South Carolina Law Review

Volume 67
Issue 2 *WHAT WE KNOW AND NEED TO KNOW ABOUT THE FUTURE OF LEGAL SERVICES: WHITE PAPERS FOR THE ABA COMMISSION ON THE FUTURE OF LEGAL SERVICES*

Article 14

Winter 2016

What We Know and Need to Know about Watson, Esq.

Paul Lippe

WHAT WE KNOW AND NEED TO KNOW ABOUT WATSON, ESQ.

Paul Lippe*

As a number of commentators have written, we are at the dawn of the age of machine learning.[1] Lawyers have been thinking for a while about whether "Artificial Intelligence" would displace lawyers. Richard Susskind, the leading legal futurist/technologist, did his work in this area starting in the mid-1980s.[2]

But as most have observed, while the practice of law has been impacted by recent technologies such as the PC and word processing, email, the Internet, and Google Search, the fundamental workstyles and orientations of lawyers have remained largely unaffected.

It is likely that machine learning will have a more dramatic impact on legal practice than these other technologies, both because machine learning more closely addresses the core activities of lawyers, and because machine learning is coming along at a time when clients can no longer manage legal complexity using conventional methods. The gap between legal productivity and client needs has become untenable.

Our friends at the American Bar Association (ABA) have asked us to address the question "What We Know and Need to Know About Watson, Esq.?" Implicit in the structure of the assignment is the assumption that Watson is primarily about the reasoning processes of lawyers.[3] But our thesis is the opposite—Watson and other advanced technologies will primarily impact the way client data is created and comes to lawyers, and how legal work product is disseminated to clients.

Just as no serious lawyer could argue that they are entitled to practice in a world without electricity, the PC, or the Internet, so lawyers must be aware of and engaged with new technologies like Watson as they emerge.

---

* Founder and CEO, Legal OnRamp. This Paper is drawn from previous co-authored papers. *See* Paul Lippe & Daniel Martin Katz, *10 Predictions About How IBM's Watson Will Impact the Legal Profession*, A.B.A. J.: LEGAL REBELS: THE NEW NORMAL (Oct. 2, 2014, 8:35 AM), http://www.abajournal.com/legalrebels/article/10_predictions_about_how_ibms_watson_will_impact; Paul Lippe et al., *How Smart Resolution Planning Can Help Banks Improve Transparency, Increase Profitability and Reduce Risk*, 3 Banking Perspective Q2-2015, at 34, https://www.theclearinghouse.org/publications/2015/2015-q2-banking-perspective/resolution-recovery-planning (last visited Mar. 30, 2016) [hereinafter *Smart Resolution*]; Paul Lippe et al., *Legal by Design: A New Paradigm for Handling Complexity in Banking Regulation and Elsewhere in Law*, 93 OR. L. REV. 833 (2015); and a recently published chapter on Innovation for the International Bar Association.

1. *See* Dorian Pyle & Cristina San Jose, *An Executive's Guide to Machine Learning*, MCKINSEY QUARTERLY (June 2015).

2. *See* Richard Susskind, *Future of Artificial Intelligence and Law*, VIMEO (Mar. 22, 2014), https://vimeo.com/89806445.

3. *See* Lippe & Katz, *supra* note *.

I. BEYOND PAPER

At its most basic, Watson is a way to transform the unstructured data in documents into more "database-like" information that can be more easily retrieved and compared.[4] Paper and ink was certainly the pre-eminent technology for two millennia, but today digitally stored and managed information is much easier to access, understand, and manipulate. One lesson of the financial crisis (and most other complex legal problems) was that many risks went undetected for lack of systematized management of key legal information, so sorting through problems was quite cumbersome.[5]

Watson can handle "natural language" questions, i.e., questions that are not very well-stated, and enables users to "train" the content corpus through refining answers.[6] As one of our colleagues at Legal OnRamp says, "due diligence = training."

Here's an excerpt from IBM about how they describe Watson and "cognitive computing."

> As we ask computers to understand and reason more like we do, we must teach them not just the structure and vocabulary of spoken and written languages but the words and concepts that are particular to professional and business domains. When they have that kind of capability, they can begin to offer us not just answers to questions but fresh insights that might not have occurred to us on our own. Cognitive computing aims to understand and answer questions in the same way as humans communicate—often referred to as Natural Language Processing or Deep QA. The capability to process large amounts of data from all kinds of internal and external sources, not bound by volume or memory; structured data, unstructured content and even images in order to interpret data to expose patterns, connections through both paraphrased and inferred information. Cognitive technology, like IBM Watson, is built to mirror the learning process that we have—through the power of cognition. What drives this process is a common cognitive framework that humans use to inform their decisions: Observe, Interpret, Evaluate, and Decide. Yet instead of the classic human master-apprentice approach, Watson ingests the corpus of data, or collection of information, and is then trained by human experts to learn how to interpret the information. Cognitive technology is

---

4. *Smart Resolution*, *supra* note *.

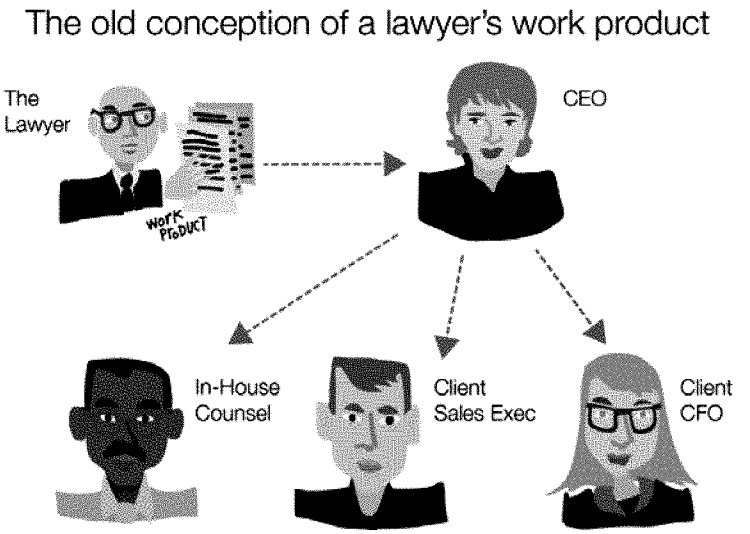
5. *See id.* (citing JOHN E. KELLY III & STEVE HAMM, SMART MACHINES: IBM'S WATSON AND THE ERA OF COGNITIVE COMPUTING 24, 35 (2013)).

6. *See* Perficient, *IBM Watson Content Analytics: Discover Hidden Value in Your Unstructured Data*, SLIDESHARE (Jan. 20, 2015), http://www.slideshare.net/perficientinc/ibm-watson-content-analytics-discover-hidden-value-in-your-unstructured-data.

revolutionizing the way we make decisions, become experts and share expertise in different industries, and it is discovering and offering answers and patterns we hadn't known existed, faster than any person or group of people ever could.[7]

II. THE CHANGING CLIENT CONTEXT

We used to think of lawyers as primarily "counseling" the head of an organization; and then the head incorporates the advice into a command and control structure for the organization. This illustration from our friend Margaret Hagan at Stanford shows the evolving relationship.



But now organizations are much more complex. Information comes from many sources and decisions are made throughout the organization. Thus, legal work must be informed by and communicated to a wide range of stakeholders, including systems.

7. *Id.* (quoting and citing KELLY & HAMM, *supra* note 5, at 24, 35, 36, 110).

A. Distributed Authority and Management By Compensation.

The traditional corporate model was based on the Union Army in the U.S. Civil War and the railroads that were managed by people who came out of it.[8] Authority was largely centralized at the top.[9] Information flowed "up" from employees and instructions flowed down from managers.[10] Typically there were multiple layers of interchange both ways, with filtering taking place at every level.[11] When Bill Gates started using email to communicate directly with all Microsoft employees in the late 1980s, and when employees started using email and the web to communicate with each other and outsiders, that command and control model changed.[12] Direction from the top went out to everyone simultaneously, regardless of status in the hierarchy, and largely unfiltered.[13]

---

8. *See* BRIAN SOLOMON, WORKING ON THE RAILROAD 16 (Dennis Pernu ed., 2006).

9. *See* David Ingram, *Centralized Vs. Decentralized Organizational Design*, HOUSTON CHRON., http://smallbusiness.chron.com/centralized-vs-decentralized-organizational-design-11476.html (last visited Mar. 30 2016) ("[D]ecisions are made at the top and communicated down through the layers.").

10. U.S. MARINE CORPS, MARINE CORPS DOCTRINAL PUBLICATION: COMMAND AND CONTROL 118 (1996).

11. *See id.*

12. *See* Boris Groysberg & Michael Slind, *Leadership Is a Conversation*, HARV. BUS. REV. 3 (June 2012) ("[N]ew technologies . . . have sharply reduced the efficacy of a purely directive, top-down model of leadership.").

13. *See* Ingram, *supra* note 9.

Information flowed up unfiltered.[14] And any external (or internal) communication via the web or email was de facto an official communication from the company, even if it came from someone who was not "authorized."[15] Now with "big data," everyone in the organization has potential access to tremendous data and insights, and rarely are they filtered up in a predictable way. At the same time, companies are run by corporate-wide, horizontal, end-end processes, and individuals are measured (and paid) by specific objectives aligned with company-wide objectives.[16] Watson or Watson-like systems will be an important part of the way that information is aggregated and disseminated in organizations.

B. Transparency

Most litigation and enforcement actions against companies (e.g., Barclay's LIBOR, Merck's Vioxx) have come about because information systems (email, text, chat) capture comments that would have faded into the ether in a less digital world.[17] But what most litigation and enforcement actions reveal is that most companies *are relatively less transparent to themselves*—the bad actions are not obvious when occurring; they are obvious only in hindsight, because companies are drowning in data.[18]

In law school we were taught the three defenses approach to the Kettle Case—"I never had the kettle, the kettle was broken when I got it, the kettle wasn't broken when I returned it"[19]—but in a transparent world, someone will show up with a cell phone video or a text about the Kettle, so if you argue things that are shown to be false you lose all credibility. Watson or Watson-like systems will help organizations track what is going on inside them, handing off more useful information to litigators or investigators, and incorporating compliance rules into day-to-day operations.

---

14. *See* U.S. MARINE CORPS, *supra* note 10.

15. *See, e.g.,* Micalyn S. Harris, *Is Email Privacy an Oxymoron? Meeting the Challenge of Formulating a Company Email Policy*, 16 ST. JOHN'S J. LEGAL COMMENT. 553, 553–54 (2002) (explaining the potential risks for companies with employee emails, such as the potential for discovery and use in litigation).

16. *See generally* Groysberg & Slind, *supra* note 12 (arguing that traditional corporate structure is "a purely directive, top-down model of leadership" that needs to give way to a "more dynamic and more sophisticated" process).

17. *See generally* Harris, *supra* note 15, at 553 (discussing how email communications are likely to be "long-lived" and "widely accessible").

18. *See id.* at 557, 564 (suggesting that companies may decide to monitor employee email communications and need to "[e]stablish procedures for storing and retrieving email documents, including backup copies").

19. Jamieson Webster, *Points of Stasis and Exchange: A Return to the Economic Model of the Mind*, 33 CARDOZO L. REV. 2453, 2466 (2012) (citing SIGMUND FREUD, *The Interpretation of Dreams, in* 4 THE STANDARD EDITION OF THE COMPLETE PSYCHOLOGICAL WORKS OF SIGMUND FREUD 120 (James Strachey et al. eds., 1961)).

C. *Legal Complexity*

To be a global, multi-business-line business is to be complex. For example, banks are subject to many regulators, who have strong local incentives (including funding their operations through fines and advancing to higher elective office) to create complexity and inconsistency.[20] At the same time, many of the new forms of regulation—like anti-bribery rules or data privacy rules—are not just constraints on behavior, but prescribe complex and affirmative duties that must be followed by companies and *passed along* to their suppliers and other counterparties, and often are not consistent across jurisdictions.[21] The rule structure of this complexity is too great for any individual to comprehend. Watson or Watson-like systems will be used by organizations to track legal rules and integrate them with business rules (e.g., permissible trades, triggers for compensation).

D. *Disruptive Competition and Managing Complexity*

Long before Harvard's Clayton Christensen codified the term "disruptive competition,"[22] managers in Silicon Valley woke up every morning afraid of a new, lower-cost, more technology-enabled competitor.[23] Now, however, for perhaps the first time, global enterprises face three classes of disruptive competitors: "(i) greenfield, lower cost disruptive startups like Uber; (ii) lower-cost (most likely Chinese) mid-size and large companies, typically with some form of government backing and preferred treatment in their home market, and (iii) huge, cash-rich, ubiquitous, customer-connected, established companies like Google and Apple," with tremendous capacity to cross-subsidize new business models in wholly-new markets like finance or health.[24] According to a recent report from Accenture, "Digital disruption has the potential to shrink the role and relevance of today's banks . . . . To make the impact positive, banks. . . need to shake themselves out of institutional complacency and recognize that merely

---

20. According to Philip R. Wood of the Allen & Overy Global Law Intelligence Unit, the "disproportionate increase in size and complexity of the legal regime makes the law inaccessible and therefore directly causes unwarranted legal risk." PHILIP R. WOOD, INTERNATIONAL LEGAL RISK FOR BANKS AND CORPORATES 33 (Apr. 2014).

21. *See generally id.* at 123–25 (listing some of the "potential sources of legal risk introduced by financial regulation").

22. CLAYTON M. CHRISTENSEN, THE INNOVATOR'S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL xxiv (1997)

23. *See, e.g.*, ANDREW S. GROVE, ONLY THE PARANOID SURVIVE: HOW TO EXPLOIT THE CRISIS POINTS THAT CHALLENGE EVERY COMPANY AND CAREER 3 (1996) ("And, of course, I worry about competitors. I worry about other people figuring out how to do what we do better or cheaper, and displacing us with our customers.").

24. Paul Lippe, *General Counsel as Innovation Agents*, *in* GENERAL COUNSEL IN THE 21ST CENTURY (2015).

navigating waves of regulation. . . won't protect them from obsolescence."[25] With the further professionalization of capital in private equity and venture capital firms, together with the short-term focus of most public investors, it is as likely as not that a startup will have a lower cost of capital and equivalent access to capital as an established company, and therefore greater ability to take financial risk.

To confront an intensive, costly, and friction-creating regulatory regime at the same time that you face new disruptive competitors is not a comfortable place to be. Many companies lost out on market opportunities when they faced the twinned challenges of antitrust regulatory enforcement and new, lower-cost competitors.

In this context, clients are looking for tools to help manage complexity. Watson will be one of the principal tools for better understanding client complexity, and the vehicle for handing off that information to lawyers and re-integrating the legal work product back into the organization, informing decisions "at the coalface," or what we call "embedded law."

E. Smaller Organization and Individual Clients—Access to Justice

Some lawyers reading this may say the preceding section describes large organizations but not the world in which they work. That seems unlikely. The same problems of scale and complexity that affect large organizations are impacting small organizations and individuals—just in a more distributed way. Unless lawyers can find ways to scale services, improve efficiency, and help clients manage legal complexities, we will continue to fall further behind in our effort to address the justice gap. Watson alone certainly is no panacea, but Watson in conjunction with a thoughtful re-design of how legal institutions and processes work can make a big difference.

III. A CATALYST FOR INNOVATION

In this rapidly changing context for clients, Watson will give lawyers permission to think innovatively and open up the conversation about what is possible in a field that has been somewhat "stuck." If you go to Watson's web page, you'll find videos of the top doctors at places like Sloan Kettering talking about how Watson can help treat cancer patients better.[26] We have no web pages like that anywhere in law; but we should, and we will sooner with Watson.

---

25. JULIAN SKAN ET AL., ACCENTURE CONSULTING, *The Future of Fintech and Banking: Digitally Disrupted or Reimagined?* (2015), https://www.accenture.com/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub_11/Accenture-Future-Fintech-Banking.pdf#zoom=50.

26. *See generally* IBM WATSON for Oncology, IBM WATSON, http://www.ibm.com/smarterplanet/us/en/ibmwatson/watson-oncology.html (last visited Mar. 30,

In order to implement Watson, lawyers must have a much more rigorous conversation about the actual structure of legal knowledge. Statutes, regulations, how-to guides, policies, contracts, and of course case law do not work together especially well, making it challenging for systems like Watson to interpret them. This Tower of Babel says as much about the complex way we create law as it does about the limitations of Watson.

IV. NOT ABOUT AUTOMATING REASONING

Many imagine Watson might displace lawyers for legal reasoning. We believe that systems like Watson are very unlikely to displace the reasoning processes of lawyers, in part because legal reasoning is not "formal" and therefore cannot be validated by a computationally-based system.[27] But it is equally true Watson may illuminate how rare it is that lawyers solve "bespoke" reasoning problems, and how common it is to apply "proven" approaches in slightly different contexts. Some specifics:

- Watson will help clarify what lawyers do and how they add value, and focus attention on the regulatory model for lawyers. Other fields (e.g., medicine) do a better job than law of defining a range of roles and fostering optimal performance among teams. The traditional regulatory model of defining a unique role for lawyers (and one that rests in large part on their intentions rather than the consequences of their actions) is already under siege, and will be further pressured by that advent of technologies that can augment or scale lawyer performance.
- Watson will empower younger lawyers, who are traditionally at the bottom of the hierarchy and have now been dislocated by today's job market, since they will likely be the first to embrace it.
- Watson will catalyze better organization of legal information and legal data, forcing legal departments and law firms to better manage

---

2016) (Dr. James Miser, Bumrungrad's Chief Medical Information Officer explains: "It will be like having a capable and knowledgeable 'colleague' who can review the current information that relates to my patient. . . It is fast, thorough, and has the uncanny ability to understand how the available evidence applies to the unique individual I am treating.").

27. While I may prefer politically the outcome reached by Justice Kennedy's reasoning in *Obergefell* to *Bowers*, I would be foolish to look to Watson to decide which is the "correct" answer a/la Jeopardy. *See generally* Obergefell v. Hodges, 135 S. Ct. 2584, 2607–08 (2015) ("The Court, in this decision, holds same-sex couples may exercise the fundamental right to marry in all States. It follows that the Court also must hold—and it now does hold—that there is no lawful basis for a State to refuse to recognize a lawful same-sex marriage performed in another State on the ground of its same-sex character."); Bowers v. Hardwick, 478 U.S. 186, 192 (1986) ("It is obvious to us that neither of these formulations would extend a fundamental right to homosexuals to engage in acts of consensual sodomy. Proscriptions against that conduct have ancient roots.").

their current information/data and delivering substantial returns from this information management step alone. For example, Watson does well in medical diagnosis because medicine relies on "differential diagnosis" (making diagnostic inferences based on explicit criteria), longitudinal data, and evidence-based medicine. Lawyers implicitly follow many of the same decision-making patterns as doctors, but making both the data and criteria more explicit will improve quality and reduce costs.

- Watson may find as much use as a dedicated, embedded service for specific legal workflows as a general purpose tool—think how "smart" email programs now suggest possible addressees, based on prior group emails.
- Watson (or something like it) will likely become a standard authoring/query model. Just as most companies today write their web information to optimize for Google's search, so professional knowledge (which is published in a multi-tier structure) will want to be better synthesized through a system like Watson, and so will adopt new authoring and publishing norms.

V. WATSON AS A "SERVICE"—THE POWER OF IBM'S STRATEGY

In many respects, the most important aspect of Watson is not what it can do today, but how IBM is introducing it to the market—as a service.[28] As part of its initiative to deliver Watson's cognitive computing capabilities through services, IBM has begun to partner with different companies in different fields, including law. (Full disclosure: OnRamp is working with IBM on Watson).[29] This is an interesting go-to-market approach for IBM, to create an ecosystem around a nascent technology, with analogues to Google Search or Apple's iTunes (or for true aficionados, to Salesforce's AppForce).

This "open" model of innovation means different companies will devise different ways of using Watson—some of which will work well and others of which will not. This open approach, combined with the level of resources IBM is putting into Watson and the extent to which Watson matches up to an "expected" capability, means that the pace of experimentation and innovation will be brisk.

This rapid pace of innovation, combined with the natural "first mover" advantages of training a corpus to deliver better insight, means that Watson may

28. *See generally Watson Services*, IBM WATSON, http://www.ibm.com/smarterplanet/us/en/ibmwatson/developercloud/services-catalog.html (last visited Mar. 30, 2016) (describing Watson as a "smart service").

29. Lippe & Katz, *supra* note *.

change the traditional late adopter characteristics of law and provide an incentive for lawyers to be "early adopters."

VI. CONCLUSION: THE SOCIETAL CHALLENGE OF MACHINE LEARNING

This is not to suggest that the rise of "smart machines" will be entirely good. Machine learning will create many profound challenges for society and culture. But for lawyers to credibly engage in shaping the rules that govern and constrain a new technology, they must do so from a position of credibility and engagement—not fear. You do not want to be the taxi driver opposing Uber.

Over the last generation, law and lawyers have fallen further behind other fields in their level of innovation, the use of new tools to improve productivity, and thoughtful design to respond to complexity. While some of this is inherent in the nature of law, much of it needs to change if lawyers hope to retain the respected role of their profession. Watson is potentially the most consequential tool for law in our lifetimes, and we would be wise to explore it. At minimum, experimentation with Watson will lead lawyers to explore and develop other ways of improving performance and fulfilling their professional responsibility. Watson will not displace lawyers—it will make law more accessible and transparent, as it should be.