

THE LAWYER AS INFORMATION MANAGER

BY STEVEN C. BENNETT*

It may be easy to regard the impact of computer technology on legal information management as “simply a matter of lawyers being able to do what they used to do, only faster and more conveniently.”¹ Yet, the true ramifications run far deeper. A recent study found that law review articles containing at least one web citation increased from 0.57 percent in 1995 to twenty-three percent in 2000, while the average number of web citations in such articles increased from 1.9 to 10.45 per article.² Computer-based legal research databases including Westlaw and Lexis “today incorporate object-oriented views of data whereby different attributes can be selected and combined on the fly for different purposes,” unlike print sources of old, “where relations between classes had to be decided once and for all at the time of original creation.”³ The industry involved in packaging and distributing legal information is worth more than five billion dollars per year and has grown at an annual rate of five percent in recent years.⁴ Competition has driven the rise of major legal document databases, just as competition continues to fuel the technology boom.

Many lawyers recognize and appreciate technology’s influence in their everyday work. Many others, however, have yet to grasp that an entire paradigm for the legal profession has been altered and remains in motion. This article looks at the rapidly evolving technological environment and its effects on the practice of law, and also outlines a lawyer’s responsibilities in acting capably as an information manager in the years ahead.

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¹ F. Allan Hanson, *From Key Numbers to Keywords: How Automation Has Transformed the Law*, 94 LAW LIBR. J. 563, 563 (2002).

² Mary Rumsey, *Runaway Train: Problems of Permanence, Accessibility, and Stability in the Use of Web Sources in Law Review Citations*, 94 LAW LIBR. J. 27, 32–33 (2002).

³ GEOFFREY C. BOWKER & SUSAN LEIGH STAR, SORTING THINGS OUT: CLASSIFICATION AND ITS CONSEQUENCES 292 (1999).

⁴ Ian Gallacher, *Forty-Two: The Hitchhiker’s Guide to Teaching Legal Research to the Google Generation*, 39 AKRON L. REV. 151, 175 (2006).

I. TECHNOLOGY IN MANAGING LEGAL INFORMATION: A BRIEF HISTORICAL TOUR

The narrow black diorite column on display within the Louvre in Paris is hardly an imposing sight—about eight feet in height,⁵ it possesses neither larger-than-life dimensions nor much artistic grandeur. Yet, the Code of Hammurabi⁶ proved to be a colossus in history. With about fifty-one columns of text, its core is a long list of laws with the pattern of a conditional “if” followed by specific consequences.⁷ The Code represented a break from long millennia of oral laws and tradition, its phrasings “not guided by principles of abstraction,” but rather “seeking to formulate certain rules,”⁸ permanently engraved into stone for all to see.

Across ancient Egypt, papyrus was the medium chosen for judges to keep records of their decisions, so that they could be referred to as precedent.⁹ Egyptian laws were also at least partially codified and based on a common sense view of right and wrong, in accordance with the concept of “Ma’at,” which represented a fixed, regular, routine, and natural order in the universe.¹⁰

In the West, the initial Twelve Tables of Roman law were recorded on bronze tablets.¹¹ Drafted by ten patrician commissioners,¹² these tables included a collection of definitions of various private rights and procedures akin to a bill of rights,¹³ and began with the proper procedure for a summons to court.¹⁴ The Twelve Tables reflected part of a continuing

⁵ ROBERT FRANCIS HARPER, *THE CODE OF HAMMURABI KING OF BABYLON ABOUT 2250 B.C.* xi, (2d ed. 1904); MARC VAN DE MIEROOP, *KING HAMMURABI OF BABYLON: A BIOGRAPHY* 99 (2005).

⁶ HARPER, *supra* note 5, at xi. King Hammurabi “was the sixth king of the First Dynasty of Babylon and reigned for fifty-five years, about 2250 B.C.” *Id.* at xi–xii. The exact composition date of the Code is not known; it is estimated that it was composed after Hammurabi’s thirty-eighth year of rule. VAN DE MIEROOP, *supra* note 5, at 100.

⁷ VAN DE MIEROOP, *supra* note 5, at 99, 102.

⁸ *Id.* at 102.

⁹ RUSS VERSTEEG, *LAW IN ANCIENT EGYPT* 9, 24 (2002).

¹⁰ *Id.* at 23.

¹¹ I *CORPUS JURIS CIVILIS: THE CIVIL LAW* 10 (S.P. Scott trans., AMS Press 1973) (1932).

¹² *Id.* at 8.

¹³ *See id.* at 11.

¹⁴ *Id.* at 57.

pattern in which civilizations present and pass down their laws with whatever technology is most convenient.

Johannes Gutenberg's movable type printing press¹⁵ overshadows in popular consciousness a later nineteenth century English invention that bore immeasurable consequences for the legal field—the steam press,¹⁶ with its ability to churn out newspapers and books to a mass audience. The press would further undergird the common law tradition, which originated in the twelfth century as judges under King Henry II discussed their cases and recorded their decisions, developing *stare decisis* principles in the process.¹⁷

When the American colonies declared independence, among the first “legislative acts they took was to adopt ‘reception statutes’ which enabled their courts to receive and develop the English common law in accordance with the public policy of [the respective] states,”¹⁸ rendering official the common law tradition in the United States. In turn, the first case-method textbook was authored in 1871 by Christopher Columbus Langdell, the Harvard Law School dean who opined that “cases which are useful and necessary . . . bear an exceedingly small proportion to all that have been reported. The vast majority are useless and worse than useless for any purpose of systematic study.”¹⁹ By classifying and arranging within his contracts casebook only cases that were influential,²⁰ Langdell revolutionized legal studies. But it was technological advances in the printing press that made possible the legal casebook's widespread publication and use.

¹⁵ Johannes Gutenberg invented the printing press and the movable type some time around 1450. Peter Linzer, *From the Gutenberg Bible to Net Neutrality—How Technology Makes Law and Why English Majors Need to Understand It*, 39 MCGEORGE L. REV. 1, 4 (2008).

¹⁶ See ALEX WRIGHT, *GLUT: MASTERING INFORMATION THROUGH THE AGES* 165 (2007).

¹⁷ See REEVES' HISTORY OF THE ENGLISH LAW 204–06 (W.F. Finlason ed., 1999) (1869).

¹⁸ Glenn G. Lammi & James Chang, *Michigan High Court Ruling Offers Positive Guidance on Challenges to Tort Reform Laws*, LEGAL BACKGROUNDER (Wash. Legal Found., Wash., D.C.), Dec. 17, 2004, at 1.

¹⁹ C.C. LANGDELL, A SELECTION OF CASES ON THE LAW OF CONTRACTS vi (1871).

²⁰ *Id.* at vii.

II. EVOLUTION OF THE MODERN LAWYER AND THE INFORMATION TECHNOLOGY REVOLUTION

Within a decade of the publication of Langdell's first casebook, West Publishing Company founder John West combined his existing publication of Minnesota legal opinions with opinions from five bordering states, to form a series called the North Western Reporter.²¹ West gradually added new sets of volumes covering federal opinions and opinions from the rest of the United States; thus, the National Reporter System came into being.²² When it came to information management, as Langdell had noted, the sheer breadth of available case law helped no one.²³ Fortunately, the legal profession found its standard bearers in the citation and pagination system of West reporters—West's American Digest System was powerful enough that it "may have saved . . . the common law from what looked like its inevitable demise"²⁴ through effective organization of a mass of court opinions.

The growth of law school libraries paralleled the rise of the West System. From very modest beginnings—the endowment for Harvard Law School's first library when it opened in 1817 was just five hundred dollars,²⁵ a small sum even in those days—the law school library today is typified by Stetson Law School's law library and legal information center. It "occupies 58,000 square feet, houses [approximately] 345,000 volumes, and cost nearly \$8.5 million to construct."²⁶ At the library's dedication ten years ago, Supreme Court Justice Ruth Ginsburg noted in her remarks that even the forward-looking Dean Langdell assumed that law school libraries would remain a repository for casebooks and little else.²⁷ But by the start of the twentieth century, the growth of interstate transportation led to a demand:

²¹ For a good history of West's founding years, see WILLIAM. W. MARVIN, WEST PUBLISHING COMPANY: ORIGIN, GROWTH, LEADERSHIP (1969).

²² *Id.* at 46–57.

²³ LANGDELL, *supra* note 19, at vi.

²⁴ Robert C. Berring, *Legal Research and Legal Concepts: Where Form Molds Substance*, 75 CAL. L. REV. 15, 25 (1987).

²⁵ Ruth Bader Ginsburg, *Dedication, Remarks in Celebration of Stetson's Law Library and Information Center*, 28 STETSON L. REV. 231, 231 (1998).

²⁶ *Id.*

²⁷ *Id.* at 232.

in each state for legal materials from other states. Along with two world wars, and subsequent endeavors to achieve a lasting peace, came an interest in and a need for foreign legal materials. And along with the growth of the U.S. federal government, . . . a host of materials dealing with social and economic regulation.²⁸

Correspondingly, law school libraries grew to accommodate such changing realities.

Computer innovations soon began to affect the legal profession. American Army Ordnance Corps research led to a pioneering breakthrough in computer technology in the 1940s,²⁹ while more widespread data management and the personal computer arrived on the scene in the 1960s and 1970s.³⁰

Many Internet users can still remember the first time they logged on to the World Wide Web, typically in the late 1980s or early 1990s. Its text, links, graphics, and user forums appeared seamlessly integrated into the usual functions of computers. It would take years before the emergence of Google,³¹ Wikipedia,³² and YouTube.³³ Yet, even early on, there came a realization that the Internet was much more than just another desktop program. As chat rooms led to instant messenger programs and graphics became animated ads indistinguishable from those on television; as search engines grew smarter and an ever-expanding inventory of sophisticated

²⁸ *Id.* at 232–33.

²⁹ Karl Kempf, *Historical Monograph: Electronic Computers Within the Ordnance Corps* 1 (1961), available at <http://ed-thelen.org/comp-hist/U-S-Ord-61.html> (providing a brief history of the early development of electronic computers). In fact, there were mechanical computers hundreds of years ago, including the abacus and slide rule. *See id.*

³⁰ M. Scott Boone, *The Past, Present, and Future of Computing and Its Impact on Digital Rights Management*, 2008 MICH. ST. L. REV. 413, 415 (2008).

³¹ Google was founded in 1998 and is one of the internet's top search engines. Eugene Choo, *Going Dutch: The Google IPO*, 20 BERKELEY TECH. L.J. 405, 406 (2005).

³² Wikipedia is a "well-known collaboratively edited online encyclopedia [that] was first launched in 2001." Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 884, 942 (2007).

³³ Founded in 2005, YouTube is a website where video clips are shared online. Brandon Brown, *Fortifying the Safe Harbors: Reevaluating the DMCA in a Web 2.0 World*, 23 BERKELEY TECH. L.J. 437, 442 (2008).

websites offered a wealth of information and goods, users explored, and volumes of use exploded.

Social networks for instant communication and idea exchange, such as MySpace³⁴ and Facebook,³⁵ were matched by more scholarly counterparts in educational blogs and wikis.³⁶ Indeed, legal blogging has contributed “to the shortened life cycle of a theory or idea,”³⁷ enabling near-immediate feedback from sizable audiences. Reputations can also be made and enhanced within the blogosphere, where readers increasingly expect high quality content and commentary.³⁸ Recently, law reviews have even transitioned to the Internet by providing online summaries of issues in an attempt to regain readership and policy-making importance.³⁹

When Thomson Group purchased West Publishing Company in 1996, “this was the commercial equivalent of the Pope announcing that the Vatican was to be taken over by Microsoft.”⁴⁰ New electronic features for legal research soon followed. The features of electronic systems such as Westlaw and Lexis now include Boolean search queries that let a researcher tailor searches by using operators such as “and,” “or,” and “not,” and “specify the proximity of keywords within the search query.”⁴¹ Boolean logic permits a researcher to require “that one search word be within the same sentence or paragraph (grammatical connectors), or within a specified number of words (a numerical connector) of another search

³⁴ MySpace is a social-networking website that was founded in 2003. John S. Wilson, Comment, *MySpace, Your Space, or Our Space? New Frontiers in Electronic Evidence*, 86 OR. L. REV. 1201, 1222 (2007).

³⁵ Facebook started in 2004 as a student-networking website but is now open to anyone with a valid e-mail address. *Id.* at 1221–22.

³⁶ Wikis are websites that allow their visitors to add, remove, or modify content. Wikipedia, Wiki, <http://en.wikipedia.org/wiki/Wiki> (last visited Feb. 19, 2009).

³⁷ Margaret A. Schilt, *Is the Future of Legal Scholarship in the Blogosphere?*, LEGAL TIMES, Aug. 31, 2007, www.law.com/jsp/llf/PubArticleLLF.jsp?id=1188464547361.

³⁸ *Id.*

³⁹ Karen Sloan, *Web Site Offers Freedom from Footnotes*, LAW.COM, Apr. 23, 2009, <http://www.law.com/jsp/legaltechnology/pubArticleLT.jsp?id=1202430118825>.

⁴⁰ Robert Berring, *Chaos, Cyberspace, and Tradition: Legal Information Transmogrified*, 12 BERKELEY TECH. L.J. 189, 190 (1997).

⁴¹ Carol M. Bast & Ransford C. Pyle, *Legal Research in the Computer Age: A Paradigm Shift?*, 93 LAW LIBR. J. 285, 294 (2001).

word.”⁴² Furthermore, these systems offer “natural language” alternatives that focus on the presence of keywords in a document.⁴³ Lexis also controls Shepard’s Citations, which allows researchers to follow the citation trail of each case that came to be published,⁴⁴ while Westlaw has its counterpart in KeyCite.⁴⁵

III. WHY TECHNOLOGY WILL CONTINUE TO SHAPE LAW PRACTICE

As new technological features are born frequently in cyberspace, many Internet users have become inured to progress, absorbing it without a second thought. Robert Berring, a professor and legal technology scholar at UC Berkeley School of Law, asserts that the once-dominant role of the book in legal research will end.⁴⁶ He claims that there will be “at least a decade, perhaps a generation, involved in constructing the new information environment. Many . . . creatures of the old information . . . are being superseded by newer researchers, who come to the profession as devotees of electronic information.”⁴⁷ The Thomson Legal and Regulatory division, Westlaw’s parent, had 2005 revenues of almost 3.5 billion dollars, an increase of 6.6 percent from 2004.⁴⁸ LexisNexis had revenues of approximately 2.7 billion dollars, an increase of approximately thirteen percent from the previous year.⁴⁹ Such figures demonstrate widespread use of database technology for research in law. It remains to be seen what role new entrants in the field of online legal research will play, as cheaper or even free alternatives are now offered.⁵⁰ Outsourcing legal research has also become a trend among some larger firms.⁵¹

⁴² *Id.*

⁴³ *Id.* at 294–95.

⁴⁴ Berring, *supra* note 40, at 198–99.

⁴⁵ William A. Hilyerd, *Using the Law Library: A Guide for Educators Part VI*, 35 J.L. EDUC. 67, 77 (2006).

⁴⁶ Berring, *supra* note 40, at 189–90.

⁴⁷ *Id.* at 190.

⁴⁸ Olufunmilayo B. Arewa, *Open Access in a Closed Universe: Lexis, Westlaw, Law Schools, and the Legal Information Market*, 10 LEWIS & CLARK L. REV. 797, 827 (2006).

⁴⁹ *Id.*

⁵⁰ Free online legal research alternatives include FindLaw, Justia, and AltLaw; however, these systems may not include all the browsing and searching options available through paid search engines. Todd Venie, *Free & Low Cost Legal Research on the Web*, GEO. U. L.

(continued)

Still, part of the modern lawyer's role as an information manager is to recognize the value of enduring and relevant tools from the past. Some practitioners maintain that print sources remain better suited for doctrine-based research,⁵² while others believe that automated techniques are superior for searches based on similar facts between cases.⁵³ A standard response from judges has been that the fact/principle distinction is less important than the reality "that a good case must be constructed with both."⁵⁴ Few lawyers can wholly appreciate the scope and costs of the old West Publishing Company's editorial efforts (including Key numbers), along with the analysis capability that may be lost through computer automation. Boolean search may discourage thoughtful assessment of search results; capable lawyers must resist the temptation to gather research hastily based on superficial similarities.⁵⁵ West and Lexis, for example, permit combination and key cite searches, plus Boolean search, which may offer a useful hybrid form of search.⁵⁶ "Fuzzy" concept searching for legal research may also become standard in the near future.⁵⁷ Moreover, both West and Lexis offer customer support to help construct searches.⁵⁸

Other useful innovations beyond legal research have appeared. With increased speed and ease of global connections, both intra-firm and between clients and firms, many lawyers "find themselves using information differently, possessing information that they would not have

LIBR., <http://www.ll.georgetown.edu/guides/freelowcost.cfm> (last visited May 7, 2009). Additional low cost alternatives include Casemaker, Fastcase, and Loislaw. *Id.*

⁵¹ See Kunoor Chopra, *Getting It Done: Dispelling the Myths of Outsourcing*, LEGAL MGMT., Nov./Dec. 2006, vol. 25, No. 7, http://law-scribe.com/old/ala_article_01.html.

⁵² Hanson, *supra* note 1, at 583.

⁵³ *Id.*

⁵⁴ *Id.* at 584.

⁵⁵ See Berring, *supra* note 40, at 210.

⁵⁶ Cindy L. Chick, *West KM/Lexis TotalSearch or Enterprise Search Engine?*, LAWLIB TECH.COM, May 25, 2004, <http://www.lawlibtech.com/2004/05/west-kmlexis-totalsearch-or-enterprise-search-engine.html>.

⁵⁷ *See id.*

⁵⁸ *See id.*

had previously, asking questions they might not have asked previously and working with people they might not have had contact with before.”⁵⁹

One development concerns law firm internal databases, consisting of memoranda and other documents saved from past projects. When considering how to approach a new matter, lawyers may consult such databases to see how similar cases were handled. A further benefit of such internal databases “is economic, for reviewing research that the firm has already done is faster than researching an issue from scratch, and this translates into lower bills to clients.”⁶⁰ With increasingly extensive firm databases that retain sample pleadings, legal memoranda and transaction documents, a standard question within firms has become, “Has anyone done this before?”

Indeed, client expectations and competitive pressures relentlessly drive the use of technology in legal information management. Unlike the print era, when anyone could go to a law library to use the West National Reporter System, access to online legal research today is often dictated by commercial legal publishers, who can segment access to their databases and charge different prices depending on volumes and patterns of use. Clients thus face added pressures to rely upon lawyers who can effectively navigate the electronic information terrain.

A culture of instant communication through hand-held portable communication devices and teleconferencing has raised general expectations regarding efficient communications. Law firms understand that in a client-driven market, the necessity of technological expertise cannot be understated, on both domestic and global fronts. Lexis and Westlaw have long encouraged this dynamic, which also appears in their charges for services—with heavily discounted fees to law schools and students to encourage learning about the technology and higher prices for commercial users such as law firms where the technology has become a fixture.⁶¹ Law students versed in the basics of electronic research are prepared to work at firms; their employers need not expend resources

⁵⁹ Ethan Katsh, *Law in a Digital World: Computer Networks and Cyberspace*, 38 VILL. L. REV. 403, 443 (1993).

⁶⁰ Hanson, *supra* note 1, at 582.

⁶¹ Arewa, *supra* note 48, at 828–29.

training them from scratch; and Lexis and Westlaw gain early access to future generations of potential users.⁶²

IV. TEACHING TECHNOLOGY TO LAWYERS

Organizational Development (“OD”) study, according to OD pioneer Richard Beckhard, is “an effort (1) planned, (2) organization-wide, and (3) managed from the top, to (4) increase organization effectiveness and health through (5) planned interventions in the organization’s ‘processes,’ using behavioral-science knowledge.”⁶³ In effect, the beliefs, attitudes, values, and even the structure of organizations—including law firms—can be changed to adapt to new technologies and competitive challenges. Philosopher Karl Popper theorized that planning for future knowledge has inevitable limitations, due to limited current understanding.⁶⁴ Yet, even if law schools and law firms cannot plan perfectly for unexpected advances in future technologies, some effort to predict future developments is essential.

Planned change at its best evaluates change as a process and not a one-time event. This essential notion appears in the Beckhard and Gleicher text, “Formula for Change,” which states that organizational dissatisfaction, a vision for the future and recognition of the possibility of immediate tactical action must be stronger than the resistance within an organization, or meaningful change will not occur.⁶⁵ With the increasing demand for change management, especially in large multinational corporations, law firms in the future also must seek to establish change management solutions.⁶⁶

David Whelan, director of the ABA Legal Technology Resource Center, links effective comparison shopping as well as interoperability to change management, asserting that “[c]onstant change can be beneficial to firm culture. Modest, regular change breeds [a] comfort level. Major,

⁶² *Id.*

⁶³ RICHARD BECKHARD, ORGANIZATION DEVELOPMENT: STRATEGIES AND MODELS 9 (1969).

⁶⁴ See HERBERT KEUTH, THE PHILOSOPHY OF KARL POPPER 279–82 (2004).

⁶⁵ ESTHER CAMERON & MIKE GREEN, MAKING SENSE OF CHANGE MANAGEMENT 102–03 (2004).

⁶⁶ See generally FRED NICHOLS, CHANGE MANAGEMENT 101: A PRIMER (2008), <http://home.att.net/~nickols/change.htm>.

sporadic change can be more disorienting... [law firms] should start... shopping online using comparison tools”⁶⁷ to make well-considered decisions, and also to reduce the time spent seeking individual vendors with best prices, products and services. Yet, some specialty software—related for example to case management and larger financial systems—typically cannot be found through comparison sites, and must be pursued through vendors and their representatives.

The “modest, regular change” noted by Whelan also relates to interoperability and ensuring that new technologies can be smoothly integrated into systems already in place.⁶⁸ Interoperability generally includes interchangeability, the capacity of one software product to substitute for another, and connectability, the capacity of one product to work with others.⁶⁹ Whelan recommends that law firms “keep system integration as a touchstone,” citing as an example, “if your case management software talks to your word processor, make sure any upgrade to one or the other doesn’t adversely affect that link.”⁷⁰ Further, there are almost always different systems in use by clients and courts, which may require some basic understanding of interoperability issues by lawyers and law firm IT staff.

V. AGENTS OF EFFECTIVE CHANGE

As legal information management evolves, it displays a singular irony, which may never be resolved. Vendors of high-level information, enriched by their expansion into cyberspace, flourish by putting access to information largely in the hands of qualified lawyers, rather than in generally available information repositories such as libraries. Thus, concerns about pricing and access may become acute in the digital era, at least in part due to “lack of an effective library through which information

⁶⁷ David P. Whelan, *Building for Success: Technical Solutions for Modern Law Practice* (2004) (slideshow available at www.abanet.org/tech/ltrc/presentations/wisbar2004/buildingforsuccess2004.swf).

⁶⁸ *Id.*

⁶⁹ JONATHAN BAND & MASANOBU KATOH, INTERFACES ON TRIAL: INTELLECTUAL PROPERTY AND INTEROPERABILITY IN THE GLOBAL SOFTWARE INDUSTRY 5–6 (1995).

⁷⁰ Whelan, *supra* note 67.

in digital databases might be accessed by the public in the manner of the public library during the print era.”⁷¹

Much of the future of legal information management lies in the mastery of research tools that dominate the market. Although Westlaw and Lexis may seem untouchable for now, technology may change yet again. Compact disk products may cover a given jurisdiction’s cases at a fraction of the cost of Lexis, Westlaw, or print publications. Some law schools post cases to the web, and other volunteers “range from very sophisticated operations, like the Legal Information Institute at Cornell, to the work of individual librarians. In other words, cases are everywhere. Price options will be everywhere.”⁷² Lawyers thus must assess which research tools are credible and cost-efficient, and ideally, draw upon the most useful aspects of various sources.

To complicate matters, a movement toward vendor-neutral citation of cases has begun.⁷³ The aim is to establish a new citation form that will embed paragraph numbers in the text of each judicial opinion when the opinion issues, and also distinguish each case with alphanumeric addresses.⁷⁴ As court decisions become available electronically through bulletin boards and websites, anyone can download and re-use them using this universal citation system.

Some public interest advocates believe that, when done right and with vendor-neutral citation, this system could provide low-cost access to information for all (both lawyers and non-lawyers).⁷⁵ Such a breakthrough, if achieved, could lead lawyers to bypass major legal research databases, just as paid internet services like CompuServe and Prodigy fell into disuse years ago; although users once regarded them as important intermediaries and gateways into cyberspace, users gradually learned that many of their paid features were not necessary.

Google has also made inroads into the information battleground with its Google Library Project, which permits libraries to scan their collections

⁷¹ Arewa, *supra* note 48, at 828.

⁷² Berring, *supra* note 40, at 200.

⁷³ See James H. Wyman, *Freeing the Law: Case Reporter Copyright and the Universal Citation System*, 24 FLA. ST. U. L. REV. 217, 258–64 (1996).

⁷⁴ See *id.*

⁷⁵ See *id.* at 274.

into digital format at Google's expense.⁷⁶ The Project stirred opposition, with lawsuits filed in 2004 and 2005 by the Authors Guild and the Association of American Publishers, alleging copyright infringement, which are now in the process of settlement.⁷⁷ Less controversial initiatives include the Cornell Law School Legal Information Institute⁷⁸ and the British and Irish Legal Information Institute ("BAILII"),⁷⁹ which aim to make legal information available on the Internet to the global community.⁸⁰

Small law firms also act as agents of effective change. Such firms often include more open-minded lawyers, and may be quicker to adapt than mega-firms, thus applying competitive pressures to the profession as a whole. For instance, smaller firms are more likely than big firms to have adopted Wi-Fi wireless networks, according to the November 2003 Law Office Management and Administration Report.⁸¹ Small firms have traditionally been "more willing to experiment . . ."⁸² "[L]ike smaller businesses . . . [t]hey're more entrepreneurial."⁸³ Many small firms, for example, switched to e-billing well before the technology gained wide acceptance.⁸⁴ Smaller "boutique" firms are likely to enjoy the advantage of drawing some of the most tech-proficient recent law school graduates, lured by the less conventional lifestyles and work hours offered.⁸⁵ Their high level of performance may raise the bar of technological facility for the profession as a whole. Only time will tell what the recent economic

⁷⁶ HAL R. VARIAN, *THE GOOGLE LIBRARY PROJECT 2* (2006), available at <http://people.ischool.berkeley.edu/~hal/Papers/2006/google-library.pdf>.

⁷⁷ *Id.* at 6.

⁷⁸ Cornell Law School Legal Information Institute, <http://www.law.cornell.edu/> (last visited Mar. 26, 2009).

⁷⁹ British and Irish Legal Information Institute, <http://www.bailii.org/> (last visited Mar. 26, 2009).

⁸⁰ Arewa, *supra* note 48, at 836–37.

⁸¹ See David P. Whelan, *What's Hot and Not in Small and Midsize Law Firm Technology*, LAW OFF. MGMT. & ADMIN. REP., Nov. 2003, at 2.

⁸² Norah Lockwood Tooher, *Small Law Firms Embrace E-Billing*, LAW WEEKLY USA, Apr. 2004 (quoting Brett Huff), available at <http://www.lexisone.com/balancing/articles/lw040004d.html>.

⁸³ *Id.* (quoting Jerry Malinin).

⁸⁴ *Id.*

⁸⁵ See Karen Opp, *The High-Tech Life After Brobeck*, BENCH & B. MINN., Oct. 2003, at 28.

downturn's effect will be on advancement of legal research and information management technology.⁸⁶

Law schools today offer numerous opportunities for students to learn to use the major legal research databases. Yet, for the most part, the use of technology in the law remains a footnote in legal education, as legal practice technology is integrated into individual courses to varying degrees, without much coordination. Many transformations in information handling “remain outside the scope of today’s law school; large-scale document management; the discovery process in an electronic arena; information presentation and simulations in the courtroom; and the evaluation of electronic resources outside the narrow confines of the legal document databases.”⁸⁷ It is no wonder that most law students—lacking exposure to technology’s role in the law and in legal information management—do not think to seek out practical clinical training in law-related technologies.⁸⁸ There is perhaps even less coverage of the theoretical principles underlying modern computer and communication technology and how such principles may affect the practice of law; nor even how the digital era may alter the framework of legal analysis in many areas.⁸⁹ For better or worse, practical technology education has been left for lawyers and law firms to seek out piecemeal, while theory and the evolving technology “big picture” receives very little, if any, academic attention.

A small group of law schools has taken the lead in information technology education. Columbia Law School, for example, offers courses ranging from Electronic Commerce to Law in the Internet Society.⁹⁰ Columbia also offers a Lawyering in the Digital Age clinic, in which

⁸⁶ Heinan Landa, *Tough Times Mean Tighter IT Budgets*, LEGAL TIMES, June 23, 2008, <http://www.optimalnetworks.com/pdf/LegalTimes-06-23-08-Recession.pdf>.

⁸⁷ Kenneth J. Hirsh & Wayne Miller, *Law School Education in the 21st Century: Adding Information Technology Instruction to the Curriculum*, 12 WM. & MARY BILL RTS. J. 873, 881 (2004).

⁸⁸ *See id.*

⁸⁹ Justice Brandeis predicted that media technology would change privacy laws, which it has. *See, e.g.*, DANIEL J. SOLOVE, *THE DIGITAL PERSON: TECHNOLOGY AND PRIVACY IN THE INFORMATION AGE* 58 (2004).

⁹⁰ Columbia Law School, Curriculum Guide, <http://www-db.law.columbia.edu/lawnet/curriculum/view/search.act> (follow “E” hyperlink for Electronic Commerce and “L” hyperlink for Law in the Internet Society) (last visited Mar. 26, 2009).

students, “[b]eyond learning how to adapt technology to assist in . . . traditional activities, . . . acquire the new skills that are transforming law practice—knowledge management, electronic fact gathering, and presentation.”⁹¹ Technology’s profound implications for information management and the legal sphere as a whole become all the more striking with respect to the matters handled by these clinic students, whose work includes eviction cases, advocacy with administrative agencies to restore government benefits, representing victims of domestic violence, and pushing for affordable housing.⁹² These are not the multi-million dollar deals that may first come to mind in associating the digital era with law. Rather, in such a clinical course, technology permeates equally, and proves invaluable for legal issues and cases that possess little in the way of financial prestige or glamour.

In the spring of 2004, Kenneth Hirsh, a senior lecturing fellow at Duke Law School and a member of the board of directors of the Center for Computer-Assisted Legal Instruction (CALI) and Wayne Miller, Director of Educational Technologies at Duke Law School, proposed a course for their law school that would offer an overview of the role of technology in law practice and also give students hands-on experience with technologies found in law firms and courtrooms.⁹³ The course, in addition to segments on office practice, administrative tools, large case management, client communications, and trial practice, provides material on information literacy and knowledge management.⁹⁴ This kind of law school course, if implemented widely, would do much to promote and instill the concept of the lawyer as information manager. No doubt such training, moreover, would help to shape the development of legal technology, for the benefit of the entire profession.

As much as the law is and always will be rooted in tradition, technology is changing the way that law is practiced and even the concept of what “law” means. The legal community may not yet dream of all the possibilities that technology could bring to the profession. But, it is clear that technology has, and will continue to change the profession in many

⁹¹ Columbia Law School, *Lawyering in the Digital Age Clinic*, <http://www.law.columbia.edu/focusareas/clinics/digital> (last visited Mar. 26, 2009).

⁹² *Id.*

⁹³ Hirsh & Miller, *supra* note 87, at 884–85.

⁹⁴ *Id.*

ways. Law schools, lawyers and law firms must prepare to embrace and shape that change.