

Artificial Intelligence in the Law Firm: Implications for Professional Development Priorities and Practices

by Chris Boyd and Amy L. Halverson

Effective use of AI can increase the value a firm delivers to its clients while also accelerating attorney professional development. How should PD leaders leverage the potential of AI, and how can AI enhance PD programs?

Artificial intelligence (AI) is one of the hottest topics of the year. The phrase appears daily in news headlines, think pieces, business journals, jobs reports, and pop culture, as well as in the legal press. Each new print edition or email newsletter seems to have at least one item about new AI technologies and tools. Many legal PD professionals, who are generally not AI experts, may be wondering what the implications of AI are for their programs. Is AI an opportunity, a threat, both, or neither? How can legal PD professionals stay up to date with AI developments and ensure that their firms' attorneys do so too? How can these professionals leverage AI to improve their PD programs? This article will endeavor to answer these questions, after first providing some background on AI overall and explaining its applicability to the legal profession.

What Is Artificial Intelligence?

The dictionary defines AI as “the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.” More simply, AI is “the branch of computer science concerned with making computers behave like humans” (*Webopedia*).

Many people learned about AI from vivid science fiction characters in movies and on TV. Examples of “good” AI include robots like C-3PO and R2-D2 from *Star Wars*, androids like

Data from *Star Trek*, and even operating systems like Samantha from *She*. Examples of AI gone bad include the Terminator, Agent Smith from *The Matrix*, and (spoiler alert) Pris the replicant from *Blade Runner*.

But AI is no longer science fiction; advances in technology and software have made AI a reality. IBM's Deep Blue beat world chess champion Garry Kasparov in 1997. More recently, Google's AlphaGo has beaten several of the world's top Go players. Today, anytime you use Apple's Siri, Google Translate, or Amazon's Alexa, you're interacting with AI.

Businesses are also increasingly using AI. A *New York Times* article published in February 2016 was provocatively titled “The Robots Are Coming for Wall Street. Hundreds of Financial Analysts Are Being Replaced by Software. What Office Jobs Are Next?” The article featured Kensho, software that automatically assembles industry and financial data into useful reports. Kensho's CEO stated that within a decade, between a third and a half of the current employees in finance will lose their jobs to Kensho and other automation software. Many experts believe that AI tools will significantly affect other industries as well.

Given the many breathless predictions about robot-workers, it is perhaps unsurprising that Gartner's *2016 Hype Cycle for Emerging Technologies* placed machine learning, a type of AI, at the “peak of inflated expectations,” the highest point in the

cycle.¹ According to Gartner's methodology, this placement means that AI will move through a "trough of disillusionment" before reaching mainstream adoption within two to five years. In other words, at this point in its evolution AI is more promise than practice. But AI and the "smart" tools it powers appear to be here to stay, with Gartner predicting they will be "the most disruptive class of technologies over the next 10 years." Investors appear to agree, with venture funding to private AI companies globally reaching a five-year high last year, from 160 deals in 2012 to 658 in 2016, with dollars invested up about 60% in 2016.²

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AI in Law Practice

Many attorneys' initial take on AI is fear, because they are concerned that AI tools will replace them. For example, as Adam Ziegler noted,³ if you search online for "robots and lawyers," 80% of the results are predictions of lawyers' demise while only 10% are claims of attorneys' supremacy (the other 10% are ads by lawyers seeking clients maimed by robots — some things will never change!). The apocalyptic headlines on the first page of the search results include "Are Robots Going to Take Our Legal Jobs?," "Will Lawyers Be Replaced by Robots?," and "Why Hire a Lawyer When a Robot Will Do?" A 2015 Altman Weil survey⁴ of law firm managing partners asked whether

they could envision a law-focused "Watson" AI tool replacing certain categories of timekeepers in their firms in the next five to ten years; 19% said they could envision this happening to second- and third-year associates, 35% to first-year associates, and 47% to paralegals.

While these perspectives may seem to portend doom for many burgeoning legal careers, a more nuanced view came from a 2015 McKinsey study. The authors stated that "[v]ery few occupations will be automated in their entirety in the near or medium term. Rather, certain activities are more likely to be automated, requiring entire business processes to be transformed, and jobs performed by people to be redefined."⁵ A similarly less-than-apocalyptic view was put forth in a recent academic paper, which estimated that lawyer employment would drop at most by 13% under the extremely drastic and unlikely scenario that all possible automation were implemented immediately.⁶ And a 2017 *New York Times* article was titled, not entirely reassuringly, "A.I. Is Doing Legal Work. But It Won't Replace Lawyers. Yet."⁷ So fears of AI-based tools wiping out a generation of attorneys are clearly overblown.

So, what has AI done — and what can AI potentially do — for the practice of law? How can AI help lawyers practice more effectively and efficiently, and clients get more value from their legal services providers? Michael Mills, the co-founder of legal AI company Neota Logic, wrote an excellent article⁸ explaining the various types of AI used in law. We have reproduced the summary diagram from the article and strongly recommend that readers interested in more information about AI read the article. (See Figure 1.)

¹ <http://www.gartner.com/newsroom/id/3412017>.

² <https://www.cbinsights.com/blog/artificial-intelligence-startup-funding>.

³ Adam Ziegler, "Robots and Lawyers: Why Can't We Just Be Friends," *Bloomberg Law BigLaw Business*, February 2, 2016.

⁴ Altman Weil, 2015 *Law Firms in Transition Survey*, http://www.altmanweil.com/dir_docs/resource/1c789ef2-5cff-463a-863a-2248d23882a7_document.pdf.

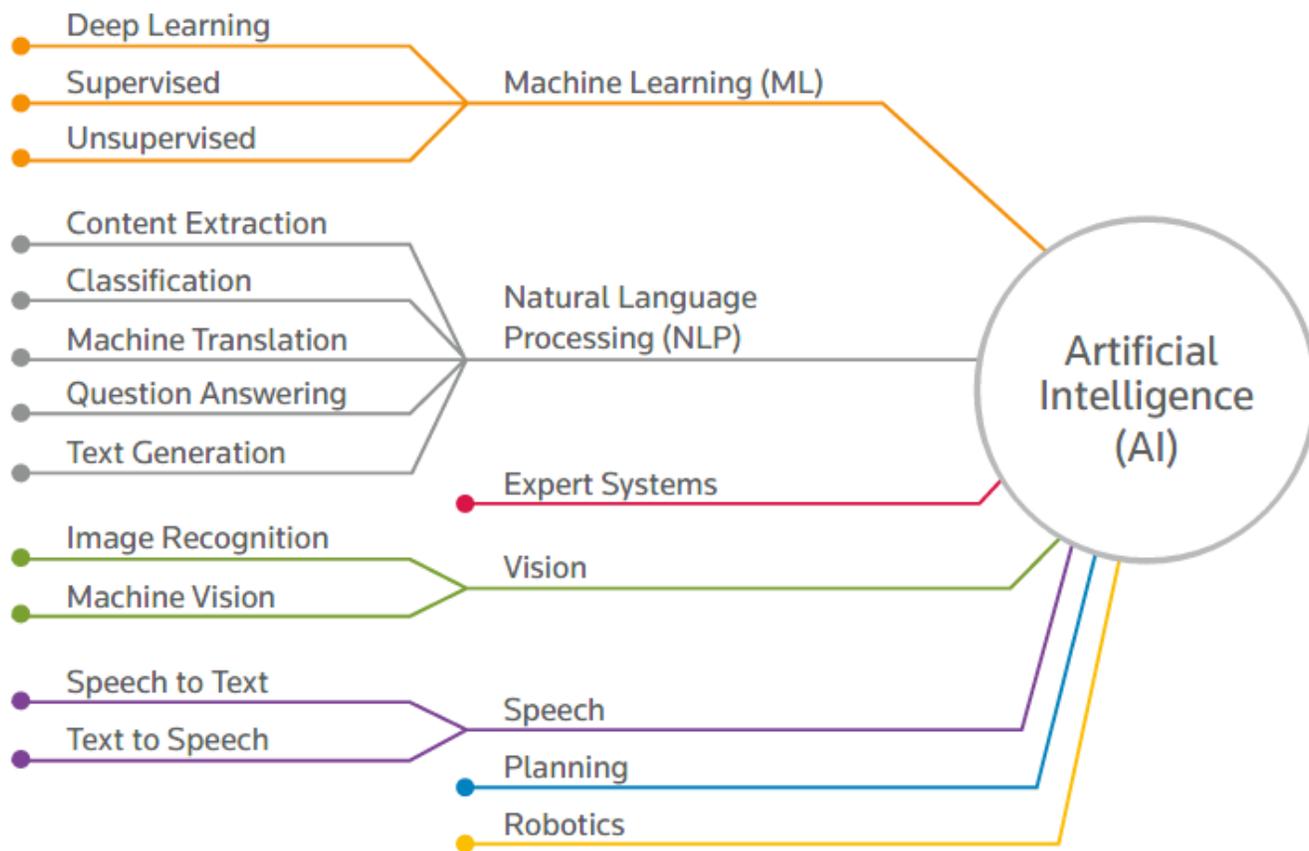
⁵ Michael Chui, James Manyika, and Medi Miremadi, "Four Fundamentals of Workplace Automation," *McKinsey Quarterly*, November 2015.

⁶ Remus, Dana and Levy, Frank S., *Can Robots Be Lawyers? Computers, Lawyers, and the Practice of Law* (November 27, 2016). Available at SSRN: <https://ssrn.com/abstract=2701092> or <http://dx.doi.org/10.2139/ssrn.2701092>.

⁷ <https://www.nytimes.com/2017/03/19/technology/lawyers-artificial-intelligence.html>. (Disclosure: the authors' employer, Wilson Sonsini Goodrich & Rosati, is referenced in the article.)

⁸ Michael Mills, "Artificial Intelligence in Law: The State of Play 2016," Thomson Reuters Legal Executive Institute, February 2016.

Figure 1. What Can AI Do? Summary Diagram



Five types of AI described in the Mills article are of particular interest, as noted below. We paraphrase Michael’s descriptions because they are so well-written. We also provide a few examples of products and services that employ AI for legal use cases, although the field is growing rapidly with new entrants to the market.⁹

1. **Natural language processing (NLP):** the ability of computers to understand human language as it is typically spoken or written. Online legal research tools are classic examples of this, e.g., Lexis, Westlaw, Bloomberg, and, more recently Fastcase, RavelLaw, CaseText’s CARA, and ROSS. Legal document drafting tools such as LitIQ and Legal Robot also utilize NLP.

2. **Machine learning:** the ability of software to learn and perform better without being explicitly programmed. Technology-assisted document review for discovery is the classic example of this. An attorney reviews several sets of “seed” or “training” documents while the AI tool learns from the review as it is undertaken until it comes to recognize responsive and non-responsive documents. The AI tool then reviews its own set of seed documents, which are then QA’d by the attorney; the back-and-forth continues until the attorney is satisfied that the AI tool can review documents at least as accurately as the lawyer. Electronic discovery platforms that facilitate technology assisted review and predictive coding are among the products that make use of machine learning.

⁹ Sources for new product announcements and other developments relating to AI and law include <https://www.artificiallawyer.com> and <https://www.legaltechnology.com>.

3. **Predictive analytics:** the use of data, algorithms, and machine-based learning techniques to identify the likelihood of future outcomes based on historical data. A good example of this is Lex Machina, which can forecast probable outcomes of patent litigation based on a large database of past case data. Similar examples include RavelLaw, Casepoint, and LexPredict.
4. **Expert systems:** computer systems that emulate the decision-making abilities of human experts. A good example is Neota, which uses several AI techniques to provide fact- and context-specific answers to legal, compliance, and policy questions. Several law firms have licensed Neota to provide client-facing tools, including Akerman's Data Law Center, Littler Mendelson's Compliance HR, Seyfarth Shaw's Disclosure Dragon, and Clifford Chance's MiFID II Toolkit. Other examples include Visirule and A2J Justice.
5. **Contract analysis:** these apply natural language and machine learning techniques to help mine legal agreements for due diligence purposes. Examples include Contract Standards, eBrevia, Kira, RAVN, Luminance, LawGeex, and Seal Software.

Reasons to Use AI

Law firm and in-house attorneys should use AI tools because they help lawyers deliver more value to clients, whether individuals or entities. Law firms, in particular, are (rightly) under pressure to deliver more value to clients, in the form of lower costs, increased predictability, and improved outcomes.¹⁰ Client demand for outside counsel hours has not been growing over the past few years.¹¹ Corporate law departments have been finding more efficient and cost-effective ways of meeting their legal needs, whether by spending more on in-house counsel or by sourcing legal services to alternative providers such as second-

ment and temporary placement firms, law “advice” companies, virtual networks of lawyers, and legal process outsourcers. The 2016 Altman-Weil CLO survey showed that law department spending on these “alternative” providers grew from 3.9% of a department's budget in 2012 to 6.2% in 2016.

AI tools, implemented effectively, can help a firm with each element of the client value equation: lower costs, increased predictability, and improved outcomes. AI-based document review tools can speed up the discovery and due diligence processes while delivering higher quality and more consistent results. AI-based legal research tools can do the same. AI-driven and litigation-focused predictive analytics tools can help litigators make better decisions on strategy, venue, negotiating stance, and other critical case management variables. Expert systems can lower the costs and increase the predictability and accuracy of answers to routine legal questions.

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And there is some evidence that successfully implementing technology results in superior business outcomes for law firms. For example, the September 2015 Thomson Reuters Peer Monitor survey revealed that 71% of upper-tier firms had implemented matter management technology to monitor progress and budget status, versus only 47% of lower-tier firms. Similarly, 71% of upper-tier firms had implemented document review software that used predictive coding based on a “seed sample,” versus only 35% of lower-tier firms. So, while correlation is not causation, there is some indication that superior law firm financial performance and more ambitious technology implementation (including AI) are related.

¹⁰ See the Value Challenge issued by the Association of Corporate Counsel at <https://www.acc.com/valuechallenge/>.

¹¹ <http://www.corpcounsel.com/id=1202771430876/Legal-Departments-Are-Decreasing-Outside-Counsel-Spend-Study-Finds>.

How Law Firm Professional Development Programs and Professionals Can Promote and Use AI

As with the changes in technology that have preceded AI (email, mobile devices, cloud applications), the use and adoption of AI into law firm business and learning processes will happen gradually. Law firm professional development leaders should consider the influence of AI on the practice from two perspectives: How it will change the skills needed by attorneys to deliver value to clients, and how it will change the processes and methods by which attorneys acquire new skills. PD leaders can help advance the effective use of AI in their firms by taking a few proactive steps designed to expose and educate attorneys about AI applications, and by exploring ways that firm PD, HR, and other departments might use AI for firm business projects.

1. Learn the practical applications of AI in law

Tactically, how can law firm PD leaders increase awareness of AI? The first step is to educate themselves and the attorneys who champion PD at the firm, perhaps by reading the Michael Mills article referenced above. Artificial intelligence sounds intimidating — but, in reality, AI tools (at least so far) primarily tackle the mundane aspects of legal work. The most common use of AI in law firms to date is for e-discovery, since most litigators are now familiar with technology-assisted document review and predictive coding. Other legal AI tools currently on the market are being used in law firms and legal departments for tasks such as:

- *Due diligence* — Tools are taught to “read” contracts and automatically extract key concepts like term, termination, renewal, change of control, assignment, and indemnity. Analytics engines can parse through contracts much faster than teams of junior attorneys, though each law firm or law department should assess for itself whether the resulting work product is at least as accurate as that delivered by those attorneys.

- *Litigation case and outcome evaluation* — Tools analyze public litigation filings to identify outcome trends and comparative analyses of outcomes by type, judge, length of case, and other key factors that can influence case strategy. Other tools analyze case-specific documents and flag issues or trends revealed in the documents, which can help lawyers conduct early case assessment.
- *Drafting* — Tools point out inconsistencies in terminology, vague language, definitions, and other drafting errors in standard agreements.
- *Legal research* — Case law research is automated based on text and citations contained in legal briefs, which are used by the system to identify relevant prior court decisions. Other systems respond to questions involving specific areas of law posed in natural language, with answers and supporting legal authority.
- *Legal expert systems* — Legal advice on specific topics is automated based on a question and answer interface. Subject matter experts, generally attorneys, program the expert systems, although attorneys may also be end users.

2. Foster attorney awareness of available AI tools

Teaching lawyers to recognize opportunities to use AI will be as or more important than the nuts and bolts of how to use specific AI tools. Many law schools are already targeting this need by offering courses on legal technology, data, and coding. For example, a Stanford course on Legal Informatics and the Law has been replicated in many other top law schools.¹² Georgetown Law hosts an annual “Iron Tech Lawyer” competition in which law students develop applications that solve legal problems,¹³ and several other law schools host or sponsor “legal hackathons” at which law students and software coders work together on projects. Some law schools offer classes that provide practical examples of how technology is being success-

¹² <https://law.stanford.edu/codex-the-stanford-center-for-legal-informatics/>.

¹³ <http://www.law.georgetown.edu/academics/centers-institutes/legal-profession/legal-technologies/>.

fully paired with legal functions such as document review, legal research, and due diligence.

But most law students and first-year associates don't yet have context for these tools in practice. Law firm professional development leaders have an opportunity — and, increasingly, an imperative — to expose seasoned professionals to the availability and promise of AI tools. Experienced practitioners already have a deep understanding of existing legal tasks and workflows. Once they understand how AI can be used to expedite repetitive tasks, they can fully appreciate the potential for these tools to enhance their practice and increase the value of their services to clients.

3. Identify AI tools appropriate for your firm's practice

PD leaders should first learn how AI is used at their firms, perhaps by talking with the administrative leaders most likely to be involved with AI, such as the CIO, CKO, and leaders of e-discovery, innovation, and project management. Given the breadth of use cases, AI tools can “live” in a variety of business units within a law firm. The library is often a proponent of AI legal research tools, while litigation support may have e-discovery and litigation analytics tools

PD leaders may also play a valuable role in evaluating which AI tools would be of high value to the firm and clients, and in assessing the probability of their successful adoption within the firm. AI tools for lawyers and legal professionals are already proliferating. As with other technology products, some will work better than others, and some will be better aligned with a firm's practices than others. Well-designed training programs are based on typical practice scenarios, or “use cases”; PD leaders can help colleagues assess the value of AI tools by providing these “use cases” to use in tool evaluation. In addition, PD leaders typically understand their firms' practices well and can help assess whether a tool will effectively replace or improve real-world tasks, rather than just being a solution in search of a problem.

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4. Use AI Tools in attorney training

PD leaders can help maximize the adoption of AI tools by integrating them into educational sessions and reference materials. For example, if a firm licenses a tool to help with due diligence, associates should learn when, why, and how to use the tool as part of their basic training on conducting due diligence. By focusing the training on the task and desired result, rather than on the AI tool, the learner will contextualize the role the tool plays and adopt its use as part of the larger process.

Similarly, if a firm subscribes to a legal research tool that incorporates AI, the PD leader should work with the firm's librarians or other information professionals to develop a curriculum that explains how the tool works and what input is required from the attorney to secure high-value results. One should not assume that just because the tool performs a familiar task (legal research) that it works the same way as Westlaw or Lexis.

Finally, PD leaders can help increase AI adoption by (a) using their expertise to create how-to learning modules for AI tools and (b) embedding pointers to the tools in their practice guides and other learning resources.

Apply AI Tools to PD, HR, and Other Law Firm Business Unit Projects

AI also has the potential to change the way new information and training is delivered to attorneys. Learning management systems are already incorporating features such as suggesting tutorials based on prior coursework or patterns of consumption. Online learning platforms increasingly incorporate intelligent tutoring systems, which interpret human responses and

learn as they operate, adjusting their feedback style and content focus to align with students' learning needs. These features will become common in learning systems deployed in law firms and legal departments.

But PD leaders can also leverage existing legal AI tools to provide coaching and training for lawyers. For example, if an attorney uses a drafting tool when writing an agreement, she will learn what types of definitions or clauses are flagged by the tool, and avoid using them going forward. Further, curriculum can be developed based on observing and getting feedback from lawyers using the drafting tool, to identify the common errors and misunderstandings.

Document automation tools embed instructions in the question and answer workflow that explain the reasons for certain document provisions, and can alert the attorney to complexities or pitfalls associated with the choices presented as options. Expert systems go a step further, and actually make decisions based on user input, while also advising the user of the basis for the outcome. Internal training curricula can incorporate these tools as exercises to illustrate the practical application of concepts presented in training sessions.

PD leaders are also uniquely suited to help their organization's talent acquisition and retention teams effectively use AI tools. Intelligent résumé screening is one example. Using a machine learning algorithm, the tool trains itself on prior employees to learn what résumé characteristics correlate with successful employees, and then searches for those same characteristics among job applicants. PD leaders know who those successful employees are and what qualities distinguish them, and can therefore be invaluable when "training" a tool to recognize success indicators.

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On the talent retention side, predictive analytics can be applied to employees to predict which ones are likely to quit. A predictive model may use variables such as email volume, job tenure, commute distance, employee engagement, and compensation to flag possible flight risks. If the employee flagged as a flight risk is someone the organization values and would like to retain, a professional development specialist is well-suited to subtly intervene and find out if that employee needs additional training or support to increase their job satisfaction.

Looking Ahead

AI represents a win-win opportunity for law firms. Effective use of AI can improve the value and quality of services delivered to clients, and increase attorney job satisfaction and retention of legal talent. Clients will increasingly refuse to pay hourly rates for teams of law firm junior associates to review documents when a machine can do that task at least as well in a tenth or less of the time. Attorneys who leave the profession often cite burnout as the cause, and point to repetitive tasks such as due diligence reviews or discovery as taking the greatest toll on their work satisfaction. AI tools may reduce the amount of time young lawyers have to spend on these tasks, leaving them able to focus on legal strategy and analysis — the reasons they went to law school in the first place.

About the Authors



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After college, Chris was a management consultant for two years and then went to law school. After clerking for a Ninth Circuit judge, Chris worked as a corporate attorney at WSGR in the mid-1990s, where he managed numerous technology company initial public offerings, venture capital financings, and acquisitions. After deciding he no longer wanted to practice law, he left WSGR and led the knowledge management programs at several Internet start-ups. He rejoined WSGR in November 2001.



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