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Developing Lawyering Skills in the Age of Artificial Intelligence: A Framework for Legal Education

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DEVELOPING LAWYERING SKILLS IN THE AGE OF ARTIFICIAL INTELLIGENCE: A FRAMEWORK FOR LEGAL EDUCATION

*Julie L. Kimbrough**

Abstract

This Article explores the emergence of generative artificial intelligence technology in legal education and law practice. It first offers historical perspective by examining the development of online legal research systems and other existing law practice technology tools that leverage artificial intelligence. This Article then proposes a framework for legal education based on twenty-first-century competencies that advance human interaction with legal technology tools. Next, this Article recommends that law schools incorporate these competencies into learning outcomes along with a holistic approach to teaching technology-driven lawyering skills as a strategy to narrow the learning gap between legal education and law practice. It concludes by using legal research instruction as a model for integrating twenty-first-century competencies into the law school curriculum.

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INTRODUCTION

Integrating new technology into the practice of law has always been a complex endeavor. Historically, the introduction of a new law practice technology tool signaled the beginning of significant changes in the day-to-day work of legal professionals and in the delivery of legal services. These developments generally require lawyers and legal educators, sometimes with great reluctance, to adapt and accept change. In 2020, the American Bar Association (ABA) Commission on the Future of Legal Education published *Principles for Legal Education and Licensure in the 21st Century*.¹ Fear of technology was one of the systemic obstacles the Commission believed would hold back much-needed changes in legal education and licensure. According to their report, “Technology is all too often viewed as a danger rather than as a force to enable transformative change.”² It offers tremendous opportunities to enhance service and efficiency, broaden client bases, and improve access to those in need of legal services.”³

Enter the age of artificial intelligence.⁴ A seismic shift is underway in the legal profession, and technology is once again a major source of the disruption.⁵ While the legal profession and its traditional business model make transformative change difficult,⁶ legal technology tools, including artificial-intelligence-enhanced legal research databases, e-discovery platforms, data analytics resources, and document automation and

1. *Principles for Legal Education and Licensure in the 21st Century*, AM. BAR ASS’N (Mar. 18, 2020), <https://www.americanbar.org/content/dam/aba/administrative/future-of-legal-education/cfle-principles-and-commentary-feb-2020-final.pdf> [https://perma.cc/4652-YK62].

2. *Id.* at 4.

3. *Id.*

4. The term artificial intelligence was first introduced in 1950 by British computer scientist Alan Turing in his article “Computing Machinery and Intelligence.” Turing introduced “the imitation game,” more widely known as the Turing Test. A.M. Turing, *Computing Machinery and Intelligence*, 59 MIND 433, 433–34 (1950), <http://www.jstor.org/stable/2251299> [https://perma.cc/W2H4-AKVJ].

Artificial Intelligence (AI) vs. Machine Learning, COLUMBIA ENGINEERING, <https://ai.engineering.columbia.edu/ai-vs-machine-learning/> [https://perma.cc/4UAB-M3KP] (“Artificial Intelligence is the field of developing computers and robots that are capable of behaving in ways that both mimic and go beyond human capabilities. AI-enabled programs can analyze and contextualize data to provide information or automatically trigger actions without human interference.”).

5. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 3.

6. *Id.* at 4. The Commission named systemic obstacles in the way of transformational change in legal education. Among the obstacles: entrenched service delivery models in legal practice; one-size fits all model in legal education; fear of technology; misguided approach to disruption, and deep-rooted adherence to the status quo.

analysis features are already well-established in legal practice.⁷ Generative artificial intelligence⁸ currently grabs all the headlines, but the essential challenge for the future of the profession is one lawyers have faced many times in the age of artificial intelligence—striking the right balance between human and machine interaction in the practice of law and figuring out how that impacts delivery of legal services.⁹ As one law firm partner put it:

Our analogy at the firm is, It's Iron Man, it's not Terminator It's a really smart person surrounded by incredible technology, extending the capabilities of that very smart person. . . . People ask me all the time, is AI [going to] replace lawyers? No. But lawyers who use AI are going to replace lawyers who don't use AI.¹⁰

Naturally, there are already examples of lawyers who misused generative AI tools and then fell short of their professional obligations.¹¹ In June 2023, a New York federal district judge sanctioned two attorneys who submitted a brief that relied on nonexistent case law.¹² The attorneys failed to correct their mistake when it was pointed out by opposing counsel.¹³ The judge then ordered the attorneys to produce the cases they

7. I credit my wonderful *North Carolina Legal Research*, 3d co-authors for developing the tools for the lawyer's toolbox theme that we used throughout the book. The idea that research and technology applications (including artificial intelligence-enhanced legal research systems) are "tools" for your legal research and day-to-day work is also well-established in the law librarian community. Even the most advanced legal research and technology tools still, for now at least, need human lawyers to analyze results, apply the law, and use professional judgment about the information provided.

8. *AI for Legal Professionals*, BLOOMBERG L. (Aug. 1, 2023), <https://pro.bloomberglaw.com/brief/ai-in-legal-practice-explained/> [<https://perma.cc/K8ZD-NYHT>] ("A generative AI tool generates 'output,' typically in response to instructions, called the 'input' or 'prompt,' from a user. The output is based on an algorithmic model trained on vast amounts of data, which could be text, images, music, computer code, or virtually any other type of content.").

9. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 6. See RICHARD SUSSKIND, *TOMORROW'S LAWYERS: AN INTRODUCTION TO YOUR FUTURE* 1, 5–6 (3d ed. 2023).

10. Tracey Read, *Generative AI Is The Hot New Practice At Law Firms*, LAW360 PULSE (May 12, 2023, 3:52 PM), <https://www.law360.com/pulse/articles/1607276/generative-ai-is-the-hot-new-practice-at-law-firms> [<https://perma.cc/K53H-NT4X>] (quoting Bennett Borden, Partner, DLA Piper, chief data scientist of the firm's newly created artificial intelligence and data analytics practice).

11. Lars Daniel, *How Smart Lawyers Make Dumb AI Mistakes— And How To Avoid Them*, FORBES (Feb. 26, 2025, 3:53 PM), <https://www.forbes.com/sites/larsdaniel/2025/02/26/how-smart-lawyers-make-dumb-ai-mistakes-and-how-to-avoid-them/> [<https://perma.cc/8NGH-YB XV>].

12. Sara Merken, *New York lawyers Sanctioned for using fake ChatGPT cases in legal brief*, REUTERS (June 26, 2023, 4:28 AM), <https://www.reuters.com/legal/new-york-lawyers-sanctioned-using-fake-chatgpt-cases-legal-brief-2023-06-22/> [<https://perma.cc/4PJJ-3Y6T>].

13. See *infra* note 14, at 461.

cited. After a series of missteps, the attorneys finally admitted the cases were hallucinated by ChatGPT.¹⁴ In the order imposing Rule 11 sanctions on the attorneys and their firm, the judge wrote, “Technological advances are commonplace and there is nothing inherently improper about using a reliable artificial intelligence tool for assistance. But existing rules impose a gatekeeping role on attorneys to ensure the accuracy of their filings.”¹⁵ The June 2023 New York case was the first time generative artificial intelligence appeared in court in the context of lawyer professional responsibility.¹⁶ In December 2023, Michael Cohen admitted providing his attorney with fake cases generated by Google Bard.¹⁷ Cohen used the chatbot to generate case citations for inclusion in a brief his attorney filed.¹⁸

As legal educators in the age of artificial intelligence, we have some important choices to make. In this chaotic moment, many of us feel uncomfortable about the prospect of using generative artificial intelligence tools in our law school classrooms or prescribing how our students may use these tools for coursework. Our own legal training is working against us. Lawyers, whether we work in academic or professional settings, embrace developing deep expertise on a particular topic. We emphasize precision, accuracy, and perfection in our work. We are reluctant to make assertions on unfamiliar topics without first studying the issues in depth and taking time to consider all the possible outcomes. Yet, as this Article describes, the story of artificial intelligence in the context of legal education and law practice is already one of striking the right balance between human and machine interaction, and we have

14. *Mata v. Avianca, Inc.*, 678 F. Supp. 3d 443, 458 (S.D.N.Y. 2023) (“The narrative leading to sanctions against Respondents includes the filing of the March 1, 2023 submission that first cited the fake cases. But if the matter had ended with Respondents coming clean about their actions shortly after they received the defendant’s March 15 brief questioning the existence of the cases, or after they reviewed the Court’s Orders of April 11 and 12 requiring production of the cases, the record now would look quite different. Instead, the individual Respondents doubled down and did not begin to dribble out the truth until May 25, after the Court issued an Order to Show Cause why one of the individual Respondents ought not be sanctioned.”).

15. *Id.* at 448. FED. R. CIV. P. 11.

16. I conducted Westlaw and Lexis searches to confirm (Dec. 2023).

17. *See infra* note 18.

18. Pranshu Verma, *Michael Cohen used fake cases created by AI in bid to end his probation*, WASH. POST (Dec. 29, 2023), <https://www.washingtonpost.com/technology/2023/12/29/michael-cohen-ai-google-bard-fake-citations/> [<https://perma.cc/EGR5-YJ3J>] (“In the filing, Cohen wrote that he had not kept up with ‘emerging trends (and related risks) in legal technology and did not realize that Google Bard was a generative text service that, like ChatGPT, could show citations and descriptions that looked real but actually were not.’ To him, he said, Google Bard seemed to be a ‘supercharged search engine.’”).

never had as much control of our online interactions as we might think we do.¹⁹

While the law practice technology revolution is well under way, the vast majority of American law schools are behind the technology curve.²⁰ Recent surveys of legal professionals consistently show two trends: (1) lawyers believe generative AI will make legal practice more efficient, and (2) they don't yet understand all the opportunities and challenges generative AI presents for the legal profession.²¹ Studies also show that generative AI will eventually be able to automate many legal tasks.²² There are remarkable career opportunities waiting for our law students when they graduate, *if* they receive ample opportunities to incorporate technology-driven lawyering skills into their law school learning experience.

Indeed, law students need to be prepared for the shifting landscape they will face in practice. As Dean Andrew Perlman of Suffolk University School of Law describes it, law schools should be teaching students “a new kind of issue spotting” in order for students to “understand how a particular legal service is delivered and identify how technology and other innovative methods can deliver those services better, faster, and cheaper.”²³ While most current law students are “digital natives,” our students do not possess an innate ability to effectively understand and

19. See generally NOAH WAISBERG ET AL., *AI FOR LAWYERS: HOW ARTIFICIAL INTELLIGENCE IS ADDING VALUE, AMPLIFYING EXPERTISE, AND TRANSFORMING CAREERS* (2021).

20. Manit Butalia, *AI vs Law Schools: The Cost of Ignoring the Future*, AM. BAR ASS'N (Nov. 26, 2024), https://www.americanbar.org/groups/law_practice/resources/law-technology-today/2024/ai-vs-law-schools/ [<https://perma.cc/X5CG-PHMF>]. There are some notable exceptions. Stanford, Duke, Vanderbilt, Suffolk, and others. These technology-forward law schools have programs that are driven by experts from within those law schools and often have the benefit of private funding from external donors.

21. *Wolters Kluwer's Future Ready Lawyer Survey: industry embraces generative AI, but is not yet very prepared for ESG demands*, WOLTERS KLUWER (Nov. 8, 2023), <https://www.wolterskluwer.com/en/news/future-ready-lawyer-2023-report> [<https://perma.cc/U938-BYYQ>]. This annual survey of legal professionals in law firms and corporate legal departments across the U.S. and Europe revealed key issues and trends affecting the future of the legal profession. It emphasized the integration of generative AI into legal work, with 73% of lawyers expecting to incorporate generative AI in the next year. Moreover, 87% of attorneys acknowledged that AI technology has improved their day-to-day work, although only 46% feel they are fully leveraging it. This survey suggests a growing expectation for new lawyers to be familiar with AI and other emerging technologies.

22. A 2023 Goldman Sachs report estimated that generative AI could automate 44% of legal tasks in the U.S. Rhys Dipshan, *Generative AI Could Automate Almost Half of All Legal Tasks, Goldman Sachs Estimates*, ALM LAW.COM (Mar. 29, 2023, 1:27 PM), <https://www.law.com/legaltechnews/2023/03/29/generative-ai-could-automate-almost-half-of-all-legal-tasks-goldman-sachs-estimates/> [<https://perma.cc/PRP7-HZ5B>].

23. Andrew Perlman, *Foreword, Celebrating 50 Years*, 50 SUFFOLK U. L. REV. 385, 386 (2017).

utilize sophisticated legal technology tools without formal instruction.²⁴ And that learning needs to take place in a simulated practice setting where students have the chance to conduct research, create a work product, receive substantive feedback, and reflect on their experience.²⁵ Ultimately, law schools have an obligation to help students comprehend the importance of learning new technology they will be expected to use in practice.²⁶ That can only happen with a holistic approach to teaching lawyering skills, with a specific focus on technology skills, throughout the law school curriculum.

Part I of this Article examines the rise of legal generative artificial intelligence tools through the lens of existing legal technology, with a focus on the development of online legal research systems and other established law practice technology tools. Part II introduces a framework for law students and legal educators seeking to build competency with generative artificial intelligence tools and other emerging legal technologies. The framework builds on the ABA's *Principles for Legal Education and Licensure in the 21st Century*,²⁷ as well as the goals identified by recent reform legal education reform efforts, including the professional identity formation movement. As Part III will describe, law schools can begin to close this educational gap by applying twenty-first-century competencies to learning outcomes and adopting a holistic approach to teaching technology-driven lawyering skills. Finally, this Article demonstrates application of these competencies in the context of legal research instruction. Given the implications for our students, the

24. The term “digital natives” suggests that individuals born in the digital age are naturally skilled in navigating, understanding, and applying technology. Alternatively, copious research demonstrates this is a false narrative. See Iantha M. Haight, *Digital Natives, Techno-Transplants: Framing Minimum Technology Standards for Law School Graduates*, 44 J. LEGAL PRO. 175, 193 (2020); Dyane L. O’Leary, “Smart” Lawyering: Integrating Technology Competence into the Legal Practice Curriculum, 19 U.N.H. L. REV. 197, 224 (2021); Kristen E. Murray, *Take Note: Teaching Law Students to Be Responsible Stewards of Technology*, 70 CATH. U. L. REV. 201, 211 (2021).

25. *Id.*

26. LexisNexis allowed law faculty to test its new generative AI product, Lexis+ AI, in the fall of 2023. Following a faculty survey, Lexis has added Lexis AI+ to 2L and 3L law student accounts. 1L access was coordinated in consultation with LRW faculty and law library faculty. Some law schools will not open up 1L access until the end of the Spring 2024 semester. “Law firms have indicated they expect their summer and fall associates to be well-versed on the most advanced legal research tools, including generative AI.” *LexisNexis Collaborates with U.S. Law Schools to Roll Out Lexis+ AI, Marking First Widespread Use of Legal Generative AI Solution in Law School Education*, LEXISNEXIS (Dec. 20, 2023), <https://www.lexisnexis.com/community/pressroom/b/news/posts/lexisnexis-collaborates-with-u-s-law-schools-to-roll-out-lexis-ai-marking-first-widespread-use-of-legal-generative-ai-solution-in-law-school-education> [https://perma.cc/8X8Z-2M34].

27. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1.

legal profession, and society, it is imperative that law schools evolve to prepare our students for the shifting landscape they will face in practice.

I. THE INTEGRATION OF ARTIFICIAL INTELLIGENCE

As legal educators and lawyers face the new challenges presented by generative artificial intelligence tools, there are technological precedents to guide us. Online legal research, electronic discovery, legal data analytics, and document automation are older AI tools that are now embedded in law practice. To become proficient with each of these earlier technological innovations, lawyers and legal educators needed to develop competencies. These competencies included providing appropriate human oversight of the technology, developing a full understanding the strengths and weaknesses of the technology, continuing to adapt and build professional skills as the technology changed, and keeping a strong service orientation when interacting with technology. Those same strategies apply in the context of generative artificial intelligence.

This Article will discuss the use of artificial intelligence as it is implemented in legal education and law practice. It is important to note, however, that artificial intelligence encompasses a wide range of technologies used in many industries and for various purposes.²⁸ Artificial intelligence is “an umbrella term to describe technologies that rely on data to make decisions.”²⁹ In the context of legal technology tools, artificial intelligence may also be called cognitive computing.³⁰ “Cognitive computing uses AI systems that simulate human thought to solve problems using neural networks and other technology. Cognitive tools are trained vs. programmed—learning how to complete tasks traditionally done by people.”³¹

Although generative artificial intelligence tools are still in their infancy, earlier types of artificial intelligence have powered Westlaw, Lexis, and other legal technology platforms since the introduction of

28. Artificial intelligence technologies are employed in healthcare for diagnosis and treatment recommendations, in automotive industries for self-driving cars, in finance for algorithmic trading, and in customer service as chatbots. There are more basic AI-driven systems, for example those used in gaming applications, and there are more advanced systems including those used to power modern legal research platforms and other law practice technology tools. As described in Part Two, these legal systems incorporate machine learning and natural language processing.

29. Sterling Miller, *Generative AI: What In-House Legal Departments Need to Know*, THOMSON REUTERS (Nov. 30, 2023), <https://legal.thomsonreuters.com/blog/generative-ai-what-in-house-legal-departments-need-to-know/#What-is-artificial-intelligence?> [<https://perma.cc/CV/G3-WS6A>].

30. See *id.* (“[A] better description is ‘cognitive computing’”).

31. *Id.*

natural language processing.³² While legal research platforms represent the first widespread use of AI tools in law practice, there are also well-developed AI tools in electronic discovery, legal data analytics, and document automation.

A. *The Evolution of AI in Legal Research*

Before the 1970s, the history of legal research was written in law libraries.³³ Public and private law libraries in the United States amassed collections of hundreds of thousands of volumes and regularly ran out of space because of the amount of legal information produced by our federal and state governments.³⁴ With the rise of the administrative state, the vast majority of print legal information was created by governmental bodies during the 20th century.³⁵ Conducting legal research before computers meant spending hours in a library poring over law books.

In the United States, foundational legal information sources that cataloged, classified, and explained the law were developed and published in the late 19th century and early 20th century by small (at the time) legal publishing companies.³⁶ West and LexisNexis, which grew from or consolidated these companies, developed titles that include Shepard's Citation System, West's National Reporter System, and the West Digest System. By introducing comprehensive organization and classification schemes to legal information, these iconic publications transformed the practice of law in the United States.

All of this content was created by people. Human editors with legal training read virtually every new judicial opinion created at both the federal and state levels, and then summarized, organized, and classified that information.³⁷ Attorneys and citizens with access to a law library

32. David Badertscher, *The Evolution of AI in Law Libraries*, CRIM. L. LIBR. BLOG (May 28, 2024), <https://www.criminallawlibraryblog.com/the-evolution-of-ai-in-law-libraries/> [https://perma.cc/7Z2H-T8H4].

33. See James Wier, *Beyond the Stacks: The Modern Evolution of Law Libraries*, 2024 U. MICH. L. SCH. SCHOLARSHIP REPOSITORY 14, 17.

34. JESSE D. GRIFFIN, JR., *DESELECTION CRITERIA USED BY ACADEMIC LAW LIBRARIANS IN SELECTED ACADEMIC LAW LIBRARIES IN THE SOUTHEASTERN UNITED STATES* 2 (2017).

35. See Susan E. Dudley, *Milestones in the Evolution of the Administrative State*, 2021 DAEDALUS 33, 33–34.

36. See West Group, *COMPANY-HISTORIES.COM*, <https://www.company-histories.com/West-Group-Company-History.html> [https://perma.cc/9H59-4HLB].

37. West Publishing, which is now a part of Thomson Reuters, has employed a remarkably large number of attorneys over the years. To manage their foundational classification system for U.S. law, West Publishing has historically employed attorney editors. These editors are tasked with categorizing published opinions into the Key Number System. Additionally, they are responsible for determining the categories and creating the headnote annotations that contribute to effective legal research. This process is based on the human attorney editors' interpretation of the opinions. For more information on this topic see Bill Voedisch, *WESTLAW: An Early History*, U. MINN. L. SCH. SCHOLARSHIP REPOSITORY 1 (2015).

could locate relevant case law and build legal arguments from an ever-expanding collection of primary and secondary legal information sources in print.³⁸ These “editorial enhancements” attached to legal primary sources became integral to the practice of law.³⁹ That editorial work continues today, and West and LexisNexis are still in business, albeit with a very different business model.⁴⁰ Increasingly, however, this kind of editorial work is accomplished through automation using artificial intelligence tools.

With the introduction of computer-assisted legal research (CALR), law practice and legal education entered a new era, but initial progress was slow.⁴¹ Early CALR platforms were fairly modest electronic databases of legal information—containing case law from a few jurisdictions—digitized by the major legal publishers.⁴² LexisNexis launched the first computer terminal for legal research in 1973, and a similar Westlaw terminal was introduced in 1975. These dedicated CALR terminals required dial-up access and introduced the concept of Boolean

38. “Primary sources . . . are the official pronouncements of the governmental lawmakers: the court decisions, legislation, and regulations that form the basis of legal doctrine. Secondary sources are works that are not themselves law, but that discuss or analyze legal doctrine.” KENT C. OLSON ET AL., *PRINCIPLES OF LEGAL RESEARCH* 1, 11 (3d ed. 2020) [hereinafter *Principles of Legal Research*].

39. The concept of editorial enhancements to legal information sources is still in use today. According to Thomson Reuters’ marketing campaign for the addition of generative AI to Westlaw Precision: “What do you get when you combine generative AI with Westlaw Precision’s industry-leading legal content, unmatched editorial enhancements, and over 150 years of legal industry expertise? The answer:” AI-Assisted Research. *Westlaw Precision with CoCounsel*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/c/westlaw/westlaw-precision-generative-ai> [https://perma.cc/5LQL-94PR]; see generally *Georgia v. Public.Resource.Org, Inc.*, 590 U.S. 255, 260 (2020) (explaining the significance of primary sources like the Official Code of Georgia (OGCA)).

40. West Publishing is now owned by Thomson Reuters, and LexisNexis is now owned by RELX. From the press release announcing the launch of Westlaw Precision with generative AI: “Thomson Reuters (TSX/NYSE: TRI), a global content and technology company, today announced a series of GenAI initiatives designed to transform the legal profession. Headlining these initiatives is the debut of GenAI within the most advanced legal research platform, AI-Assisted Research on Westlaw Precision.” *Thomson Reuters Launches Generative AI-Powered Solutions to Transform How Legal Professionals Work*, THOMSON REUTERS (Nov. 15, 2023), <https://www.thomsonreuters.com/en/press-releases/2023/november/thomson-reuters-launches-generative-ai-powered-solutions-to-transform-how-legal-professionals-work.html> [https://perma.cc/P4EM-SEVJ].

41. See Lourdes M. Fuentes, *Lessons from Legal Research’s Past for the GenAI-Powered Legal Technology of Tomorrow*, AM. BAR ASS’N (Sept. 18, 2024), https://www.americanbar.org/groups/law_practice/resources/law-technology-today/2024/lessons-from-legal-researchs-past-for-the-genai-powered-legal-technology-of-tomorrow/ [https://perma.cc/DQ3F-4DM8].

42. *The LexisNexis Timeline: Celebrating Innovation . . . and 30 Years of Online Legal Research*, STUDYLIB (2003), <https://studylib.net/doc/18502828/the-lexisnexis-timeline> [https://perma.cc/4WKG-KMGG].

or “terms and connectors” searching to legal research.⁴³ Until the 1990s, Boolean searching was the only option for CALR, and proficient Boolean searching was a lawyering skill—one that required precision and a clear understanding of legal language and syntax.⁴⁴

In 1992, West introduced Westlaw is Natural (WIN), still in the form of a standalone computer terminal. WIN was powered by AI-based natural language processing (NLP).⁴⁵ Natural language processing interprets the user’s search query and works together with a machine learning algorithm that uses this interpretation to retrieve relevant information.⁴⁶ For the first time, legal researchers could phrase their search queries in plain English, much like they would in conversation with a colleague. With this innovation, the process of conducting legal research changed radically, but most lawyers and law students had no idea they were already encountering a type of artificial intelligence.

43. In Boolean searches, “[s]pecific terms or phrases are joined by logical connectors such as and, or by proximity connectors indicating the maximum number of words that can separate the search terms. . . .” *Principles of Legal Research*, *supra* note 38, at 22. This search method is named after George Boole, a 19th-century mathematician. *Boolean Search Terms*, LEXISNEXIS, <https://www.lexisnexis.com/en-us/professional/research/glossary/boolean-search-terms.page> [https://perma.cc/54U6-NU63].

44. Boolean searching is ultimately less flexible than AI-based natural language searching but highly effective in the hands of an experienced legal researcher. *See generally Prepare to Practice Resources*, ALA. L., <https://guides.library.law.ua.edu/c.php?g=1228537&p=10218281> [https://perma.cc/EW46-H22K].

45. WIN was the first commercial search engine to use NLP. It predates Google. WAISBERG ET AL., *supra* note 19, at 114. Natural Language Processing (NLP) is a field of artificial intelligence that focuses on the interaction between computers and human language. It involves enabling computers to understand, interpret, and respond to human language in a useful way. NLP is used in many applications including legal research, language translation, chatbots, voice assistants, and text summarization.

46. As described by the lead engineer of the now-defunct ROSS Intelligence, legal research systems contain “millions of legal decisions and hundreds of millions of passages that have already been processed by machine learning algorithms. The ingestion of legal data happens daily. The algorithms are trained against a corpus of queries and legal decisions. Once the algorithms meet acceptable statistical thresholds, they are then let loose to perform searches against the millions of decisions and hundreds of millions of passages.” Stergios Anastasiadis, *How is Natural Language Search Changing The Face of Legal Research?*, ROSS (Apr. 8, 2019), <https://blog.rossintelligence.com/post/how-natural-language-search-changing-face-of-legal-research> [https://perma.cc/W58R-NPRL]. In 2020, Thomson Reuters sued ROSS Intelligence alleging copyright infringement. Thomson Reuters claimed a third-party company, LegalEase, downloaded large portions of Westlaw’s content and passed that content along to ROSS in order to build the ROSS legal research database. ROSS went out of business in 2021, blaming the cost of litigation. The case is set to go to trial in 2024. Thomson Reuters Enterprise Centre GmbH et al. v. ROSS Intelligence Inc., case number 1:20-cv-00613. Adam Lidgett, *Thomson Reuters, ROSS IP Row Must Go To Trial, Judge Says*, LAW360 (Sept. 25, 2023, 7:59 PM), <https://www.law360.com/articles/1725495/thomson-reuters-ross-ip-row-must-go-to-trial-judge-says> [https://perma.cc/UK3A-BUE7].

At the turn of the 21st century, increases in computing power, advances in artificial intelligence, the advent of widespread high-speed internet connections, and innovations in networked information protocols all contributed to another significant shift in the way legal researchers accessed and interacted with legal information.⁴⁷ Web-based online legal research platforms became the industry standard.⁴⁸ In 2001, Westlaw began to use machine learning algorithms to assist their attorney editors with classification of cases into the Key Number System.⁴⁹ According to the Columbia Engineering's website, "[m]achine learning is a pathway to artificial intelligence. This subcategory of AI uses algorithms to automatically learn insights and recognize patterns from data, applying that learning to make increasingly better decisions."⁵⁰ Continual development of natural language processing and machine learning (ML) drastically improved the efficiency and scope of online legal research.⁵¹

Legal research systems are a great example of the power of machine learning. The machine learning algorithm can identify relationships—the context—among cases, statutes, regulations, and other legal information sources that a human researcher might miss. Machine learning advancements allowed West and LexisNexis to expand their platforms to include the following now-standard features: source recommendation (ML algorithm suggests the most relevant primary and secondary sources based on the context of the user's search query); citation analysis (ML helps in understanding how often a case is cited, which can be an indicator of its importance or relevance in a particular legal context); and document management tools (ML can automatically organize, tag, and classify documents, which saves considerable time and effort).⁵² All of the artificial intelligence enhancements that powered these new features remained behind the scenes. More important, these systems continuously learn and adapt based on new data and user interactions, refining their algorithms to become more accurate and efficient.⁵³

47. Carolyn Elefant, *Part 1: A Brief History of Legal Research Tools, According to Someone Who Actually Uses Them*, MY SHINGLE (May 16, 2017), <https://myshingle.com/2017/05/articles/web-tech/part-brief-history-legal-research-tools-according-someone-actually-uses/> [https://perma.cc/F6V9-PYFU].

48. *Id.*

49. WAISBERG ET AL., *supra* note 19, at 115.

50. *Artificial Intelligence (AI) vs. Machine Learning*, *supra* note 4. Columbia Engineering is Columbia University's online graduate engineering program focused on artificial intelligence.

51. HIRAL MODI, LEVERAGING NATURAL LANGUAGE PROCESSING FOR LEGAL RESEARCH: TRENDS AND FUTURE DIRECTIONS 2 (2023).

52. WAISBERG ET AL., *supra* note 19, at 115.

53. MARC SERRAMIA ET AL., COLLABORATIVE FILTERING TO CAPTURE AI USER'S PREFERENCES AS NORMS 5–6 (2023).

Current legal research systems continue to rely heavily on natural language processing and machine learning algorithms.⁵⁴ The lack of accountability and transparency regarding the design of this technology is the subject of considerable debate and legal scholarship.⁵⁵ In 2017, Susan Nevelow Mart conducted a research study comparing the top ten search results from identical searches across different legal research databases (Westlaw, Lexis, Fastcase, Google Scholar, Ravel, and Casetext).⁵⁶ An average of 40% of the top ten cases retrieved were unique to one database, and the relevance of results also varied by database.⁵⁷ When only Westlaw and Lexis Advance results were compared, 72% of the top ten cases returned were unique.⁵⁸ Thus, users of one legal research database will predictably encounter a different list of cases compared to those provided for the same search query in a different database. Mart's influential research demonstrates the human variability baked into the design of these sophisticated legal research databases.⁵⁹

Another significant issue in the legal research and technology space is incomplete coverage of court decisions in major legal databases including Westlaw and LexisNexis.⁶⁰ Many legal scholars have examined the effect of technology on the availability of court decisions, and they have consistently shown large numbers of judicial decisions are unavailable on Westlaw or Lexis.⁶¹ These “missing decisions” or “submerged precedent” are often only accessible through individual court dockets on PACER (Public Access to Court Electronic Records).⁶² Further, “submerged precedent” challenges the perception that Westlaw and LexisNexis provide users with a comprehensive set of primary legal

54. *Artificial Intelligence*, U. WASH. SCH. L. GALLAGHER L. LIBR., <https://lib.law.uw.edu/AI> [<https://perma.cc/22VE-UQ4J>].

55. See Susan Nevelow Mart, *The Algorithm as a Human Artifact: Implications for Legal [Re]Search*, 109 LAW LIBR. J. 387, 389 (2017). See also Paul D. Callister, *Law, Artificial Intelligence, and Natural Language Processing: A Funny Thing Happened on the Way to My Search Results*, 112 LAW LIBR. J. 161, 204–05 (2020).

56. Mart, *supra* note 55, at 390.

57. Mart, *supra* note 55, at 412.

58. See Mart, *supra* note 55, at 415.

59. “It is fair to say that each different set of engineers brought very different biases and assumptions to the creation of each search algorithm.” *Id.* at 390.

60. See McAlister, *infra* note 62, at 1101.

61. See McAlister, *infra* note 62, at 1106.

62. See Merritt E. McAlister, *Missing Decisions*, 169 U. PA. L. REV. 1101, 1104 (2021); Elizabeth Y. McCuskey, *Submerged Precedent*, 16 NEV. L.J. 515, 516 (2016). PACER is an online public access service of the United States federal judiciary. It allows users to obtain case and docket information from federal appellate, district, and bankruptcy courts, and the PACER Case Locator. PACER requires users to create an account and pay fees. The PACER fee structure has long been a topic of debate and litigation, with many legal scholars arguing for making the system free to increase public access to legal information. See *Nat'l Veterans Legal Servs. Program v. United States*, 968 F.3d 1340 (Fed. Cir. 2020).

information sources.⁶³ Moreover, the selective nature of case inclusion by major legal research systems highlights the importance of evaluation of these sources and the need for a diversified approach to legal research including comparison of results from different platforms. Westlaw and LexisNexis also exercise a degree of editorial discretion in the cases they select to include or not include in their databases.⁶⁴ The criteria for selection and the rationale behind these editorial choices are typically not transparent, raising concerns about the potential for bias and gaps in legal research conducted using these platforms.⁶⁵

The latest evolution in the legal research space is the integration of generative artificial intelligence tools into legal research databases.⁶⁶ Unfortunately, Westlaw and LexisNexis tend to roll out new product enhancements to law firms well before these features are added to academic accounts. This practice presents significant challenges for legal educators and puts the burden on legal employers to pay for technology training.⁶⁷ Recent survey results reveal strong interest in generative AI research tools within the legal community.⁶⁸ Lawyers and law students consistently rank legal research at the top of potential use cases for generative AI.⁶⁹ Lawyers currently using generative AI tools are most often using them to conduct legal research.⁷⁰

63. *Id.*

64. See McCuskey, *supra* note 62, at 536–37.

65. See *id.*

66. Robert Ambrogì, *LexisNexis Enters the Generative AI Fray with Limited Release of New Lexis+ AI, Using GPT and other LLMs*, LAW SITES (May 4, 2023), <https://www.lawnext.com/2023/05/lexisnexis-enters-the-generative-ai-fray-with-limited-release-of-new-lexis-ai-using-gpt-and-other-llms.html#:~:text=Today%2C%20LexisNexis%20is%20announcing%20the%20launch%20of%20Lexis%2B,documents%20such%20as%20demand%20letters%20or%20client%20emails> [https://perma.cc/7VZD-7TPT].

67. This has held true for the rollout of generative AI tools. It is a source of frustration for legal educators and a practice that works against efforts to bridge the technology gap between law schools and the legal profession. Law library faculty, for example, are experts who are well-positioned to provide feedback on product enhancements in legal research systems.

68. *Wolters Kluwer's Future Ready Lawyer Survey: industry embraces generative AI, but is not yet very prepared for ESG demands*, *supra* note 21.

69. According to the *LexisNexis International Legal Generative AI Study*, 65% of lawyers surveyed believe generative AI tools have the most potential for use in the area of legal research. Legal research ranked higher than drafting documents (56%), document analysis (44%) and email writing (35%). *How Generative AI Can Enhance Legal Research Responsibly*, LEXISNEXIS (Oct. 25, 2023), <https://www.lexisnexis.com/community/insights/legal/b/thought-leadership/posts/how-generative-ai-can-enhance-legal-research-responsibly> [https://perma.cc/A4K4-ZRDR].

70. 59% of attorneys surveyed have used generative AI tools for legal research. Placing second and third in professional use of generative AI: drafting documents (45%) and writing emails (38%). *Generative AI & The Legal Profession 2023 Survey Report*, LEXISNEXIS 1, 5 (2023) https://www.lexisnexis.com/pdf/ln_generative_ai_report.pdf (last visited Mar. 1, 2025).

In the 21st century, the Thomson Reuters (Westlaw) and RELX (LexisNexis) “duopoly” is no longer only about legal research.⁷¹ They are no longer strictly legal publishers. The most valuable assets these companies have are data. Both companies have created new data-driven law practice technology tools and incorporated those tools into their research platforms.⁷² The newest versions of these platforms include AI-assisted document review and analysis features, data analytics tools, and public records databases.⁷³ It is important to recognize and understand this gradual transformation in the business model of legal information providers and the information-seeking behaviors of legal researchers. This shift in both the business of legal research and the resulting changes in individual user behavior have significant implications for the future of law practice.⁷⁴

B. Other AI-Enhanced Law Practice Technology Tools

Sophisticated technology tools have already transformed day-to-day legal work by automating routine tasks and improving efficiency and accuracy of work product.⁷⁵ Pressure on law firms to invest in emerging technologies and meet client demands for efficient use of these technology tools is intense and will only continue to grow.⁷⁶ A sizeable

71. SARAH LAMDAN, DATA CARTELS 74 (2023).

72. In the 21st century, both Westlaw and LexisNexis have integrated data analysis and public records tools into their legal research platforms, though public records are restricted or unavailable on academic accounts. In recent years, LexisNexis acquired legal tech startups Lex Machina and Ravel. LexisNexis Risk Solutions is the company’s consumer credit-reporting branch. Thomson Reuters has acquired public and court records service companies over the years and now owns CLEAR, an online investigation software provider for law enforcement. Lower cost competitor FastCase has been purchased by vLex and their integrated platform includes DocketAlarm. vLex also has a new generative AI assistant called Vincent.

73. Increasingly, these kinds of tools are not optional add-ons, although the new Westlaw and LexisNexis generative AI chatbots are currently separately priced.

74. Legal scholars have commented on this transformation of legal publishing since the 1990s. “The dominant role played by the book in legal information is now ending. My contention is that its demise will not manifest itself in the form of a clean break with tradition. There will be at least a decade, perhaps a generation, involved in constructing the new information environment. Many lawyers, law professors and judges remain creatures of the old information and will never change their views of how things ought to be. However, they are being superseded by newer researchers, who come to the profession as devotees of electronic information.” Robert Berring, *Chaos, Cyberspace and Tradition: Legal Information Transmogrified*, 12 BERKELEY TECH. L.J. 189, 190 (1997).

75. See Daniel Martin Katz, *Quantitative Legal Prediction—or—How I Learned To Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909, 913 (2013); WAISBERG ET AL., *supra* note 19, at, Chapter 8 “AI in Legal Research.”

76. *Wolters Kluwer’s Future Ready Lawyer Survey: industry embraces generative AI, but is not yet very prepared for ESG demands*, *supra* note 21 (discussing the increasing pressure on law firms to adopt emerging technologies and navigate post-pandemic transformations).

gap still exists, however, between the research and technology skills of new law school graduates and the competencies legal employers expect newly licensed lawyers to have on day one.⁷⁷

Electronic discovery (e-discovery) first gained prominence in law practice in the late 1990s and early 2000s.⁷⁸ Its emergence was closely tied to the rapid expansion of electronic communication and Electronically Stored Information (ESI), which quickly warranted the development of new methods to manage and analyze electronic data in legal proceedings. The pivotal moment for the formal recognition of e-discovery in the United States came in 2006, when the Federal Rules of Civil Procedure (FRCP) were amended to specifically address e-discovery.⁷⁹ These amendments acknowledged the growing importance of electronic evidence in litigation and provided guidelines for the discovery process involving ESI.⁸⁰

Early e-discovery systems, like their predecessors in the legal research space, relied solely on Boolean logic for keyword searching.⁸¹ Once again, keyword searching lacked some important features. In the vast sea of electronic evidence, often in the form of millions of emails, searching for relevant information often required many junior lawyers to be paid for document review. It was a low-level legal task but one that was incredibly time-consuming and expensive for law firms.

In 2012, Technology-Assisted Review (TAR) was first recognized as an appropriate method of review in *Da Silva Moore v. Publicis Groupe*.⁸²

77. A survey of 300 hiring partners and senior associates who supervise new attorneys found that 95% “believe recently graduated law students lack key practical skills at the time of hiring.” *White Paper: Hiring Partners Reveal New Attorney Readiness for Real World Practice*, LEXISNEXIS 1,1 (2015), https://www.lexisnexis.com/documents/pdf/20150325064926_large.pdf?srltid=AfmBOoruYqPTevr0JzlsrM-OreJ-ZV_ID8Tbiyavcpk85KdCSr3JG0lu [https://perma.cc/EHZ5-Y86L].

78. E-discovery is the process of collecting, analyzing, and producing electronic information during litigation and investigations. See *What is the eDiscovery Process?*, CASEPOINT, <https://www.casepoint.com/resources/spotlight/everything-you-need-to-know-about-e-discovery/> [https://perma.cc/AT5M-HMN7].

79. The FRCP amendments redefined the scope of discoverable material by adding the phrase “electronically stored information” to Rules 26(a)(1), 33, and 34. See *E-Discovery Amendments to the Federal Rules of Civil Procedure Go Into Effect Today*, K&L GATES (Dec. 1, 2006), <https://www.ediscoverylaw.com/2006/12/01/e-discovery-amendments-to-the-federal-rules-of-civil-procedure-go-into-effect-today/> [https://perma.cc/UR6B-A4QY].

80. Amendments to Rule 26(b)(2) mandated that producing parties need not produce ESI from sources that are not “reasonably accessible” because of undue burden or expense. Rule 37(f) creates a “safe harbor” limit for sanctions where ESI is lost through the routine, good-faith operation of computer systems. FED. R. CIV. P. 26(b)(2), FED. R. CIV. P. 37(f). See *E-Discovery Amendments to the Federal Rules of Civil Procedure Go Into Effect Today*, supra note 79.

81. See generally FindLaw Attorney Writers, *eDiscovery Processing: Searching*, FINDLAW (June 20, 2016), <https://www.findlaw.com/legal/technology/ediscovery-guide/pro-cessing-searching.html> [https://perma.cc/ZPM2-3ZF9].

82. *Da Silva Moore v. Publicis Groupe*, 868 F. Supp. 2d 137 (S.D.N.Y. 2012).

TAR quickly gained acceptance in law practice, establishing it as an efficient and effective tool for handling large volumes of data in e-discovery. TAR uses predictive coding, a form of machine learning that automates many tasks in the e-discovery process, such as document extraction and categorization.⁸³ Predictive coding employs algorithms to categorize documents based on a training set coded by humans.⁸⁴ Over time, the algorithm learns from the training set to make increasingly accurate predictions about the relevance of new documents.⁸⁵ This process helps streamline the review of large datasets by prioritizing relevant documents.⁸⁶ TAR is another example of balancing human and machine interaction to improve efficiency and accuracy in law practice.

Another AI-driven innovation offers a window into the transformation of the delivery of legal services. Data analytics introduced “evidence-based decision-making,”⁸⁷ disrupting how lawyers approach legal strategy, track court dockets, and build and understand their client base. Data analytics is a field of computer science that leverages data science techniques to extract insights from data.⁸⁸ By analyzing historical legal data, machine learning algorithms can predict potential outcomes of current legal matters.⁸⁹ Legal data ranges from court cases, dockets, and filings to business transactions and legal market trends. The legal profession was initially slow to accept this new technology, but the growth of available electronic data about legal matters and increases in computing power and capacity contributed to the rise of data-driven decision-making in law practice.⁹⁰ Different types of legal data analytics

83. *How to make the e-discovery process more efficient with predictive coding*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/insights/articles/how-predictive-coding-makes-e-discovery-more-efficient> [<https://perma.cc/WVA2-Z492>] (last visited Mar. 1, 2025).

84. *Id.*

85. *See id.*

86. *See* Maura R. Grossman & Gordon V. Cormack, *Technology-Assisted Review in E-Discovery Can Be More Effective and More Efficient than Exhaustive Manual Review*, 17 RICH. J.L. & TECH. 1, 8 (2011).

87. Data analytics plays an instrumental role in evidence-based decision making, and this is demonstrated in multiple steps in the decision-making process. *See Data Analytics for Evidence-based Decision-making emphasizes the importance data-driven insights in shaping policies, enabling informed decisions that effectively address societal needs.*, TECH. INNOVATORS, <https://www.technology-innovators.com/data-analytics-for-evidence-based-policy-making-and-decision-making/> [<https://perma.cc/4YSK-TWUP>].

88. Stephen Eldridge, *data analysis*, BRITANNICA (last updated Mar. 14, 2025), <https://www.britannica.com/science/data-analysis> [<https://perma.cc/FCG5-KKZL>].

89. *See* Katz, *supra* note 75, at 939–40.

90. ED WALTERS, *DATA-DRIVEN LAW: DATA ANALYTICS AND THE NEW LEGAL SERVICES* 1–10 (2018).

serve various purposes, and they fit broadly into two main categories: “practice of law” analytics and “business of law” analytics.⁹¹

The most widely used law practice analytics are litigation analytics, focusing on understanding patterns and trends in litigation.⁹² It involves analyzing historical court data to predict outcomes of current cases, understand judicial behavior, and identify trends in case law.⁹³ Lawyers use these insights to develop legal strategies, anticipate potential challenges in cases, and advise clients more effectively. Subcategories of litigation analytics include data on courts, judges, law firms, and attorneys.⁹⁴

The myriad of information from different branches of government serving as the foundation of litigation data reflects the complexity of the U.S. legal information ecosystem. This complexity arises from the multifaceted nature of legal issues and sources of law. Each facet of data offers unique insights. Together, they provide a comprehensive view of the legal landscape, allowing practitioners to draw nuanced conclusions and craft more informed legal strategies. Case law, court records and dockets, regulatory information, and public records all contribute to the data sets that make up litigation analytics.⁹⁵

Lawyers need to be aware of the inherent problems with government data. Data issues can be traced back to a lack of funding as well as a failure to prioritize innovations in the government’s technology infrastructure.⁹⁶ For example, PACER and state court dockets and these systems are far from perfect. Typos and mistakes in Nature of Suit (NOS) codes are quite common in PACER, and state docket systems are even more challenging.⁹⁷ Further complicating PACER data issues, the federal courts’ Case Management/Electronic Case Files (CM/ECF) database is

91. Kara Wen, *What Are the Different Types of Legal Data Analytics?*, SIMPLELEGAL (Feb. 22, 2022), <https://www.simplelegal.com/blog/legal-data-analytics> [<https://perma.cc/5KTD-MZ65>].

92. Lyle Moran, *Nearly 70% of law firm professionals use legal analytics*, LEGAL DIVE (Feb. 7, 2024), <https://www.legaldive.com/news/legal-analytics-trends-law-firms-lex-machina-lexisnexis/706900/> [<https://perma.cc/8BX4-CHF8>].

93. *Litigation Analytics: The Types of Data You Need in Court*, LEXISNEXIS (Apr. 3, 2023), <https://www.lexisnexis.com/community/insights/legal/b/thought-leadership/posts/taking-analytics-to-court> [<https://perma.cc/ZN2X-DWTD>].

94. *Id.*

95. *Id.*

96. See Nascio and EY US study reveals majority of states lack data quality programs to support GenAI-ready data, EY (Sept. 10, 2024), https://www.ey.com/en_us/newsroom/2024/09/nascio-and-ey-us-study-reveals-majority-of-states-lack-data-quality [<https://perma.cc/5R6D-TYHJ>].

97. *Data in the Court: Judicial Analytics in Practice*, HARV. L. SCH. CTR. ON LEGAL PRO., <https://clp.law.harvard.edu/knowledge-hub/magazine/issues/judicial-decision-making/data-in-the-court/> [<https://perma.cc/38SA-9WN9>].

integrated with PACER.⁹⁸ Attorneys use the ECF to upload information and documents related to their cases before some of the federal courts, but not all. Attorneys may introduce mistakes unintentionally. One well-known issue occurs when an attorney changes firms and attempts to update their integrated ECF and PACER login information. If the attorney fails to follow one of the complex steps in the update process, the system will change the name of the attorney's law firm not only for cases going forward but also for all the attorney's prior cases.⁹⁹ A significant challenge in deploying legal analytics tools is the need for transparency and accountability in the underlying data used to create the predictions. Lawyers and their clients need to understand how the model arrived at a prediction to trust and effectively use it.

The second broad category of legal data analytics focuses on the business of legal practice. It involves using external (legal industry) and internal (firm or in-house) data to identify new market opportunities, better understand client needs, and tailor legal services to meet those needs. This area of legal data analytics includes analyzing industry trends, client histories, and competitor activities to inform business strategies. Law firms can use this data to target marketing efforts more effectively, develop new service offerings, and improve client relationships.

Each category of legal data analytics has its own set of tools and methodologies. The common thread among them is the use of advanced artificial intelligence data analysis techniques, including machine learning and natural language processing, to extract meaningful insights from large volumes of legal data. This not only helps in making more informed decisions but also enhances the efficiency and effectiveness of legal practice and delivery of legal services. In fact, legal data analytics tools are “expanding our understanding of what it means to conduct legal research—that legal research is not just about cases and statutes; it’s about gaining insights into the judges and lawyers and parties involved in a matter and how we adapt those cases and statutes and our own strategies based on those insights that we’ve gained”¹⁰⁰

Yet another example of our expanded understanding of legal research comes in the form of document automation. The integration of AI-based

98. *Electronic Filing (CM/ECF)*, U.S. Cts., <https://www.uscourts.gov/court-records/electronic-filing-cmecf> [<https://perma.cc/JD42-2HDM>].

99. According to one attorney, PACER attributes this to user error. “However, it has happened in thousands of cases, and if everyone is making the same mistakes, it’s not user error.” Terri Williams, *Out of Pace With Reality? PACER’s Flaws Run Counter to Original Purpose of Increasing Access to Law*, ABA J. (Apr. 30, 2020, 8:00 AM), <https://www.abajournal.com/web/article/out-of-pace-with-reality-pacer> [<https://perma.cc/4X2K-PU89>].

100. The Practice, *Data in the Court*, HARV. L. SCH. CTR. ON THE LEGAL PRO. (Mar/Apr. 2022), <https://clp.law.harvard.edu/knowledge-hub/magazine/issues/judicial-decision-making/data-in-the-court/> [<https://perma.cc/NK5D-62Z5>] (quoting Robert Ambrogi, legal tech journalist and media lawyer, author of the LawSites blog and creator of the LawNext podcast).

machine learning in legal document automation is transforming how complex legal documents are created, reviewed, and managed. This is another example of technology innovations leading to increased efficiency, accuracy, and cost savings for lawyers and their clients. Document automation is particularly useful for high-volume document production, for example in contract management, due diligence, and regulatory compliance reporting.¹⁰¹ These tools are typically in the form of an AI-assistant that generates first drafts of documents, thus reducing the time spent on drafting and editing tasks. Presently, this AI-assistant operates behind the scenes on both Westlaw and Lexis, but generative AI chatbots have the potential to turn this process into a more personalized human/machine interaction.

II. A FRAMEWORK FOR INCORPORATING TECHNOLOGY

Part Two presents a legal education framework for incorporating technology-driven lawyering skills. The framework builds on the foundation created by influential legal education reform efforts. From the MacCrate and Carnegie Reports to *Principles for Legal Education and Licensure in the 21st Century*¹⁰² and the professional identity formation movement, these calls for reform deserve renewed attention in the age of artificial intelligence.¹⁰³ This framework also draws inspiration from information and library science scholars and information professionals.¹⁰⁴ Their research on twenty-first-century information

101. Knowledge Team, *AI and Document Automation for Lawyers*, PAGELIGHTPRIME (Oct. 10, 2023), <https://www.pagelightprime.com/blogs/ai-document-automation-lawyers> [https://perma.cc/52DL-AJYY].

102. The Commission calls for collective action and systemic change in legal education and licensure. It recommends re-envisioning legal education models, rethinking law school accreditation, implementing targeted licensure, updating the bar exam, and addressing access to justice issues. See generally *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 1.

103. See generally PATRICK EMERY LONGAN ET AL., *THE FORMATION OF PROFESSIONAL IDENTITY: THE PATH FROM STUDENT TO LAWYER* (2020); see generally NEIL W. HAMILTON & LOUIS D. BILIONIS, *LAW STUDENT PROFESSIONAL DEVELOPMENT AND FORMATION: BRIDGING LAW SCHOOL, STUDENT, AND EMPLOYER GOALS* (2022).

104. In 2016, the Association of College and Research Libraries (ACRL) published the *Framework for Information Literacy for Higher Education* (Framework). The Framework was created in response to the evolving higher education landscape along with the dynamic and unpredictable nature of the information ecosystem in our society. *Framework for Information Literacy for Higher Education*, ASS'N COLL. & RSCH. LIBRS. (Jan. 11, 2016), <https://www.ala.org/acrl/standards/ilframework> [https://perma.cc/9F6D-XQ43]. Digital literacy skills are not generally taught in law school outside of legal research, writing, and technology courses, but these are key skills that successful lawyers in the age of artificial intelligence need to possess. The American Library Association (ALA) Digital Literacy Task Force defines digital literacy as “the ability to use information and communication technologies to find, evaluate,

literacy is particularly relevant to legal educators given the rapidly evolving nature of our legal information and technology infrastructure.¹⁰⁵ Too often, law schools and legal employers rely on the myth that digital natives have an inherent advantage in comprehending and utilizing the latest legal technology tools.¹⁰⁶ Applying this skill to AI-generated content is another step in what learning sciences researchers have defined as metaliteracy.¹⁰⁷

The framework presented here is intended to empower legal educators and law students to become proficient in using the wide variety of available legal technology tools. Law schools with sufficiently funded law libraries provide academic versions of Westlaw and LexisNexis for their students and faculty. While law school faculty and students are generally familiar with the legal research functions of these powerful technology platforms, many academic users are unaware of the included AI-enhanced technology tools discussed in Part One.¹⁰⁸ Further, academic users often rely only on either Westlaw or LexisNexis and end up missing the wide array of legal research and technology tools that academic law libraries provide.¹⁰⁹ Bloomberg Law, a more recent

create, and communicate information, requiring both cognitive and technical skills.” *Digital Literacy*, AM. LIBR. ASS’N, <https://www.ala.org/pla/initiatives/digitalliteracy> [<https://perma.cc/ACW2-HYW6>].

105. Framework draws significantly upon the concept of metaliteracy, which offers a renewed vision of information literacy as an overarching set of abilities in which students are consumers and creators of information who can participate successfully in collaborative spaces. Metaliteracy demands behavioral, affective, cognitive, and metacognitive engagement with the information ecosystem.

106. Haight, *supra* note 24, at 193–94; see JOHN PALFREY & URS GASSER, *BORN DIGITAL: HOW CHILDREN GROW UP IN A DIGITAL AGE* 168 (2016).

107. “The concept of metaliteracy expands the scope of traditional information skills (determine, access, locate, understand, produce, and use information) to include the collaborative production and sharing of information in participatory digital environments (collaborate, produce, and share). This approach requires an ongoing adaptation to emerging technologies and an understanding of the critical thinking and reflection required to engage in these spaces as producers, collaborators, and distributors.” THOMAS P. MACKAY & TRUDI E. JACOBSON, *METALITERACY: REINVENTING INFORMATION LITERACY TO EMPOWER LEARNERS* 2–3 (2014).

108. Law students generally adopt a preference for either Westlaw or Lexis based on their first-year research and writing experience. If they do not enroll in an elective upper-level research course or join a law journal, students generally miss all the other research tools available to them. Law librarians who serve as account administrators for law school electronic subscriptions have access to usage statistics for Westlaw, Lexis, and other legal technology platforms. The usage statistics vary in both accuracy and completeness depending on what the vendor is willing to provide. See generally *infra* note 109.

109. Robert Ambrogi, *Which Legal Research Service Do Law Students Prefer? The Answer May Surprise You*, LAW SITES (Nov. 13, 2019), <https://www.lawnext.com/2019/11/which-legal-research-service-do-law-students-prefer-the-answer-may-surprise-you.html> [<https://perma.cc/P9SE-8S7K>] (discussing how people in academia have a legal research tool preference and the reasoning for that preference, which generally prompts academics to exclude other legal research tools during research).

competitor of Westlaw and LexisNexis, is provided by many academic law libraries, but that extra access often depends on the law library's budget and the specialized focus of a particular law school. Many of the other research tools provided in law schools are particularly useful in specialized legal practice, including Bloomberg Law and Wolters Kluwer VitalLaw.¹¹⁰

As legal educators, our own outlook on emerging technologies can significantly influence how our students perceive and engage with legal technology tools.¹¹¹ Whether a specific technology tool is a formal part of a faculty member's classroom instruction or not, a holistic approach to technology-driven lawyering skills helps our students understand the importance and inevitability of technology in law practice. As described below, this approach can also empower our students to embrace the practice of lifelong learning. Demonstrating a collaborative and innovative approach to teaching technology-driven lawyering skills sends a powerful message to our students.

One real-world example of the importance of collaboration and innovation comes from the corporate legal marketplace. Recent legal scholarship and multiple surveys reveal that corporate clients value three things in their in-house counsel and the firms they hire: (1) a commitment to diversity, equity, and inclusion (DE&I), (2) collaboration, and (3) innovation.¹¹² Corporations are looking to their lawyers to collaborate with outside partners including technologists, engineers, and data scientists, and they are demanding that the lawyers themselves become proficient with technology and provide technology recommendations to their corporate clients.¹¹³ Empirical studies have shown that law firms prioritizing collaboration and innovation have higher profit margins and retain legal talent at higher rates than firms resistant to those changes.¹¹⁴

110. See *About Wolters Kluwer Legal & Regulatory U.S.*, WOLTERS KLUWER, <https://www.wolterskluwer.com/en/solutions/legal-regulatory/about-us> [https://perma.cc/2SJ7-2H7N] ("we're your single source for specialized information, practical solutions, and subject matter expertise").

111. Ambrogio, *supra* note 109.

112. Michele DeStefano, *Chicken or Egg: Diversity and Innovation in the Corporate Legal Marketplace*, 91 FORDHAM L. REV. 1209, 1215–25 (2023). See DEBORAH L. RHODE, *THE TROUBLE WITH LAWYERS* 60–86 (2015); *Wolters Kluwer's Future Ready Lawyer Survey: industry embraces generative AI, but is not yet very prepared for ESG demands*, *supra* note 21.

113. DeStefano, *supra* note 112, at 1222. "This is especially true of legal departments in multinational companies (MNCs) for which joining the digital transformation has become an enterprise-wide imperative. Clients need in-house and firm lawyers that are proactive co-collaborators who find opportunities and help lead and manage teams to innovate and offer integrated solutions...."

114. Heidi K. Gardner & Ivan Matviak, *Implementing a Smart Collaboration Strategy, Part 1: Building the Case for Change*, HARV. L. SCH. CTR. ON LEGAL PRO. 1, 2 (June 2020), https://clp.law.harvard.edu/wp-content/uploads/2022/10/Gardner-Matviak_Implementing-a-Smart-Collab-Strategy_Part-1.pdf [https://perma.cc/DJ8H-GS9K].

Finally, several recent studies show that “the call for innovation and collaboration is inextricably intertwined with the call for DE&I—research demonstrates that when diverse teams collaborate, they are more creative, better at problem-solving, and better at innovation.”¹¹⁵

A. *Calls for Change in Legal Education*

In recent decades, legal education reforms have focused attention on the importance of integrating skills instruction throughout the law school curriculum. Published in 1992, the report of the ABA Task Force on Law Schools and the Legal Profession, now widely known as the MacCrate Report, highlighted the divide between existing legal education and the realities of the practice of law.¹¹⁶ The MacCrate Report urged law schools to place greater emphasis on practical skills and ethics training, and it enumerated ten “Fundamental Lawyering Skills” that are “essential for competent representation.”¹¹⁷ The first skill set on the list is problem-solving, which includes: “(1) Identifying and diagnosing the Problem; (2) Generating Alternative Solutions and Strategies; (3) Developing a plan of action; (4) Implementing the plan; and (5) Keeping the planning process open to new information and new ideas.”¹¹⁸ Although the MacCrate Report predated most of the current legal technology tools, the problem-solving skills are easily translated to modern technological challenges in legal education and law practice. Law students need instruction and experience with these tools to understand the capabilities and limitations of generative AI, apply critical thinking to interpret AI-generated information, and adapt legal strategies based on new insights provided by AI technology tools.

In 2007, the Carnegie Report, formally titled *Educating Lawyers: Preparation for the Profession of Law*, provided a comprehensive assessment of the state of legal education in the United States and offered recommendations for reimagining the legal education through the lens of civic professionalism.¹¹⁹ The Carnegie Report’s three apprenticeships—the cognitive apprenticeship focusing on legal knowledge and analytical

115. “[S]tudies report that companies that outperform in DE&I have higher rates of innovation and almost 20 percent higher revenues as a result [of] innovation.” DeStefano, *supra* note 112, at 1228 (citing WORLD ECON. DIVERSITY, EQUITY, AND INCLUSION 4.0 (2020), <https://www.weforum.org/publications/diversity-equity-and-inclusion-4-0-a-toolkit-for-leaders-to-accelerate-social-progress-in-the-future-of-work/> [<https://perma.cc/32GR-QNZ5>]).

116. AM. BAR ASS’N, LEGAL EDUCATION AND PROFESSIONAL DEVELOPMENT—EDUCATIONAL CONTINUUM: REPORT OF THE TASK FORCE ON LAW SCHOOLS AND THE PROFESSION: NARROWING THE GAP 135 (1992).

117. *Id.* at 138–40.

118. *Id.* at 138.

119. See generally WILLIAM M. SULLIVAN ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW (2007) [hereinafter CARNEGIE REPORT].

skills,¹²⁰ the apprenticeship of practical skills,¹²¹ and the apprenticeship of professional identity¹²²—provided a blueprint for renewing legal education with a goal of bridging the gap between the existing model of legal education and the competencies legal employers and clients ultimately expect from new lawyers. In fact, the appeal for an integrated approach to education in law schools is the first recommendation of the Carnegie Report.¹²³ According to the Carnegie Report’s authors:

The dramatic results of the first year of law school’s emphasis on well-honed skills of legal analysis should be matched by similarly strong skill in serving clients and a solid ethical grounding. If legal education were serious about such a goal, it would require a bolder, more integrated approach that would build on its strengths and address its most serious limitations. In pursuing such a goal, law schools could also benefit from the approaches used in education of physicians, teachers, nurses, engineers and clergy, as well as from research on learning.¹²⁴

Building on these influential reform efforts, the professional identity formation (PIF) movement, a collective effort by leading legal scholars, also calls for a holistic approach that integrates ethical and professional development into the law school curriculum.¹²⁵ In their recent book, *Law Student Professional Development and Formation: Bridging Law School, Student, and Employer Goals*, Neil Hamilton and Louis Bilionis offer law faculty, staff, and administrators a blueprint for incorporating four foundational professional identity formation goals into learning outcomes:¹²⁶

120. *Id.* at 47–86.

121. *Id.* at 87–125.

122. *Id.* at 126–61.

123. “To build on their strengths and address their shortcomings, law schools should offer an integrated, three-part curriculum: (1) the teaching of legal doctrine and analysis, which provides the basis for professional growth; (2) introduction to the several facets of practice included under the rubric of lawyering, leading to acting with responsibility for clients; and (3) exploration and assumption of the identity, values and dispositions consonant with the fundamental purposes of the legal profession. Integrating the three parts of legal education would better prepare students for the varied demands of professional legal work.” William M. Sullivan et al., *Summary, Educating Lawyers: Preparation for the Profession of Law*, THE CARNEGIE FOUND. FOR THE ADVANCEMENT OF TEACHING, 1, 8 (2007), http://archive.carnegiefoundation.org/publications/pdfs/elibrary/elibrary_pdf_632.pdf [<https://perma.cc/99XB-UTKL>].

124. *Id.* at 4.

125. See Benjamin V. Madison III, *Professional Identity and Professionalism*, 24 PROF. LAW. 1, 1–2 (2017), https://www.americanbar.org/content/dam/aba/publications/professional_lawyer/24-3/professional-identity-and-professionalism.pdf [<https://perma.cc/H9WY-HYX7>].

126. NEIL W. HAMILTON & LOUIS D. BILIONIS, *LAW STUDENT PROFESSIONAL DEVELOPMENT AND FORMATION: BRIDGING LAW SCHOOL, STUDENT, AND EMPLOYER GOALS* 1–2 (2022).

- (1) ownership of continuous professional development toward excellence at the major competencies that clients, employers, and the legal system need;
- (2) a deep responsibility and service orientation to others, especially the client;
- (3) a client-centered problem-solving approach and good judgment that ground each student's responsibility and service to the client; and
- (4) well-being practices.¹²⁷

From the 2007 Carnegie Report to the later professional identity formation movement, the imperative is the same: break down the skills-doctrine divide in law school pedagogy, thereby improving student learning outcomes and better preparing students for the competencies they will need to thrive in the legal profession.

However, professional identity formation differs from the traditional law school professional responsibility curriculum.¹²⁸ The professional identity formation movement emphasizes a holistic approach to teaching practical skills, building professional competencies, encouraging self-regulated learning, and emphasizing personal well-being.

Further strengthening the push for professional development and formation goals, the ABA recently approved changes to Standard 303 that require law schools to “provide substantial opportunities” each year for professional identity development.¹²⁹ Interpretation 303-5 further explains that professional identity development “requires reflection and growth over time....”¹³⁰ Thus, a “variety of courses and co-curricular and professional development activities” should be provided to help law students achieve this goal.¹³¹ While changes in the ABA Standards over the years have not necessarily transformed law school curricula, several factors, including the rapid growth of artificial intelligence-enhanced legal technology tools may favor the professional identity formation

127. *Id.*

128. *Professional Identity Formation*, LSAC 1, 1 (2023), https://www.lsac.org/sites/default/files/media/Professional-Identity-Formation_Solution-Sheet.pdf [https://perma.cc/RH V7-UUBY].

129. The revised standard states: “A law school shall provide substantial opportunities to students for: (1) law clinics or field placement(s); (2) student participation in pro bono legal services, including law-related public service activities; and (3) the development of a professional identity. *Chapter 3: Program of Legal Education*, AM. BAR ASS'N 17, 18 (2023), https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/standards/2023-2024/23-24-standards-ch3.pdf [https://perma.cc/8LHP-4AW6] (citing section 303(b)).

130. *Id.* at 19.

131. *Id.*

movement. While there is no ABA mandate for credit-bearing professional identity formation courses, several law schools have created innovative programs in this area.¹³²

In *Principles for Legal Education and Licensure in the 21st Century*, the ABA Commission on the Future of Legal Education emphasizes the need for significant reform in legal education and licensure in the United States.¹³³ The report outlines a critical disconnect between current legal education and the evolving needs of legal service delivery. Key issues include the high cost and one-size-fits-all model of legal education, outdated licensure models, and the effect of technology.¹³⁴ The report advocates for changes based on “foundational principles” that include stewardship, inquiry, access, service, inclusivity, and adaptability.¹³⁵ It also outlines “operational principles” to guide reform, including focusing on value, problem-solving, leveraging technology, and promoting well-being in the legal profession.¹³⁶ The framework introduced below will build on the principles articulated by these influential calls for legal education reform.

B. A Framework for 21st Century Competencies

The framework described below consists of four competencies that law students and legal professionals need to develop when they encounter new legal technology tools. First, lawyers need to exercise professional judgment in the context of legal technology. This includes ensuring effective human supervision of technology and managing change. Second, lawyers need a collaborative, problem-solving focus. They must develop expertise with legal technology tools including a real-world, collaborative approach to solving technology problems. Third, lawyers need to commit to ongoing professional development—a lifelong learning approach to legal technology as integral to the practice of law. Fourth, lawyers must have a service orientation that includes a client-centered approach to technology, and a commitment to improving access to the law and the legal system through technology.

132. The national leader in the professional identity formation movement is the Holloran Center for Ethical Leadership in the Professions at the University of St. Thomas School of Law. University of St. Thomas School of Law, *Holloran Center for Ethical Leadership in the Professions*, <https://law.stthomas.edu/about/centers-institutes/holloran-center/> [https://perma.cc/QC34-VA2T]; University of Richmond School of Law, *Professional Identity Formation Program*, <https://law.richmond.edu/academics/centers/pif/index.html> [https://perma.cc/E7MQ-GYEJ].

133. See *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 3.

134. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 4.

135. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 6.

136. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 6.

1. Professional Judgment

Professional judgment for lawyers includes the application of specialized knowledge, skills, and ethical considerations in making decisions that are in the best interest of clients and society.¹³⁷ Professional judgment in the context of legal technology involves understanding how technology impacts the lawyer's decision-making process; ensuring effective and expert human supervision of legal technology tools; and balancing ethical considerations in making decisions that are in the best interests of clients.¹³⁸ As increasingly sophisticated legal technology tools become more integral to legal education and law practice, this competency is particularly important.

In 2012, the ABA amended Comment 8 to Rule 1.1 of the *Model Rules of Professional Conduct* (MRPC) to include a provision on technological competence.¹³⁹ This change requires lawyers to stay informed about the benefits and risks associated with relevant technology in the practice of law. Although the specific requirements vary by state, the *Model Rules of Professional Conduct* obligate lawyers to maintain a high level of technical literacy to practice effectively in today's shifting legal technology landscape.¹⁴⁰ Forty states have included some version of the MRPC duty of technology competence.¹⁴¹

Naturally, the use of emerging technologies in law practice will raise new ethical considerations. Lawyers must exercise judgment in ensuring client confidentiality while using generative AI tools. They need to understand the security protocols of their technology tools and assess the

137. *Model Rules of Professional Conduct: Preamble & Scope*, AM. BAR ASS'N, https://www.americanbar.org/groups/professional_responsibility/publications/model_rules_of_professional_conduct/model_rules_of_professional_conduct_preamble_scope/ [https://perma.cc/4Y84-RGUA].

138. Hilary Gerzhoy et al., *AI and Legal Ethics: What Lawyers Need to Know*, LEXISNEXIS PRACTICAL GUIDANCE (last updated Mar 3, 2025), <https://advance.lexis.com/document/lpadocument?crid=d233052a-79e7-43ab-afd6-24568231f65e&pddocfullpath=%2Fshared%2Fdocument%2Fanalytical-materials%2Furn%3AcontentItem%3A681W-MT71-JB7K-22H8-00000-00&pdsourcetypegroupingtype=&pdcontentcomponentid=500749&pdmfid=1000522&pdisurlapi=true> [https://perma.cc/PRM4-FXHH].

139. *Rule 1.1 Competence – Comment*, AM. BAR ASS'N, https://www.americanbar.org/groups/professional_responsibility/publications/model_rules_of_professional_conduct/rule_1_1_competence/comment_on_rule_1_1/ [https://perma.cc/EPM6-QFNF] (“To maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, including the benefits and risks associated with relevant technology, engage in continuing study and education and comply with all continuing legal education requirements to which the lawyer is subject.”).

140. Tad Simons, *For a Lawyer, What Does “Technology Competence” Really Mean?*, THOMSON REUTERS (Apr. 20, 2018), <https://www.thomsonreuters.com/en-us/posts/legal/lawyers-technological-competence/> [https://perma.cc/YD57-RC2V].

141. Robert Ambrogio, *Tech Competence*, LAW SITES, <https://www.lawnext.com/tech-competence> [https://perma.cc/AF5P-EZNX].

risks associated with electronic communication and data storage. A 2012 amendment to the comments of MRPC Rule 1.6, “Confidentiality of Information,” introduced ethical obligations for attorneys in the context of legal technology and cybersecurity.¹⁴² Attorneys “should take reasonable measures and act competently so that the confidential and/or privileged client information will not be revealed to unintended third parties.”¹⁴³ Amendments to the comments of Rule 1.1 and Rule 1.6 were part of the recommendations from the ABA Commission on Ethics 20/20 regarding technology and confidentiality.¹⁴⁴

Open AI’s ChatGPT launched in November 2022, and the shock waves are still reverberating.¹⁴⁵ ChatGPT is a large language model (LLM)¹⁴⁶ made easily accessible online in the form of a “conversational chatbot . . . that can take directions in natural language and produce human-quality responses . . . on a wide range of topics.”¹⁴⁷ LLMs like ChatGPT and its chatbot competitors Google Gemini, Microsoft CoPilot, and Claude have been trained on freely available internet content using machine learning techniques.¹⁴⁸ Legal information sources from

142. *Formal Opinion 477*, A.B.A. STANDING COMM. ON ETHICS AND PRO. RESP. 1, 3–5 (May 11, 2017), <https://docs.tbpr.org/pub/aba%20formal%20opinion%20477.authcheckdam.pdf> [<https://perma.cc/4LLE-TRFK>] (interpreting MRPC Rule 1.6 Amended Comment 18, and providing guidance for complying with this rule when using new technology in legal practice).

143. *Rule 1.6: Confidentiality of Information*, AM. BAR ASS’N, https://www.americanbar.org/groups/professional_responsibility/publications/model_rules_of_professional_conduct/rule_1_6_confidentiality_of_information/ [<https://perma.cc/U9L3-M9M2>].

144. See David G. Ries, *Cybersecurity for Attorneys: The Ethics of Securing Your Virtual Practice*, AM. BAR ASS’N (Oct. 15, 2021), https://www.americanbar.org/groups/law_practice/resources/law-practice-today/2021/cybersecurity-for-attorneys-the-ethics-of-securing-your-virtual-practice/ [<https://perma.cc/225S-JNRL>].

145. Megan Morrone, *How ChatGPT changed the future*, AXIOS (Nov. 30, 2024), <https://www.axios.com/2024/11/30/chatgpt-open-ai-health-education-relationships> [<https://perma.cc/BZ3Z-CQZL>] (reflecting on how generative AI’s capabilities are still being explored, although it has had a widespread impact on society that is effecting multiple industries).

146. “OpenAI, the creator of ChatGPT, has been investing heavily in building large language models (LLMs) that combine the power of explanatory AI to understand an immense body of text and predictive AI to generate novel responses. You use LLM technology every day through the type-ahead suggestion feature in most email and texting applications or in your conversations with Alexa and Siri.” Matt Coatney, *Navigating the Legal Landscape of Generative Artificial Intelligence: The Risks and Opportunities of ChatGPT*, 49 LITIGATION J. 11 (Summer 2023), <https://www.americanbar.org/groups/litigation/resources/litigation-journal/2023-summer/navigating-legal-landscape-artificial-intelligence/> [<https://perma.cc/WYU2-MG89>].

147. *Id.*

148. “What makes generative AI different from more familiar algorithm-based machine learning (ML) technology is that it draws on enormous sources to almost instantaneously create seemingly new, task-appropriate rich content: essays, blog posts, poetry, designs, images, videos, and software code.” *Artificial Intelligence for Lawyers Explained*, BLOOMBERG L. (Aug. 1, 2023), <https://pro.bloomberglaw.com/brief/ai-in-legal-practice-explained/> [<https://perma.cc/QD3A-CYMN>].

reputable government sites were included in the corpus of internet content used to train the current LLMs.¹⁴⁹

There are two fundamental problems, however, for anyone hoping to conduct legal research on one of these LLMs. First, the data set (content scraped from free websites) includes more than just legal information sources, and much of that internet content is riddled with inaccuracies.¹⁵⁰ Second, ChatGPT is a “general-purpose language model not specifically trained to provide legal analysis or write [law school] exams.”¹⁵¹ The LLM was not specifically guided or corrected for each response it generated. Instead, the LLM was).¹⁵² “In RLHF, humans manually tag the best responses produced by an initial language model to improve its performance at specific tasks. Through these repeated machine-human interactions, ChatGPT was trained to engage in dialogue, be more truthful, and avoid inflammatory or offensive language.”¹⁵³

Finally, professional judgment is key to appropriate selection and use of any technology solution provided by a third-party vendor, including the most widely used integrated research platforms. The MRPC specifically state that lawyers have a duty to supervise junior lawyers and other employees who report to them.¹⁵⁴ Additionally, lawyers must appropriately select and supervise third party providers.¹⁵⁵ In the context of technology, this means that lawyers must appropriately select and manage their subscriptions to technology platforms. This failure of professional judgment was a key factor leading to Rule 11 sanctions for the attorneys in the June 2023 New York case, *Mata v. Avianca*.¹⁵⁶

149. Jinqi Lai et al., *Large language models in law: A survey*, 5 AI OPEN 181, 185 (2024), <https://www.sciencedirect.com/science/article/pii/S2666651024000172?via%3Dihub> [<https://perma.cc/2LYC-HXHL>] (explaining how “legal big data”, which includes court records and government files, are used to train LLMs for legal matters).

150. See generally *id.* at 188–89 (analyzing the defects in existing legal datasets, and the underlying factors contributing to those defects).

151. Jonathan H. Choi et al., *ChatGPT Goes to Law School*, 71 J. LEGAL EDUC. 387, 397 (2022).

152. “One step towards building safe AI systems is to remove the need for humans to write goal functions, since using a simple proxy for a complex goal, or getting the complex goal a bit wrong, can lead to undesirable and even dangerous behavior. In collaboration with DeepMind’s safety team, we’ve developed an algorithm which can infer what humans want by being told which of two proposed behaviors is better.” Dario Amodei et al., *Learning from human preferences*, OPENAI (June 13, 2017), <https://openai.com/research/learning-from-human-preferences> [<https://perma.cc/MTB7-CJR4>].

153. Choi et al., *supra* note 151, at 388.

154. MODEL RULES OF PRO. CONDUCT r. 5.1–5.3 (AM. BAR ASS’N 2020).

155. MODEL RULES OF PRO. CONDUCT r. 5.3 cmts. 1–4 (AM. BAR ASS’N 2020).

156. *Mata v. Avianca, Inc.*, 678 F. Supp. 3d 443, 456–57 (S.D.N.Y. 2023).

2. Collaborative Problem-Solving

Legal problem-solving generally refers to the ability to identify, analyze, and resolve complex legal issues effectively and efficiently.¹⁵⁷ Competency with legal problem-solving also means that a lawyer is proficient in applying the law in a way that addresses the specific needs and challenges of each client.¹⁵⁸ Law students need to develop this competency in the context of rapidly evolving legal technology since they will eventually be responsible for leveraging legal technology tools to improve delivery of legal services. Since technology is already transforming how legal work is done, lawyers must be adept at identifying and implementing technology-based solutions that enhance their ability to serve clients.

The legal education framework described here deliberately includes collaboration as essential to legal problem-solving. This competency responds to the call for future-ready lawyers to “develop exceptional problem-solving, legal reasoning, and communication skills for a multi-disciplinary, team-oriented world.”¹⁵⁹ Adapting to technological innovations requires lawyers to collaborate and not be siloed. We are the domain experts in law. But we are not generally experts in systems engineering, information technology, or artificial intelligence. Lawyers should cultivate effective collaboration with professionals from these fields and beyond; this is particularly important for lawyers in corporate settings and in specialized legal practice areas.

This kind of collaboration can provide innovative AI-driven solutions to complex legal problems. Generative AI chatbots are already in use in law firms around the country.¹⁶⁰ Most of these chatbots were created using OpenAI’s GPT-4 technology.¹⁶¹ Naturally, legal technology vendors are already in a race to offer generative AI solutions using this

157. See Elizabeth Beesley, *The Role of Creativity in Legal Problem-Solving*, ALLABOUTLAW.CO.UK (Apr. 12, 2024), <https://www.allaboutlaw.co.uk/school-leaver-law-careers/becoming-a-lawyer/the-role-of-creativity-in-legal-problem-solving> [https://perma.cc/N6LV-QVAS].

158. See *Rule 1.1 Competence – Comment*, *supra* note 139.

159. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 6.

160. Rhys Dipshan, *Forget ChatGPT — Law Firms Are Launching Their Own Gen AI Chatbots*, ALM LAW.COM (Sept. 7, 2023, 4:14 PM), <https://www.law.com/2023/09/07/forget-chatgpt-law-firms-are-launching-their-own-gen-ai-chatbots/> [https://perma.cc/A7TL-YGPU].

161. Law firms can create their own unique in-house chatbots using OpenAI’s API. OpenAI sells their Application Programming Interface (API). API is a set of rules and protocols for building and interacting with software applications. The API acts as a bridge between the law firm’s chatbot application and OpenAI’s advanced AI large language models like GPT-4. This leverages GPT-4’s natural language processing capabilities. See *The Most Powerful Platform for Building AI Products*, OPENAI, <https://openai.com/product> [https://perma.cc/9ER7-6SXX]; see also *Harvey: Harvey Partners with OpenAI to Build a Custom-Trained Model for Legal Professionals*, OPENAI, <https://openai.com/index/harvey/> [https://perma.cc/5W47-3BMF].

technology.¹⁶² Casetext launched its legal assistant CoCounsel using that platform in March 2023, and the company was acquired by Thomson Reuters in June. Law firms received access to the integrated CoCounsel product through Westlaw Precision in November 2023.¹⁶³

3. Commitment to Ongoing Professional Development

For law students learning to be lawyers, the current legal education model does little to encourage a personal commitment to lifelong learning. Law schools use a “one size fits all education model” that does not “do enough consistently to teach [students] to learn how to learn for a long career in a rapidly transforming world.”¹⁶⁴ The traditional focus on Socratic teaching methods, appellate case law, and a single formative assessment is a legacy of the nineteenth century. As two of my UNC Law faculty colleagues and their co-authors noted, “[t]oday, legal education faces a different set of challenges that requires a different set of solutions.”¹⁶⁵ Further, as empirical studies and practitioner surveys have regularly demonstrated, our current legal education model generally fails to prioritize technology competence.¹⁶⁶ Building on the first foundational goal of the professional identity formation movement in legal education, “ownership of continuous professional development” is a competency that is demonstrated when students engage in self-regulated learning.¹⁶⁷ Self-regulated learning is “an active and reflective process in which a learner monitors and controls their own learning to reach their ultimate

162. Patrick Austin, *LexisNexis and Westlaw Will Launch AI Legal Research Tools*, NAT'L BUS. INST., <https://nbi-sems.com/blogs/news/lexisnexis-and-westlaw-will-launch-ai-legal-research-tools> [<https://perma.cc/84K7-AQMG>] (last visited Mar. 7, 2025) (explaining the “arms race to achieve dominance in the AI legal research tools marketplace” between Lexis and Westlaw).

163. “Behind the scenes, the AI in Westlaw is using retrieval augmented generation (RAG). That means that it uses traditional research methods to pull relevant resources out of Westlaw, which it then sends to the large language model (LLM) to analyze and generate an answer. For its LLMs, [Thomson Reuters] is using a combination of Microsoft Azure OpenAI and a direct commercial API to OpenAI’s GPT-4. *Importantly, TR says no user data is being directly shared outside the TR environment.*” (emphasis added); Robert Ambrogi, *Major Thomas Reuters News: Westlaw Gets Generative AI Research Plus Integration with Casetext CoCounsel; Gen AI Coming Soon to Practical Law*, LAW SITES (Nov. 15, 2023), <https://www.lawnext.com/2023/11/major-thomson-reuters-news-westlaw> [<https://perma.cc/CY2H-Y9ZV>].

164. *Principles for Legal Education and Licensure in the 21st Century*, *supra* note 1, at 4.

165. Rachel Gurvich et al., *Reimagining Langdell’s Legacy: Puncturing the Equilibrium in Law School Pedagogy*, 101 N.C. L. REV. F. 118, 147 (2023).

166. See generally O’Leary, *supra* note 24; see also *Law School Preparedness Survey*, BLOOMBERG L., <https://pro.bloomberglaw.com/insights/law-school/law-school-preparedness-survey/> [<https://perma.cc/LZ74-YCQ9>] (finding that 8% of law students surveyed have taken a Legal Technology course and 21% have taken an Advanced Legal Research course).

167. NEIL W. HAMILTON & LOUIS D. BILIONIS, *LAW STUDENT PROFESSIONAL DEVELOPMENT AND FORMATION: BRIDGING LAW SCHOOL, STUDENT, AND EMPLOYER GOALS* 3 (2022).

learning objectives.”¹⁶⁸ It involves students taking an active role in their education, setting goals, employing strategies to meet these goals, and reflecting on their progress.¹⁶⁹ Reflection is a powerful component of self-regulated learning.¹⁷⁰ Opportunities to reflect on assignments with instructor-engaged feedback give students space to critically analyze their learning experiences, understand their strengths and weaknesses, and adapt their learning strategies accordingly.¹⁷¹

Further, encouraging law students to become competent at professional development can empower them to take ownership of their law school experience and their own well-being. As described above, well-being practices are included in the goals and associated learning outcomes of the professional identity formation movement.¹⁷² There is an abundance of empirical evidence that law students are at high risk for anxiety, depression, and substance abuse during their law school careers.¹⁷³ Both the 2014 and 2021 *Survey[s] of Law Student Well-Being* found that law students face significant mental health challenges, often exacerbated by the competitive and high-pressure environment of law school.¹⁷⁴ Empowering students to take ownership of their law school learning experience has benefits for their mental health as well as encouraging lifelong learning practices.¹⁷⁵ In this way, two professional formation goals come together to create a path to professional *and* personal well-being for future lawyers.

4. Service Orientation

Richard Susskind stresses the importance of legal information to the law and legal service:

Look at the law and legal services from another vantage point. At the heart of law and legal service is legal

168. Kelsey Urgo & Jaime Arguello, *Goal-setting in Support of Learning During Search: An Exploration of Learning Outcomes and Searcher Perceptions*, 60 INFO. PROCESSING & MGMT.: AN INT’L J., 1, 3 (2023).

169. *Id.* at 2.

170. *See id.*

171. *See* Neil W. Hamilton, *The Foundational Skill of Reflection in the Formation of a Professional Identity*, 12 ST. MARY’S J. ON LEGAL MALPRACTICE & ETHICS 1, 19 (2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3921251 [<https://perma.cc/FC2S-TYT4>].

172. HAMILTON & BILIONIS, *supra* note 167, at 2.

173. David Jaffe et al., “*It Is Okay to Not Be Okay*”: *The 2021 Survey of Law Student Well-Being*, 60 U. LOUISVILLE L. REV. 1, 3 (2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4127297# [<https://perma.cc/YW2P-ZRWZ>].

174. *See id.* at 22–28; *see* Jerome M. Organ, *Suffering in Silence: The Survey of Law Student Well-Being and the Reluctance of Law Students to Seek Help for Substance Use and Mental Health Concerns*, 66 J. LEGAL EDUC. 116, 136–40 (2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2839290 [<https://perma.cc/LUS6-Z8EJ>].

175. *Id.* at 150.

information (from raw law such as legislation through to deep expertise held in specialists' heads). Pause now and think about information. We are currently witnessing a change in the information substructure of society.¹⁷⁶

The Preamble of the Model Rules of Professional Conduct highlights a lawyer's duty as a public citizen: "a lawyer should seek improvement of the law, access to the legal system, the administration of justice and the quality of service rendered by the legal profession."¹⁷⁷ With appropriate human supervision and training, generative AI has great potential for bridging access to justice gaps.¹⁷⁸ Information technology and computer science experts have already begun to create a "intelligent conversation agent" that will provide legal advice and assistance.¹⁷⁹ In the context of legal technology, the domain experts are lawyers.¹⁸⁰ Thus, lawyers have an obligation to pursue improvements in legal technology tools and public access to legal information.

The 2022 Justice Gap Study, conducted by the Legal Services Corporation (LSC), provides data on the unmet legal needs of low-income Americans.¹⁸¹ According to the study, a staggering 92% of civil legal problems reported by low-income Americans did not receive adequate or any legal help.¹⁸² The most common legal needs were housing, healthcare, income maintenance, and consumer issues.¹⁸³ This significant gap highlights the vast disparity between the legal needs of low-income citizens and the resources available to meet those needs. The

176. SUSSKIND, *supra* note 9, at 263.

177. *Model Rules of Professional Conduct: Preamble & Scope* ¶ 6, AM. BAR ASS'N, https://www.americanbar.org/groups/professional_responsibility/publications/model_rules_of_professional_conduct/model_rules_of_professional_conduct_preamble_scope/?login [https://perma.cc/4Y84-RGUA] ("All lawyers should devote professional time and resources and use civic influence to ensure equal access to our system of justice for all those who because of economic or social barriers cannot afford or secure adequate legal counsel.").

178. Ashley Krenelka Chase & Sam Harden, *Through the AI-looking Glass and What Consumers Find There*, 29 J. TECH. L. & POL'Y 1, 13–16 (2025) (discussing the impact generative AI and other technologies can have on the American justice gap for indigent clients).

179. See Flora Amato et al., *An Intelligent Conversational Agent for the Legal Domain*, 14 INFO. 307, 307 (2023).

180. See Roland Vogl, *The Coming of Age of Legal Technology*, SLS (Sept. 26, 2016), <https://law.stanford.edu/2016/09/26/roland-vogl-the-coming-of-age-of-legal-technology/> [https://perma.cc/C965-PYYD].

181. *The Justice Gap: The Study*, LEGAL SERVS. CORP., <https://justicegap.lsc.gov/the-study/> [https://perma.cc/N8PN-T7ZH].

182. *The Justice Gap: Executive Summary*, *infra* note 183.

183. *The Justice Gap: Executive Summary*, LEGAL SERVS. CORP., <https://justicegap.lsc.gov/resource/executive-summary/> [https://perma.cc/K6SX-YKNL] (last visited Mar. 8, 2025) ("The study leverages LSC's 'intake census' conducted among LSC-funded legal aid organizations as well as a nationally representative survey of more than 5,000 adults conducted by NORC at the University of Chicago using its AmeriSpeak® Panel.").

MRPC Preamble emphasizes that lawyers “. . . should be mindful of deficiencies in the administration of justice and of the fact that the poor, and sometimes persons who are not poor, cannot afford adequate legal assistance.”¹⁸⁴

Despite efforts in individual states and municipalities to provide free broadband access, the digital divide persists across the United States.¹⁸⁵ Many households cannot afford internet access or computers.¹⁸⁶ Citizens with legal problems often end up at their local public libraries.¹⁸⁷ Public-access versions of Westlaw and Lexis are generally only available in adequately funded public law libraries. Thus, low-income Americans with unmet legal needs often conduct legal research on public library computers using free legal websites that may not include the most recent updates to the law.

In the age of artificial intelligence, legal information is data. Two multinational corporations, Thomson Reuters (Westlaw) and RELX (LexisNexis), have a powerful hold on the legal research and technology market.¹⁸⁸ Yes, digitized versions of our laws are freely available and searchable online, but free access does not translate to equal access.¹⁸⁹ Powerful legal research platforms that leverage artificial intelligence have revolutionized many areas of legal practice, but that access is cost-prohibitive for small firms, solo practitioners, nonprofits, and individual citizens attempting to handle their own legal matters.¹⁹⁰ As Chief Justice Roberts put it, those who can afford to pay for access conduct legal research in first class while citizens attempting to find and understand the law on free websites are stuck in economy class:

Imagine a Georgia citizen interested in learning his legal rights and duties. If he reads the economy-class version of the Georgia Code available online, he will see laws requiring political candidates to pay hefty qualification fees (with no

184. *Model Rules of Professional Conduct: Preamble & Scope* ¶ 6, *supra* note 177.

185. Rick Barrett, *The digital divide is not in just in rural America. In poorer urban neighborhoods, internet access remains elusive.*, MILWAUKEE J. SENTINEL (Dec. 8, 2021, 9:00 AM), <https://www.jsonline.com/in-depth/news/2021/12/08/millions-urban-households-cant-afford-decent-internet-service/8742282002/> [<https://perma.cc/4FSN-7QJ7>].

186. *See id.*

187. Public Library Association, *2020 Public Library Technology Survey Summary Report*, ALA 1, 8, 19 (2020), <https://www.ala.org/sites/default/files/pla/content/data/PLA-2020-Technology-Survey-Summary-Report.pdf> [<https://perma.cc/S5RT-CSUF>].

188. *Company History*, THOMSON REUTERS, <https://www.thomsonreuters.com/en/about-us/company-history.html> [<https://perma.cc/BQ29-ZZ4M>]; *Perspectives*, RELX, <https://www.relx.com/our-business/perspectives/types/story> [<https://perma.cc/EY85-NASY>].

189. *See* LAMDAN, *supra* note 71, at 74–93.

190. *Firms at Risk: Small Firms Lack Time and Cash to Spend on New Tech*, THE SOLIC. GRP. (June 29, 2022), <https://thesolicitorsgroup.co.uk/news/2022/firms-at-risk-small-firms-lack-time-and-cash-to-spend-on-new-tech> [<https://perma.cc/QS6A-A75K>].

indigency exception), criminalizing broad categories of consensual sexual conduct, and exempting certain key evidence in criminal trials from standard evidentiary limitations—with no hint that important aspects of those laws have been held unconstitutional by the Georgia Supreme Court. *See* OCGA §§ 21–2–131, 16–6–2, 16–6–18, 16–15–9 (available at www.legis.ga.gov). Meanwhile, first-class readers with access to the annotations will be assured that these laws are, in crucial respects, unenforceable relics that the legislature has not bothered to narrow or repeal¹⁹¹

The digitization of vast amounts of legal information has led to the creation of technology tools that have revolutionized legal research for those who can afford to pay for it, but that revolution has come at a cost that is too high for low-income and even middle-income Americans. Access to legal information is a cornerstone of access to justice in the United States.¹⁹² Free, open, and up-to-date access to judicial opinions, statutes, regulations, and other legal information empowers individual citizens, promotes fairness and transparency, and upholds the rule of law.¹⁹³ Accordingly, a lawyer’s obligation encompasses advocacy and service in the areas of legal information and legal technology.

III. 21ST CENTURY COMPETENCIES APPLIED IN LAW SCHOOL

Given the rapid rise of generative AI, early guidance for educators is limited. At the federal level, the U.S. Department of Education published *Artificial Intelligence and the Future of Teaching and Learning* in May 2023.¹⁹⁴ The report defines AI use in schools: “AI can be described as enabling two broad shifts from today’s use of technology in schools: (1) from capturing data to detecting patterns in data and (2) from providing access to instructional resources to automating decisions about teaching and learning processes.”¹⁹⁵

Key recommendations from this report include several insights that are broadly applicable. First, AI can enable new educational interactions and address variability in student learning.¹⁹⁶ This has important implications for supporting students with disabilities and students with

191. *Georgia v. Public.Resource.Org, Inc.*, 590 U.S. 255, 275–76 (2020).

192. *See* Chase & Harden, *supra* note 178, at 13–16.

193. *See generally id.*

194. *Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations*, U.S. DEP’T OF EDUC. OFF. OF TECH. 1, 1 (2023), <https://www.ed.gov/sites/ed/files/documents/ai-report/ai-report.pdf> [<https://perma.cc/Y3MK-Y7FS>].

195. *Handout: AI and the Future of Teaching and Learning*, U.S. DEP’T OF EDUC. OFF. OF TECH. 1, 1, <https://www.ed.gov/sites/ed/files/documents/ai-report/ai-report-core-messages.pdf> [<https://perma.cc/T5DM-926X>].

196. *Id.* at 2.

limited English language abilities.¹⁹⁷ Second, AI enhances the quality and quantity of feedback, provides resource suggestions to students, and supports educator involvement in development of AI tools.¹⁹⁸ Third, the report recognizes that AI can increase existing educational technology data privacy and security risks as well as introducing new risks of bias in data and automated decision-making.¹⁹⁹

As the report concludes: “We envision a technology-enhanced future more like an electric bike and less like robot vacuums. On an electric bike, the human is fully aware and fully in control, but their burden is less, and their effort is multiplied by a complementary technological enhancement.”²⁰⁰ Again, the call for educators is to embrace the potential of generative AI and other emerging technologies to complement the expertise we already have in our fields of study. We should encourage our students in the same regard.

Technology does not replace the human lawyer’s expertise and professional judgment, but it has enormous capacity to augment that expertise. Legal tech journalists and lawyers have already made the comparison to the medical profession, asserting that generative AI will allow lawyers to “work at the top of their license.”²⁰¹ Similarly, other lawyers suggest that AI will remove more mundane, time-consuming tasks from the daily routine and empower lawyers to make the most of their expertise in “provid[ing] the last mile of solution delivery.”²⁰²

A. How a Framework of 21st Century Competencies Narrows the Gap

Legal generative AI tools have the potential to transform the way all lawyers work in the future. In the near term, incorporating 21st century competencies into learning outcomes and a holistic approach to teaching technology-driven lawyering skills can greatly improve our students’ learning experience and job prospects.²⁰³ Despite the Carnegie Report’s imperative and resulting changes to ABA standards leading to required

197. *Id.*

198. *Id.*

199. *Id.* at 2–3.

200. *Id.* at 2.

201. Ivan Moreno, *AI Practices Law ‘At The Speed Of Machines.’ Is It Worth It?*, LAW360 (June 7, 2023, 2:27 PM) (quoting Kate Orr, head of innovation at Orrick Herrington & Sutcliffe LLP), <https://www.law360.com/articles/1686205> [<https://perma.cc/AD4Q-863P>]; William A. Ryan et al., *Practical Lessons from the Attorney AI Missteps in Mata v. Avianca*, ASS’N OF CORP. COUNS. (Aug. 8, 2023), <https://www.acc.com/resource-library/practical-lessons-attorney-ai-missteps-mata-v-avianca> [<https://perma.cc/C9RL-A3ZA>].

202. Anthony E. Davis, *The Future of Law Firms (and Lawyers) in the Age of Artificial Intelligence*, AM. BAR ASS’N (Oct. 2, 2020), https://www.americanbar.org/groups/professional_responsibility/publications/professional_lawyer/27/1/the-future-law-firms-and-lawyers-the-age-artificial-intelligence [<https://perma.cc/VY85-75FG>].

203. Butalia, *supra* note 20.

upper-level experiential credits, there are structural challenges in law schools that continue to leave most law graduates with incomplete and uneven training in essential lawyering skills.²⁰⁴

While progress remains incremental, legal education has made some important steps forward with regards to lawyering skills instruction in the twenty-first century.²⁰⁵ In 2014, following calls for reform including the MacCrate Report, the Carnegie Report, and Best Practices for Legal Education, the ABA added a requirement that students complete a minimum of six experiential course credits.²⁰⁶ Most recently, in November 2023, the ABA Council of the Section of Legal Education and Admissions to the Bar, reported the results of a survey and working group recommendation to increase the number of required experiential course credits.²⁰⁷ The Council requested input from stakeholders on several factors that will inform its decision.²⁰⁸ Among the factors considered: employer expectations and costs of training new lawyers; options for integrating doctrinal and experiential courses; whether to incorporate experiential learning into the 1L curriculum and ways to do that other than legal writing courses; and creative options for meeting the experiential requirement.²⁰⁹

204. See Karen Sloan, *Law school courses to become more uniform under new ABA accreditation rule*, REUTERS (Aug. 20, 2024, 6:45 AM), <https://www.reuters.com/legal/legal-industry/law-school-courses-become-more-uniform-under-new-aba-accreditation-rule-2024-08-16/> [<https://perma.cc/7UCZ-HG6G>] (implementing course uniformity and performance reviews to address concerns related to law school's structure).

205. *12 Elite Law Schools Recognized for Innovative Teaching Methods to Bridge Skills Gap*, PUBLICLAWLIBRARY.ORG (Jan. 25, 2024), <https://publiclawlibrary.org/12-elite-law-schools-recognized-for-innovative-teaching-methods-to-bridge-skills-gap/> [<https://perma.cc/WEJ8-T44W>].

206. ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2014–2015 16 (2014), https://www.americanbar.org/content/dam/aba/publications/misc/legal_education/Standards/2014_2015_aba_standards_and_rules_of_procedure_for_approval_of_law_schools_bookmarked.pdf [<https://perma.cc/5GV4-Q8EG>].

207. Memorandum from the Experiential Credits Working Grp. of the Standards Comm. to the Council (Nov. 1, 2023), https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/council_reports_and_resolutions/nov23/23-nov-experiential-learning-working-group-memo-to-council.pdf [<https://perma.cc/M8LS-LKDZ>].

208. *Id.*

209. *Memorandum from Council of the Section of Legal Educ. and Admissions to the Bar to Interested Parties and Entities*, AM. BAR. ASS'N (Dec. 11, 2023), https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/2023/23-dec-experiential-learning-memo.pdf [<https://perma.cc/SDE3-RFMK>]. In November 2023, a working group reported the results of their survey. “56.6% (47/83) of the schools who responded to the survey favored increasing the number of required credits, with nine credits being the number most cited for an increase.” Memorandum from the Experiential Credits Working Grp. of the Standards Comm. to the Council (Nov. 1, 2023), https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/council_reports_and_resolutions/nov23/23-nov-experiential-learning-working-group-memo-to-council.pdf [<https://perma.cc/M8LS-LKDZ>].

Creativity in teaching is key for twenty-first-century legal educators regardless of the kind of innovation we encounter. Whether the technological innovation is part of our in-class instruction, part of an externship or clinic experience, or part of the student's independent learning, faculty can model the appropriate professional response. Thus, our reaction to legal generative AI-enhanced technology should include optimism and enthusiasm along with a healthy, informed skepticism.²¹⁰ As lawyers, the latter should be easy for us. Ultimately, we need to provide our students with a roadmap for success with twenty-first-century lawyering competencies.

Finally, our students need to internalize and develop a service orientation as it relates to technology-driven lawyering. Creating space for students to develop a service orientation in the context of technology requires more than just sending students off to conduct online research. We need our future lawyers to think innovatively about how technology can solve complex legal problems in the present.

The framework described in this Article is intended to be flexible to allow its application to learning outcomes in a wide range of law school courses. It is my hope that experiential and doctrinal law faculty will collaborate and innovate together to develop thoughtful applications of legal generative AI technology tools within the law school curriculum. With emerging technologies, our collaboration and innovation as faculty colleagues and domain experts necessarily involves a measured approach and a risk-benefit analysis. Ultimately, as a law librarian and legal educator, it is my assessment that avoiding the change is not an option with generative AI.

B. 21st Century Competencies in Legal Research Courses

Legal research skills are essential for success in the practice of law.²¹¹ Ask newly licensed lawyers how they spend a good portion of their work time, and the answer is likely to be the same: conducting legal research.²¹² Associates and lawyers with less than ten years of experience spend

210. See Casey Fiesler, *Innovating like an Optimist, Preparing like a Pessimist: Ethical Speculation and the Legal Imagination*, 19 COLO. TECH. L.J. 1, 4 (2021), <https://scholar.law.colorado.edu/cgi/viewcontent.cgi?article=1072&context=ctlj> [<https://perma.cc/7TE4-PUWU>] (“While AI is not designed to produce negative consequences, it is designed to produce the unforeseen.”).

211. *Legal Research Basics: A Step-By-Step Guide to Brushing Up on Your Skills*, LEXISNEXIS (Nov. 18, 2022), <https://www.lexisnexis.com/community/insights/legal/b/product-features/posts/an-introduction-to-legal-research> [<https://perma.cc/9ZTG-6JTP>] (“Legal research is imperative to the practice of law.”).

212. Robert Ambrogio, *For Research, Lawyers Turn First to Free Sources, ABA Survey Says*, LAW SITES (Sept. 14, 2015), <https://www.lawnext.com/2015/09/for-research-lawyers-turn-first-to-free-sources-aba-survey-says.html> [<https://perma.cc/CY3K-QLQN>] (“Lawyers spend an average of 20 percent of their work time conducting legal research.”).

roughly one out of every four work hours researching the law.²¹³ Even experienced attorneys spend about twenty percent of their time on research.²¹⁴ Yet there remains a noticeable lack of uniformity in how legal research is taught in American law schools.²¹⁵ The inconsistency is on display in several areas: the timing of when students are taught legal research; the amount of class time devoted to formal research instruction; the specific research topics and technology tools included; and the learning outcomes identified.²¹⁶

Set to debut in July 2026, the NextGen Bar Exam represents a significant shift in bar examination methodology.²¹⁷ Applicants will be assessed on a broad range of foundational lawyering skills along with foundational legal concepts and principles relevant to modern law practice.²¹⁸ For the first time in its history, the bar exam will evaluate legal research skills.²¹⁹ The National Conference of Bar Examiners (NCBE) released sample question sets that reflect an integrated approach to testing lawyering skills along with doctrinal concepts.²²⁰ This evolution in the bar exam has significant implications for legal education.

Advanced legal research courses, including other upper-level specialized legal research courses, are a natural fit for using the competencies as a framework to introduce generative AI in the classroom. Law library faculty are well-positioned to be early adopters because we live in two worlds: the world of law and the world of information and library science. I have no doubt that my law librarian colleagues around the country are hard at work creating and implementing innovative pedagogical solutions and producing scholarship that introduces those solutions. Since we are still dealing with the first wave of the “technological tsunami”²²¹ that is generative AI, I

213. 2023 ABA LEGAL TECHNOLOGY SURVEY REPORT: VOL. 1 - ONLINE RESEARCH (2023).

214. *Id.*

215. See Sloan, *supra* note 204.

216. Caroline L. Osborne, *The State of Legal Research Education: A Survey of First-Year Legal Research Programs, or “Why Johnny and Jane Cannot Research”*, 108 L. LIBR. J. 403, 404 (2016), <https://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=1507&context=wlufac> [https://perma.cc/J4TF-AAVN] (exploring inconsistencies in legal research education throughout the top 200 American law schools to understand why law school graduates have insufficient legal research skills).

217. *NextGen (July 2026)*, NAT’L CONF. OF BAR EXAM’RS, <https://www.ncbex.org/exams/nextgen> [https://perma.cc/DC89-7YV3] (last visited Mar. 9, 2025).

218. *Id.*

219. *NextGen Content Scope Outlines*, NAT’L CONF. OF BAR EXAM’RS, <https://nextgenbarexam.ncbex.org/reports/content-scope/> [https://perma.cc/8SZ4-PSWQ].

220. *NextGen Bar Exam Sample Questions*, NAT’L CONF. OF BAR EXAM’RS, <https://nextgenbarexam.ncbex.org/nextgen-sample-questions/> [https://perma.cc/K6F9-NRSQ].

221. Sterling Miller, *Generative AI: What in-house legal departments need to know*, THOMSON REUTERS (Nov. 30, 2023), <https://legal.thomsonreuters.com/blog/generative-ai-what->

offer an early example from business education that applies to my proposed legal education framework and more widely to the use of LLMs in education.²²² The authors detail a series of approaches and assignment examples for educators including generative AI tools in their classes: “AI-tutor, AI-coach, AI-mentor, AI-teammate, AI-tool, AI-simulator, and AI-student, each with distinct pedagogical benefits and risks.”²²³

Conversational search is the process of talking with generative AI assistants (the chatbots).²²⁴ When it comes to legal research, conversational search can simplify and streamline the research process.²²⁵ In advanced legal research courses, search strategy is already a well-established part of the learning process. Thus, professional judgment is already essential to a student’s online legal research process. Faculty need to help law students recognize that generative AI tools create new data from existing content, and that output is only as good as the data set used to train the LLM. The introduction of generative AI legal research tools is the first step in solving both the dataset problem and the domain expertise problem.²²⁶ For our students, who have varying degrees of experience with legal research, it is also important to encourage them to develop their professional judgment regarding their AI-assisted

in-house-legal-departments-need-to-know/#What-is-artificial-intelligence? [https://perma.cc/4C BR-HSK9].

222. Ethan Mollick & Lilach Mollick, professors at the Wharton School of the University of Pennsylvania & Wharton Interactive, have already introduced an innovative approach to assigning AI to students. Ethan Mollick & Lilach Mollick, *Assigning Ai: Seven Approaches for Students with Prompts*, THE WHARTON SCH. RSCH. PAPER (2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4475995 [https://perma.cc/E5LC-62MQ].

223. *Id.* at 1.

224. Brandi Pack, *The Dawn of Advanced Conversational AI in the Legal Tech Landscape*, ALM LAW.COM (Mar. 1, 2023, 3:14 PM), <https://www.law.com/legaltechnews/2023/03/01/the-dawn-of-advanced-conversational-ai-in-the-legal-tech-landscape/> [https://perma.cc/3U7B-HQ QP].

225. *See id.*

226. In the last quarter of 2023, Westlaw and LexisNexis introduced their generative AI chatbots as add-ons to their research platforms Westlaw Precision and Lexis+. According to a recent survey conducted by LexisNexis, of 450 law faculty surveyed (law library faculty teaching research and law practice technology and LRW faculty) who participated in the initial test offering of Lexis+ AI, 78% intend to include generative AI tools in the spring 2024 curriculum. *LexisNexis Collaborates with U.S. Law Schools to Roll Out Lexis+ AI, Marking First Widespread Use of Legal Generative AI Solution in Law School Education*, LEXISNEXIS (Dec. 20, 2023), <https://www.lexisnexis.com/community/pressroom/b/news/posts/lexisnexis-collaborates-with-u-s-law-schools-to-roll-out-lexis-ai-marking-first-widespread-use-of-legal-generative-ai-solution-in-law-school-education> [https://perma.cc/W45K-F4L8].

research.²²⁷ They must take ownership of the process and “remain the ‘human in the loop.’”²²⁸

As we teach professional judgment in the context of generative AI, we must also teach the importance of cybersecurity. Our students need to understand that ChatGPT is not the place to upload any kind of client information. Legal information platforms including Westlaw and LexisNexis have existing structures in place to protect confidential information. Legal research courses generally include a class session on professional responsibility (PR) in the context of research, so ethical use of generative AI is another facet to add to PR class discussions. Creating ethical prompts is another learning opportunity that has broad applicability beyond the legal research classroom.²²⁹

Perhaps the most important skill for working with generative AI is prompt engineering. Prompt engineering has already been recognized as an increasingly important skill for lawyers.²³⁰ It involves crafting questions and prompts in a way that effectively guides the AI-assistant to produce the most relevant and accurate responses.²³¹ This skill is crucial because the quality of the input (a user’s prompt) significantly influences the quality of the output (generated content) from the AI chatbot.²³² Also, strategies for prompt engineering are similar to skills students need to develop to conduct client interviews. In both cases, the quality and specificity of the prompt determine the usefulness and relevance of the response. We need to provide instruction to our students about the opportunities and limitations of collaborative problem-solving with legal and general AI-assistants—the human/machine collaboration.

227. See *infra* note 230.

228. Mollick & Mollick, *supra* note 222, at 3 (“Our guidelines challenge students to remain the ‘human in the loop’ and maintain that not only are students responsible for their own work but they should actively oversee the AIs output, check with reliable sources, and complement any AI output with their unique perspectives and insights. Our aim is to encourage students to critically assess and interrogate AI outputs, rather than passively accept them. This approach helps to sharpen their skills while having the AI serve as a supportive tool for their work, not a replacement.”).

229. *The Practice, Ethical Prompts: Professionalism, Ethics, and ChatGPT*, HARV. L. SCH. CTR. ON THE LEGAL PRO. (Mar./Apr. 2023), <https://clp.law.harvard.edu/knowledge-hub/magazine/issues/generative-ai-in-the-legal-profession/ethical-prompts/> [https://perma.cc/H2FT-B7FW].

230. *What is prompt engineering?*, IBM, <https://www.ibm.com/think/topics/prompt-engineering#:~:text=Prompt%20engineering%20helps%20generative%20AI%20models%20better%20comprehend,rule%20is%20that%20good%20prompts%20equal%20good%20results> [https://perma.cc/7DRG-GEEQ].

231. *Id.*

232. Pack, *supra* note 224.

CONCLUSION

Generative artificial intelligence, with its associated opportunities and challenges, is the next step in the technological transformation of law practice and legal education. It is our responsibility as legal experts to ensure reliability, predictability, and equity in the application of artificial intelligence technology in law schools and in the legal system. A law school curriculum that emphasizes repetition and reinforcement of essential twenty-first-century competencies and technology-driven lawyering skills will empower our graduates as they navigate the overwhelming array of legal technology tools in their professional lives.