,⁵⁸ the Supreme Court of New South Wales considered a situation where a testator had saved a document on his personal computer titled "Will.doc."⁵⁹ The electronic document was found upon the testator's death — the testator had mentioned that he had a will "on [his] computer and also one at home in a drawer."⁶⁰ The court examined the metadata associated with the electronic file, including information about the document's "creation, editing and printing,"⁶¹ and took careful note of the specifics of this information as provided by an expert witness, including that there was "no upload or download activity specific to Will.doc suggesting that Will.doc was either uploaded to or downloaded from the internet."⁶² Considering the metadata evidence as well as the other circumstances around the testator's death, the court admitted the electronic document to probate.⁶³

Thus, in cases involving offline electronic wills, other countries have found metadata evidence persuasive, but have also needed to collect other extrinsic evidence. Such extrinsic evidence may include the testator's communications with others on the topic of whether the testator had made a will, whether the testator had intended to print her will, and any other topics that the probate court deems relevant. The experience of other countries suggests that — although verifying authenticity may be time-consuming — offline electronic wills can indeed be treated as valid wills given sufficient evidence of testamentary intent.

(c) *Offline Electronic Wills in the United States.* — Hardly any case law exists on offline electronic wills in the United States, but one case is worth examining. In *In re: Estate of Javier Castro*,⁶⁴ the basis of the hypothetical example above, the Ohio Court of Common Pleas, Lorain County, found a valid will where a hospital-bound testator dictated his will to a friend who transcribed it onto a tablet.⁶⁵ The court interpreted the writing requirement as satisfied by the electronic document and the

⁵⁶ *Id.* ¶ 45.

⁵⁷ *Id.* ¶ 41.

⁵⁸ [2012] NSWSC 594 (1 June 2012) (Austl.), <https://www.caselaw.nsw.gov.au/decision/54a637ad3004de94513d9a4> [<https://perma.cc/VA2B-KYSS>].

⁵⁹ *Id.* ¶ 25.

⁶⁰ *Id.* ¶ 114.

⁶¹ *Id.* ¶ 25.

⁶² *Id.* ¶ 49.

⁶³ *Id.* ¶ 155.

⁶⁴ No. 2013ES00140 (Ohio Ct. Com. Pl. June 19, 2013).

⁶⁵ *Id.*, slip op. at 1–2.

signature requirement as satisfied by the decedent's markings using a stylus.⁶⁶ The court was also able to rely on a significant amount of evidence of testamentary intent: “[e]vidence was presented by six witnesses that [the testator] had stated that the document he signed on the tablet were his wishes and that it was his last will and testament.”⁶⁷

Although *Castro* is directionally informative, a lack of deeper case law means that it remains unclear what the outcomes will be when American courts are faced with more complex situations involving off-line electronic wills. In designing solutions, however, courts and legislatures need to be mindful of the special questions that offline electronic wills may pose. For example, if a testator throws away an electronic device with an offline electronic will, should the court treat that action as a revocation of the will itself? What if the testator simply forgot to back up her files onto another hard drive — should the court treat that situation as one of a “lost will”? What about situations where the file exists but is inaccessible due to file corruption or a lack of software to read files of that (by-then-ancient) type in the future — should those wills be treated as lost, revoked, or neither? What about situations where the file exists and is readable but metadata has been lost or damaged such that authenticity is no longer readily provable?

None of these questions have easy answers, and they are likely to be answered differently by different states, but they *will* need to be answered eventually, for offline electronic wills are likely to become more common in the United States over the next few years. The average person today is likely to treat typing as an extension of his or her own handwriting — and handwritten documents may be falling out of favor altogether.⁶⁸ As an increasing number of testators begin to create offline electronic wills, courts and legislatures will need to ensure that there are predictable standards for the kinds of offline electronic wills that will be deemed valid.

2. *Online Electronic Wills.* — Whereas offline electronic wills involve the actions of only one person — the testator herself — online electronic wills bring other private actors into the mix. Online electronic wills are those that are created or stored using a third-party service, where the third-party service did not undertake to store the testator's will and is subject to no special rules or regulations regarding the storage of electronic wills. In this way, the testator's use of the third party's service is incidental — the testator likely used the third-party service

⁶⁶ *Id.* at 5–6.

⁶⁷ *Id.* at 5.

⁶⁸ See, e.g., Anne Chemin, *Handwriting vs. Typing: Is the Pen Still Mightier than the Keyboard?*, THE GUARDIAN (Dec. 16, 2014, 6:08 AM), <https://www.theguardian.com/science/2014/dec/16/cognitive-benefits-handwriting-decline-typing> [<https://perma.cc/9JJT-8596>] (describing a study that showed “one in three respondents had not written anything by hand in the previous six months” and that, “[o]n average, [respondents] had not put pen to paper in the previous 41 days”).

because she already had an existing account with the service, not because the third-party service suggested the use of its platform for the creation or storage of electronic wills.

If the testator's original will or a copy of it can be found anywhere other than the hard drive of the testator's electronic device, and the testator did not use the services of a private actor who specially undertook to store the will, the testator has likely created an online electronic will. This category is intended to cover, for example, situations where a testator logs into her Facebook account and creates a post titled "My Last Will and Testament." It is also intended to cover third-party services that undertake to store documents in "the cloud," such as Dropbox — although the testator may think that she is simply creating a document on her own computer using such a service, a copy of the document will then exist on Dropbox's servers. And finally, this category is not limited to technology companies alone. Rather, it would also cover other entities such as cellphone service providers. If the testator sends a text message to a friend with a purported will, the testator is using a service provided by (for example) Verizon Wireless, a third party.

It is important to note that, from the testator's point of view, there is unlikely to be a significant difference in how she thinks about the creation of an online electronic will versus an offline one. In either case, the testator simply types her will into some storage or communication medium, likely expecting the will to be available when she later needs it. However, there are significant additional wrinkles posed by online electronic wills.

(a) *Functional Difficulties Posed by Online Electronic Wills.* — Although online electronic wills present many of the same baseline evidentiary issues as offline electronic wills, including potential fraud and obsolescence, they also have the potential advantage of involving a neutral, third-party entity that might be able to provide useful evidence of the authenticity of a purported will. However, access to such wills (and to evidence of their authenticity) is complicated by the context in which they are created. First, online electronic wills, since they are created and/or stored using a third-party service, will almost certainly be subject to a Terms and Conditions agreement between the testator and the service — these policies affect the availability and probity of evidence relating to the authenticity of an online electronic will. And second, online electronic wills, since they are part of the online activity of the testator, will likely be subject to federal or state statutes regulating the management and retention of personal data on the internet. It remains unclear how these statutes would overlap with existing state law on traditional wills or new statutes on electronic wills.

When a testator creates an online electronic will, she likely does so in the shadow of a Terms and Conditions agreement between the testator and the third-party service. Consider, for example, a situation where a testator stores the only copy of her electronic will on the cloud storage

service Dropbox. When she signs up for her account, the testator clicks “I Agree” on the Terms and Conditions agreement that the company presented, but — like almost all internet users⁶⁹ — she does not actually read the agreement. Thus, she remains unaware that Dropbox has a data retention policy under which all files stored on an account that has not been accessed for a year will be deleted after a ninety-day notice period.⁷⁰ Two years later, the testator passes away, and although she had talked to multiple friends and family members about having stored an electronic will on her Dropbox account, the administrator of her estate finds that the will was deleted from the account pursuant to the company’s Terms of Service. Should a probate court treat the testator as having had constructive notice of the company’s Terms and Conditions and treat the deletion of the electronic will as a revocation? Or has the will in fact been lost, since, at death, the testator still intended for that electronic document to serve as her will — in which case the court should consider extrinsic evidence related to the likely terms of the will in order to reconstruct it?

Consider a different example. Suppose, upon a testator’s death, her executor finds that she had saved a private message on her Facebook account titled “Will.” Should a probate court give effect to the estate plan detailed in that message? One of the ways in which the evidentiary problem in offline electronic wills can be solved is through the use of metadata — however, such an analysis is typically possible without necessitating permission from any other parties because the main document (the purported will) is entirely stored on hardware presumably owned by the testator. In contrast, the metadata associated with an online electronic will that was created on a third-party service is owned by the *third party*, not by the testator or her estate. Although it would be extremely probative to know, for example, where the logins to the decedent’s Facebook account came from on the day the purported will was made, how many times the account was logged into, how many times the message was seen, and if other messages were created and deleted before or after the main one, accessing any such metadata would likely be impossible should Facebook decide not to share it.

To further complicate the issue, online electronic wills also implicate a tangled and overlapping set of federal and state statutes that generally govern online activity. The Electronic Communications Privacy Act of

⁶⁹ David Berreby, *Click to Agree with What? No One Reads Terms of Service, Studies Confirm*, THE GUARDIAN (Mar. 3, 2017, 8:38 AM), <https://www.theguardian.com/technology/2017/mar/03/terms-of-service-online-contracts-fine-print> [<https://perma.cc/KQD8-6C5U>] (reviewing a study that found “[h]undreds of college students . . . agreed to give [the fictional website] NameDrop their future first-born children” as part of its Terms of Service).

⁷⁰ *I Got an Email About an Inactive Dropbox Account. What Do I Need to Do?*, DROPBOX, <https://www.dropbox.com/help/security/email-about-inactive-account> [<https://perma.cc/TM5V-EWF2>].

1986⁷¹ (ECPA) “created additional privacy protections for stored electronic communications and updated the Federal Wiretap Act to cover electronic communications as well as oral and wire communications.”⁷² Title II of the ECPA, known as the Stored Communications Act⁷³ (SCA), “regulates when an electronic communication service . . . provider may [disclose] the contents of or other information about a customer’s emails and other electronic communications to private parties.”⁷⁴ In the probate context, the SCA raises issues related to access to a decedent’s personal data stored on “the cloud” or on a private party’s servers. In October 2017, for example, the Supreme Judicial Court of Massachusetts ruled that the executors of a decedent’s estate could provide the “lawful consent” required by the SCA that would allow Yahoo to provide access to the decedent’s emails.⁷⁵

A statutory solution to some of the difficulties posed by the SCA is the Revised Uniform Fiduciary Access to Digital Assets Act (RUFADAA), which allows “executors of a decedent’s estate, trustees, conservators, and agents under a power of attorney . . . to manage digital property . . . but restricts a fiduciary’s access to electronic communications such as email, text messages, and social media accounts unless the original user consented in a will [or other document].”⁷⁶ RUFADAA is currently the law in a majority of states⁷⁷ — but even under RUFADAA, answers to some of the more complicated questions posed by online electronic wills remain unclear.

Consider, for example, a testator who notes in her will that she would like her executor to have access to all her digital assets, including email, text messages, and social media accounts. If the testator then emails that document to herself and does not preserve a local copy of the file on the hard drive of her electronic device, a court could be faced with a circular question under RUFADAA. The executor can get access to the decedent’s email only once she can show such permission in the decedent’s will, but the will itself is stored on the decedent’s (currently inaccessible) email account. Should a probate court compel access upon extrinsic evidence that the testator created and emailed a will even though such access would conflict with RUFADAA? Or should the

⁷¹ Pub. L. No. 99-508, 100 Stat. 1848 (codified as amended in scattered sections of 18 U.S.C.).

⁷² *Electronic Communications Privacy Act of 1986 (ECPA)*, FED. PRIVACY COUNCIL, <https://www.fpc.gov/electronic-communications-privacy-act-of-1986-ecpa> [<https://perma.cc/2NJQ-HJRK>].

⁷³ 18 U.S.C. §§ 2701–2712 (2012).

⁷⁴ *Privacy: Stored Communications Act*, ELECTRONIC FRONTIER FOUND. (Apr. 1, 2014, 4:46 PM), https://ilt.eff.org/index.php/Privacy:_Stored_Communications_Act [<https://perma.cc/4H2Y-TY82>].

⁷⁵ *Ajemian v. Yahoo!, Inc.*, 84 N.E.3d 766, 778 (Mass. 2017).

⁷⁶ *Fiduciary Access to Digital Assets Act, Revised (2015)*, UNIFORM L. COMMISSION, [http://www.uniformlaws.org/Act.aspx?title=Fiduciary%20Access%20to%20Digital%20Assets%20Act,%20Revised%20\(2015\)](http://www.uniformlaws.org/Act.aspx?title=Fiduciary%20Access%20to%20Digital%20Assets%20Act,%20Revised%20(2015)) [<https://perma.cc/PV69-T6PW>].

⁷⁷ *Id.*

court deny access to the email and treat the testator as having died intestate even in the face of evidence of an existing will — and would such a result be acceptable given probate law’s traditional emphasis on testamentary intent and freedom of disposition?

With regard to the other functions that are served by will formalities (channeling, cautionary, and protective), online electronic wills, like offline ones, do not measure up particularly well. Just as a testator could create and store a purported will on an electronic device in any format or form, so could a testator create and store a similar document on a cloud storage service, for example. The channeling function is therefore not well served by online electronic wills. And just as a testator could easily be coerced into creating an offline electronic will, negating the protective function of will formalities, so could a testator easily be coerced into creating an online one. The cautionary function, for its part, may be even *less* served by an online electronic will than an offline one. Especially where a particular website or social network is typically associated with more day-to-day postings and activity as opposed to more “serious” matters, a court may be predisposed to view a purported will as a casual utterance rather than a carefully considered testamentary document.

(b) *Online Electronic Wills Outside the United States.* — Looking to international cases does not prove as helpful in this context as it did with offline electronic wills. Although some international jurisdictions have considered situations that would fall under the category of online electronic wills, none of them have answered the questions that make such wills especially complicated.

In 2013, the Supreme Court of Queensland, Australia, considered an online electronic will in *Re: Yu*,⁷⁸ where the testator had “created a series of documents on his iPhone” before committing suicide.⁷⁹ One of the documents found on the phone was a file beginning with the words “This is the last Will and Testament.”⁸⁰ The court found a valid will and admitted the document to probate on the basis that there was strong circumstantial evidence of testamentary intent, including the facts that the document included farewell notes to the testator’s family and “gave instructions about the distribution of his property.”⁸¹

Similarly, in October 2017, the Supreme Court of Queensland yet again considered a fact pattern pertaining to electronic wills, this time

⁷⁸ [2013] QSC 322 (6 Nov. 2013) (Austl.), <https://archive.sclqld.org.au/qjudgment/2013/QSC13-322.pdf> [<https://perma.cc/RK45-GL3B>].

⁷⁹ *Id.* ¶ 1. The specific facts associated with *Yu* add to its complexity — for example, it is unclear whether the testator enabled automatic uploads of locally stored documents to his online account with Apple; if he did not, this case is perhaps better treated as an offline electronic will.

⁸⁰ *Id.* ¶ 9.

⁸¹ *Id.*

in *Nichol v Nichol*.⁸² In *Nichol*, another case where the testator committed suicide, an unsent text message was offered for probate.⁸³ In the text message, the decedent made various dispositions, including: “Dave Nic you and Jack keep all that I have house and superannuation.”⁸⁴ At the end of the document, the decedent had typed “MRN190162Q,” matching his initials and date of birth, “10/10/2016,” and “My will.”⁸⁵ The court allowed the unsent text message to be admitted to probate on the basis that the text message showed clear testamentary intent.⁸⁶

(c) *Online Electronic Wills in the United States*. — For American courts, online electronic wills pose the usual questions of authenticity, testamentary intent, and whether electronic completion of Wills Act requirements is acceptable. However, they also add on questions stemming from the interaction between wills law and the federal and state statutes that govern online activity. Complicated fact patterns such as those posed by *Nichol* and *Yu* have not yet arisen in the United States, but are likely to in the future.

Courts and legislatures will need to ensure that there is a predictable standard for the kinds of online electronic wills that will be deemed valid, as they will with offline electronic wills. In addition, however, courts and legislatures will *also* need to make clear how online electronic wills should be interpreted against the backdrop of existing statutes that govern online activity and a plethora of private agreements between testators and third-party services.

3. *Qualified Custodian Electronic Wills*. — Qualified custodian electronic wills are created where a for-profit entity undertakes to become a “qualified custodian” that would create, execute, and store the testator’s will, subject to rules and regulations put forth by a state.⁸⁷ Typically, the company would streamline will creation and execution — by providing witnesses or notary services via webcam, for example — and would promise to store the testator’s will in an accessible format for a guaranteed number of years into the future.⁸⁸ Such wills can be distinguished from online electronic wills in that the service being used by the testator has been set up for the specific purpose of enabling the creation and execution of electronic wills.

(a) *Functional Difficulties Posed by Qualified Custodian Electronic Wills*. — The evidentiary concerns at the forefront of the analysis for

⁸² [2017] QSC 220 (9 Oct. 2017) (Austl.), <https://archive.sclqld.org.au/qjudgment/2017/QSC17-220.pdf> [<https://perma.cc/P7LJ-YVQF>].

⁸³ *Id.* ¶ 1.

⁸⁴ *Id.* ¶ 13.

⁸⁵ *Id.* ¶¶ 13–14.

⁸⁶ *Id.* ¶ 59.

⁸⁷ For example, the website Willing.com advocated for Florida to pass a law allowing for such qualified custodians. See Stephen Lacey & Brooke M. Benzio, *Electronic Will — “E-Wills” — Are You Ready for the Future?*, FLA. TODAY (Aug. 7, 2017, 10:54 AM), <http://www.floridatoday.com/story/money/business/2017/08/07/electronic-will-wills-ready-future/104352576/> [<https://perma.cc/7LU8-XGDL>].

⁸⁸ See *id.*

online and offline electronic wills are much less significant for electronic wills stored by a qualified custodian, since the custodian exists almost purely to collect and store evidence of testamentary intent. Whereas a large part of the evidentiary battle in the online an offline electronic wills context is likely to be over proving lack of fraud and ensuring that the will is safely preserved in an online format, qualified custodians can quickly resolve both of these issues. By recording an online execution ceremony, for example, a qualified custodian could ensure that the best possible evidence of testamentary intent is collected and saved. And by ensuring that a testator's will remains accessible for years or decades, a qualified custodian could eliminate typical worries related to obsolescence.⁸⁹ And whereas a significant complication in the online electronic wills context is likely to be that the document may be subject to Terms and Conditions agreements or to federal and state statutes governing online activity such that probative data may be hard to get, qualified custodians' main role would be to collect and share evidence at probate proceedings, and they would (ideally) be presumptively trusted by a probate court.

Unlike both online and offline electronic wills, qualified custodian electronic wills — by their very design — also fulfill the channeling, cautionary, and protective functions of will formalities. First, since a singular entity (the qualified custodian) manages the wills of all the customers of the company, it is likely able to take advantage of standardized forms and court-approved language. Thus, qualified custodian electronic wills are much more likely to be standardized in a manner similar to “traditionally” executed, witnessed wills. The use of a qualified custodian (and the exchange of money as part of the service agreement between the custodian and the testator) also means that the testator will be forced to think carefully about what her dispositions should be, as well as whether she does in fact mean to create a will. And the preservation of a detailed record (including, for example, video evidence of the testator at the time of electronically signing her will) means that probate courts will be in a much better position to determine if the protective function of the will formalities were well served in a particular instance.

(b) *Qualified Custodian Wills in the United States.*⁹⁰ — The main hurdle for qualified custodian wills to become accepted in the United States is simply the fact that the current statutes in force in most states do not allow electronic fulfillment of Wills Act formalities.

Just one state — Nevada — has so far statutorily enabled electronic wills. Passed in 2001, Nevada's statute was amended in 2017 to include

⁸⁹ *But see id.* (expressing concerns about accessibility and security should the qualified custodian go out of business or experience a data breach).

⁹⁰ Somewhat surprisingly, analogs to qualified custodian electronic wills do not yet seem to have become popular outside the United States.

specific provisions for qualified custodian wills⁹¹ as well as to define an electronic will as a will that “[i]s created and maintained in an electronic record” and that “[c]ontains the date and the electronic signature of the testator.”⁹² The statute also requires at least one method of authentication: either an authentication characteristic unique to the testator (such as a “fingerprint, a retinal scan, voice recognition, facial recognition, video recording, [or] a digitized signature”), an electronic signature by a notary public, or two electronic signatures by witnesses.⁹³ The original statute, however, did not see much use upon its passage in 2001.⁹⁴

Although some scholars have suggested that a specific statutory solution for electronic wills is unnecessary and that application of the harmless error doctrine would be sufficient,⁹⁵ companies wishing to become qualified custodians have pushed for statutes that would officially recognize them as such and treat wills stored by such companies as presumptively valid.⁹⁶ Willing.com, a potential qualified custodian, for example, advocates “a set of safe harbor provisions that, if followed, would create a presumption of the validity of an electronic will that was created and stored under the control of a custodian that meets certain qualifications for document security and agrees to handle electronic wills in a way consistent with the rights and wishes of testators.”⁹⁷

While Nevada continues to be at the forefront of the electronic wills area, major developments also occurred in Florida in 2017, when the legislature passed a statute that would have allowed for the presumptive validity of qualified custodian electronic wills.⁹⁸ However, the bill was vetoed by Governor Rick Scott, who cited concerns including: (1) that Florida probate courts may become burdened by having to cater to a large number of nonresident testators using qualified custodians located in Florida, and (2) that the remote notarization provision of the bill did not sufficiently ensure that the testator’s identity would be accurately

⁹¹ See Elizabeth Dailey, *Nevada Enacts Notary Provisions*, BANKERS ADVISORY (June 27, 2017), <http://blogs.claconnect.com/residentialmortgage/nevada-enacts-notary-provisions> [https://perma.cc/83R9-NG3S].

⁹² Assemb. B. 413, 2017 Leg., 79th Sess. § 19 (Nev. 2017).

⁹³ *Id.*

⁹⁴ See Boddery, *supra* note 12, at 200–01.

⁹⁵ See, e.g., *id.* at 199 (“Adopting the harmless error doctrine to validate, where appropriate, electronically drafted documents is a more efficient solution than expanding probate codes to the uncertain and vulnerable arena of purely electronic wills.”); see also Güler, *supra* note 18, at 1959 (arguing that, generally, “public policy supports harmless error’s inclusion of electronic wills” in California).

⁹⁶ See, e.g., WILLING, *supra* note 13 (mentioning Willing.com as one such company).

⁹⁷ *Id.*

⁹⁸ H.B. 277, 119th Leg., Reg. Sess. (Fla. 2017).

authenticated.⁹⁹ Other jurisdictions that have considered or are considering statutes related to electronic wills include Arizona, Indiana, New Hampshire, Virginia, and Washington, D.C.¹⁰⁰

C. Conclusion

The need for a unified approach to electronic wills, of course, becomes more salient if such wills are in fact likely to become more popular in the coming years. Some scholars have identified potential reasons to doubt an increase in the creation of electronic wills. In 2007, Professors Gerry Beyer and Claire Hargrove identified six potential barriers to increased uptake of electronic wills, including: (1) technical barriers such as the lack of software that would provide adequate authentication, (2) social barriers such as attorneys' reluctance to help create electronic wills, (3) economic barriers such as the expense of implementing new technology, (4) motivational barriers such as a lack of recognition of the potential benefits of electronic wills, (5) obsolescence barriers stemming from changes in technology, and (6) a general resistance to change.¹⁰¹ Even as they identified these important roadblocks, however, they recognized that change was on the horizon, noting that “we must be ready to make the transition when the time is right.”¹⁰²

The striking increase in the use of electronic devices, cloud services, and social networking over the past decade certainly suggests that users have become more comfortable incorporating electronic devices and the internet into their lives. For example, 68% of American adults owned a smartphone in 2015, up from only 35% in 2011.¹⁰³ A comparison of user numbers for two popular social networking websites is also instructive: In 2007, when Beyer and Hargrove were writing, Twitter had only just

⁹⁹ Letter from Rick Scott, Governor, to Ken Detzner, Sec'y of State (June 26, 2017), <http://www.flgov.com/wp-content/uploads/2017/06/HB-277-Veto-Letter.pdf> [<https://perma.cc/9PSN-DH86>].

¹⁰⁰ See COMM. ON ELEC. WILLS, UNIF. LAW COMM'N, OCTOBER 2017 COMMITTEE MEETING — PROPOSED E-WILLS BILLS AND NEVADA STATUTE (2017), http://www.uniformlaws.org/shared/docs/electronic%20wills/2017oct_E-Wills_Proposed%20E-Wills%20Bills%20and%20Nevada%20Statute_2017oct1_REVISED.pdf [<https://perma.cc/J82E-99TA>] (surveying the variety of proposals relating to electronic wills that have been introduced in various state legislatures).

¹⁰¹ Beyer & Hargrove, *supra* note 26, at 890–96.

¹⁰² *Id.* at 900.

¹⁰³ Monica Anderson, *Technology Device Ownership: 2015*, PEW RES. CTR. (Oct. 29, 2015), <http://www.pewinternet.org/2015/10/29/technology-device-ownership-2015/> [<https://perma.cc/AP3X-7ESX>].

been launched,¹⁰⁴ and Facebook users numbered only 58 million.¹⁰⁵ Today, Twitter and Facebook boast 328 million¹⁰⁶ and 2 billion users,¹⁰⁷ respectively. It appears that at least some of the barriers that Beyer and Hargrove identified — social barriers, motivational barriers, and a general resistance to change — are less salient today given users' increased comfort with electronic devices, cloud services, and social networking in various aspects of their lives.

The trend of increasing internet use shows no signs of slowing down. The user base of major online services will likely continue to increase: Estimates suggest that, for example, “[b]y 2020, 59 percent (2.3 billion [users]) of the consumer Internet population will use personal cloud storage, up from 47 percent (1.3 billion users) in 2015.”¹⁰⁸ On the social networking side, by 2020, close to three billion people will use a social network at least once a month (accounting for 70.7% of all internet users).¹⁰⁹ In addition, each user is likely to increase their own usage of such services: Estimates suggest that “consumer cloud storage traffic per user will be 1.7 gigabytes per month by 2020, compared to 513 megabytes per month in 2015.”¹¹⁰ And although users are likely to reach a saturation point for total time spent on a social networking website, data still show an upward trend to date — social networking services “captur[ed] 2 hours of online time a day” in 2017, “half an hour longer” than was the case in 2012.¹¹¹ In time, as electronic devices — and internet connections — become ubiquitous, testators are likely to store documents, including critical documents containing personal data, on such devices or services, and they are likely to expect those documents to have some legal effect.

¹⁰⁴ Twitter was launched on March 21, 2006. Amanda MacArthur, *The Real History of Twitter, in Brief*, LIFEWIRE (Nov. 7, 2017), <https://www.lifewire.com/history-of-twitter-3288854> [<https://perma.cc/U3RU-M7AW>].

¹⁰⁵ Ami Sedghi, *Facebook: 10 Years of Social Networking, in Numbers*, THE GUARDIAN: DATABLOG (Feb. 4, 2014, 9:38 AM), <https://www.theguardian.com/news/datablog/2014/feb/04/facebook-in-numbers-statistics> [<https://perma.cc/5HYH-TE37>].

¹⁰⁶ Matthew Lynley, *Twitter's User Growth Goes Nowhere and the Stock Is Collapsing*, TECHCRUNCH (July 27, 2017), <https://techcrunch.com/2017/07/27/twitters-user-growth-went-nowhere-and-the-stock-is-diving/> [<https://perma.cc/556H-R5AW>].

¹⁰⁷ Kathleen Chaykowski, *Mark Zuckerberg: 2 Billion Users Means Facebook's "Responsibility Is Expanding"*, FORBES (June 27, 2017, 1:37 PM), <https://www.forbes.com/sites/kathleenchaykowski/2017/06/27/facebook-officially-hits-2-billion-users> [<https://perma.cc/GPJ4-EHC8>].

¹⁰⁸ CISCO, CISCO GLOBAL CLOUD INDEX: FORECAST AND METHODOLOGY, 2015–2020, at 3 (2016) [<https://perma.cc/M9GK-Z5P3>].

¹⁰⁹ *Nearly One-Third of the World Will Use Social Networks Regularly This Year*, EMARKETER (June 30, 2016), <https://www.emarketer.com/Article/Nearly-One-Third-of-World-Will-Use-Social-Networks-Regularly-This-Year/1014157> [<https://perma.cc/V3Q5-WQ8C>].

¹¹⁰ CISCO, *supra* note 108, at 3.

¹¹¹ Jason Mander, *Daily Time Spent on Social Networks Rises to over 2 Hours*, GLOBALWEBINDEX (May 16, 2017), <https://blog.globalwebindex.net/chart-of-the-day/daily-time-spent-on-social-networks> [<https://perma.cc/4Q5G-YMRU>].

Innovations advocated for or promulgated by private companies — including websites allowing testators to create wills cheaply and easily,¹¹² statutes that allow private companies to serve as qualified custodians for electronic wills,¹¹³ services that help create authenticated digital signatures,¹¹⁴ and electronic notaries¹¹⁵ — also suggest that the private sector is attempting to make electronic wills workable. Such innovations help to overcome the technical, economic, and obsolescence barriers that Beyer and Hargrove identified — they ensure that electronic wills are cheap to create, can be authenticated, and are accessible after a testator’s passing.

The only remaining piece of the puzzle to make electronic wills work, then, is a systematic approach from courts and legislatures in regulating and interpreting them. This Chapter has attempted to provide an initial framework that might be useful for such a project. Although there have been no significant changes in the formalities associated with the creation and execution of wills for hundreds of years,¹¹⁶ courts and legislatures now need to understand the issues that are likely to arise in the electronic wills context. This Chapter therefore deconstructed the broad term “electronic will” into the three kinds of fact patterns that are likely to arise in this arena. Offline, online, and qualified custodian electronic wills are all subject to the general electronic wills issues of fraud and obsolescence, but each category also has unique considerations for courts and legislatures to keep in mind. Ultimately, courts and legislatures will need to determine how best to enable testators’ freedom of disposition through their wills — no matter the format in which they choose to create them.

¹¹² See, e.g., LEGALZOOM, <https://www.legalzoom.com/sem/homepage/> [<https://perma.cc/ZB7H-932E>].

¹¹³ Willing.com is one such company. See Lacey & Benzio, *supra* note 87.

¹¹⁴ See, e.g., DOCUSIGN, <https://www.docusign.com> [<https://perma.cc/4NMJ-37HH>].

¹¹⁵ See *E-Notarization*, AM. SOC’Y OF NOTARIES, <https://www.asnnotary.org/?form=enotary> [<https://perma.cc/5DKF-ZXH4>].

¹¹⁶ See Caldwell, *supra* note 5, at 467.