

The Coming of Age of Legal Technology

September 26, 2016

By

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Comments (5) (<https://law.stanford.edu/2016/09/26/184188/#comments>)



In mid-August 2016, Uber expanded its reach and acquired the self-driving trucks company Otto (<https://techcrunch.com/2016/08/18/uber-acquires-otto-to-lead-ubers-self-driving-car-effort-report-says/>). And since mid-September Pittsburgh residents have been able to catch self-driving Uber rides (<http://fortune.com/2016/09/14/uber-self-driving-cars-pittsburgh/>). The message to Uber drivers is now clear: Don't rely on Uber providing that extra income for much longer.

Return to the *Stanford Lawyer* homepage (<https://law.stanford.edu/stanford-lawyer-magazine/#slnav-the-legal-aggregate>) Much has been said in recent years about the impact of proliferating AI (artificial intelligence) on life and work. With regard to the legal services industry, some are also predicting a radical disruption and the era of “robo-lawyers,” suggesting that we are facing an AI-driven revolution that will make lawyers obsolete in the not-too-distant future (<https://www.wired.com/2014/03/geeks-guide-karl-schroeder/>). Others expect a more gradual evolution where lawyers will standardize and systematize routine activities and streamline the old ways of doing business. This scenario would initially evolve in tandem with the more radical transformation in the way that the expertise of professionals is made available in society (<http://www.suskind.com/>). In the long run, however, the more radical transformation would dominate, and capable AI systems would eventually displace traditional work. Yet others expect that all the talk about disruption of the legal industry is hype and vastly exaggerated—that all these new technologies are nothing but a new kind of typewriter for lawyers that will change the way work is produced and captured but not the way the law and legal practice operate (<https://lawyerist.com/72223/practice-law-need-disrupted/>).

As is so often the case, the truth probably lies somewhere in between. There are areas of legal work where highly sophisticated technologies are in use already, and there are areas where legal services are delivered in the same way they were delivered 50 years ago.

But there is very little data available about legal technology as it is being deployed today. How many companies are there? What problems are they attempting to solve? What technology are they using? In an attempt to fill that knowledge void, researchers at CodeX—the Stanford Center for Legal Informatics (<http://codex.stanford.edu/>) with the help of SLS students, CodeX interns and other friends of CodeX, have built and recently launched an online resource that aims to map the legal tech landscape. The **CodeX LegalTech Index** (<http://techindex.law.stanford.edu/>) is an open source database that at this point counts more than 550 legal tech companies. The multitude of tags and categories of the database underlines the broad spectrum of areas where legal tech innovation is currently occurring.

The following presents a snapshot of legal technology circa September 2016. While it is as yet an incomplete overview, I hope that it will provide useful context and some new insights about this growing field for lawyers and non-lawyers alike.

Mapping the Field & Innovation Intensity

We generally differentiate between innovation in legal information retrieval, legal infrastructure, and computational law. Legal information retrieval encompasses technologies that help us find legally relevant information more efficiently (for example, legal search technologies, e-discovery technologies, contract analysis, contract management systems). Legal infrastructure technologies include new systems and platforms that help connect the stakeholders in the legal system more efficiently (for example, lawyer match-making platforms/networks). Computational law (<http://logic.stanford.edu/complaw/complaw.html>) technologies are systems where computers can understand legal rules and we can automate legal decision making and processes (for example, smart or computable contracts (<https://law.stanford.edu/projects/stanford-computable-contracts-initiative/>)).

CodeX affiliated scholar and Vermont Law professor Oliver Goodenough offered another helpful categorization. In his 2015 *Huffington Post* article “Legal Technology 3.0 (http://www.huffingtonpost.com/oliver-r-goodenough/legal-technology-30_b_6603658.html)” he applied the classic 1.0, 2.0, and 3.0 categories to describe the different phases of legal tech innovation and their impact on the legal profession. He explains that in legal technology 1.0 applications technology empowers people within the current system. Here, he includes computer-assisted legal research, document production, practice management, and early e-discovery. The disruptive 2.0 applications, where technology replaces an increasing number of people within the current system, include machine learning approaches in e-discovery (often including predictive coding) that are eliminating document review jobs. Other disruptive applications in the 2.0 phase include systems that combine word processing with expert systems to create contract document assembly tools that laymen can use to create contracts. According to Goodenough, we are fast approaching 3.0, where the power of computational technology for communication, modeling, and execution will result in a radical redesign or full replacement of the current system—in other words, systems that may challenge the human lawyer as the central figure in the delivery of legal services, just as the self-driving car challenges the concept of the human driver as the central figure in transportation. While this next generation of technology presents the most serious threat to the role of the human lawyer in the delivery of legal services, it also holds the promise of opening up a new era for the law itself, by providing people with affordable and immediate access to the law. Beyond that—by giving us new tools to measure and monitor the impact of a statute, a court or an agency decision, or a transaction—it will also help us better understand how the law impacts an individual, a group or society at large.

Some of the technologies I have mentioned here have already spawned their own sub-industries within the legal tech industry. For example, legal research, e-discovery, contract management, and lawyer networks have become crowded industries with many competitors. Much has also been reported about the use of Blockchain and Ethereum technology for contracts but also for other legal transactions (such as incorporation) (<http://otonomos.com/>). There are some interesting early-stage examples that have been developed. But at this point, we are still waiting for Blockchain or Ethereum enabled use cases that will solve legal problems for consumers or companies.

Law Firms, Innovation, and the Growth of Legal Tech

For the past decade or so, law firms have been facing ever more demanding clients, in particular corporate counsel who want more value for their outside legal spending. It is clear that, as law firms compete for legal business, they face new competition from alternative legal service providers, including the large accounting firms, legal process outsourcing companies (LPOs) and legal technology providers. Prominent commentators, such as Professor Richard Susskind and Professor William Henderson, have eloquently described the systemic economic pressures and technological developments that have been chipping away at law firms’ traditional business model and are offering some strategies for firms to be better prepared for the future.

In response to these pressures, we have seen law firms in the U.S. and other parts of the world pay more attention to legal innovation. Many firms have hired Chief Innovation Officers and/or put a partner in charge of tracking innovation pertaining to the firm’s particular area of business. Some larger U.S. firms have focused on gaining a competitive edge by offering their legal services in a “Lean Six Sigma”-inspired way (e.g., Seyfarth Shaw). Others, in an attempt to keep the work of start-ups they have initially served but that have chosen to stop using the firm’s expensive lawyers for the more mundane day-to-day legal tasks of a growing company, have launched new legal placement services, such as Fenwick and West’s Flex Program. The large firm Dentons has gone so far as to create its own legal innovation lab and investment vehicle (NextLaw Lab). And some very small, specialized firms have created new services that

capture their specific expertise—and make it available through an online system, such as Leila Banijamali, a San Francisco emerging company lawyer who created Startup Documents. Beyond that, law firms of all sizes are hiring consultants to help modernize their processes and technology “stack”. Even well-known design firms, such as IDEO, are joining the conversation on legal innovation and strive to bring human-centered design thinking to legal practice.

Some of the efforts by law firms to adapt to the changing environment appear to be having a positive impact on the bottom line—at least when they compare themselves with other law firms. According to the Georgetown 2016 Report on the State of the Legal Market (<https://www.law.georgetown.edu/news/2016-report-on-state-legal-market.cfm>), law firms that have responded proactively to changing client expectations by making strategic changes to their lawyer staffing, service delivery, use of technology, and pricing models are outperforming their peers in terms of financial results.

Looking to the Future of Law

Our efforts to capture the state of the art and discourse in legal technology culminate every year in our annual CodeX FutureLaw conference. This year’s conference on May 20th (<https://youtu.be/iNyfrBFEE8M>) asked the question: “Are we at the so-called ‘hockey-stick’ moment?” In other words, have we reached the inflexion point of legal technology, where the linear growth we have been observing over the last couple of years turns into exponential growth? The conference deliberately tried to avoid the hype and instead engaged keynote speakers, panelists, and the audience in conversations such as “The Technology Revolution, Lawyers, and Courts: Why So Slow? And How Can We Accelerate Change?” “Hot or Not —Watson and Beyond,” “Barriers to Legal Tech Adoption and Possible Solutions,” “The Role of Technologists in Reforming the Criminal Justice System.”

Key take-aways from the conversations were: That the legal industry has a duty of technological competence that is still unmet. That legal systems should be designed around the people they serve. That law firms could benefit from creating alternative business structures (ABS) that support non-lawyer ownership. That adopting legal technology requires taking risks—and getting more lawyers and engineers together—and that AI will help lawyers, rather than replace them, but we’re still in the early stages.

It is an exciting time to be in the legal industry and to think about how new innovations can address the many challenges the legal system faces. In recent years, we have witnessed what can be best described as a legal tech start-up boom. Our hope is that the **CodeX LegalTech Index** (<http://techindex.law.stanford.edu/>) will serve as a tool for anyone interested in gaining a deeper understanding of the innovation ecosystem within the law (<http://techindex.law.stanford.edu/>).

For lawyers, this is a time to rethink how the business of law can work and how the solutions to their clients’ legal problems can be shared with their clients in the most efficient and cost-effective way, while still providing for reasonable income for lawyers’ expertise and efforts. In fact, those lawyers who recognize the pending changes as an opportunity will likely do very well in this new environment. Because most lawyers are not trained as technologists, we need to have conversations between the domain expert lawyers and the technologists who can build the systems that will change the way the law operates. Organizations such as CodeX, the Center for the Legal Profession and the Legal Design Lab (<http://www.legaltechdesign.com/>) at Stanford and many others, are working actively to facilitate those conversations.

Roland Vogl is executive director of the Stanford Program in Law, Science and Technology (LST) and a lecturer in law at Stanford Law School. He focuses his efforts on legal informatics work carried out in the Center for Legal Informatics (CodeX), which he co-founded and leads as Executive Director. A lawyer, scholar, and media entrepreneur with over fifteen years of professional and academic experience, he has developed a strong expertise in intellectual property and media law, innovation, and legal informatics.

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5 Responses to “[The Coming of Age of Legal Technology \(https://law.stanford.edu/2016/09/26/184188/\)](https://law.stanford.edu/2016/09/26/184188/)”

Talwant Singh

September 30, 2016 at 5:52 pm

Nice article about legal tech Innovations.

LuQman AbdurRahman

October 1, 2016 at 12:29 pm

LuQman AbdurRahman was motivated by “Codex LegalTech Index will serve as a tool for anyone interested in gaining a deeper understanding of the innovation ecosystem within the law. Please support LuQman AbdurRahman for Honest Professionals to separate from Professionals who are not Honest. So no Professional who is not Honest has no place to hide. Please support this cause to stop wasting Public Money on False Records Keeping.

Olumba Chuks

October 6, 2016 at 2:24 am

This is a good article. I have been on the trail of legal tech startups in Africa. I have come in contact with 12 solid legal tech startups that are already impacting the society. So, I think this is more of a global movement in the legal sector.

Anthony Tsang

October 6, 2016 at 6:26 am

The traditional monopoly of the legal profession to provide legal services has been steadily eroded for some time, though in a piecemeal fashion. For example, real estate conveyancing in Australia is no longer the preserve of solicitors. Another example is the United Kingdom's Legal Services Act 2007. This piece of legislation widens participation in selected areas of the UK legal services market, allowing those who are neither barristers nor solicitors to enter. The primary purpose is to bring down the stubbornly high costs of legal services borne by the consumers.

Certain aspects of the legal services processes themselves have also experienced changes brought on by information technology. Again piecemeal. E-discovery is a good example.

The potential changes artificial intelligence can bring to the Law's Empire (to borrow the title of the late Ronald Dworkin's book) will be transformative to the whole. Much more ambitious than the impact of information technology on legal services practice to-date. The Law's Empire is comprised of two components: law formation and the administration of law. Under the common law tradition, Parliament is responsible for law formation, lawyers (or legal practitioners) are responsible for the administration of law, including the provision of legal advice, and judges are involved both in the formation of law and its administration. In theory, artificial intelligence has the potential to computerise the entire Law's Empire. This development has been in the making for decades. We have now come to a

stage where programming practice is being progressively automated. One only has to pay a visit to <https://scratch.mit.edu> (<https://scratch.mit.edu>) to realise the progress. Computers are being used to validate computer programmes written by human. One only has to participate in 6.00.1x Introduction to Computer Science and Programming Using Python, offered by MIT through the MOOC platform <https://www.edx.org> (<https://www.edx.org>), to appreciate the reach of computer science today. That in the future, it should not come as a surprise that computers are going to generate computer programmes. That is to say, human computer programmers will be a thing of the past.

Therefore, the foot soldiers of the administration of law being replaced by AI represents no more than natural progression. This may be no bad thing. Talented lawyers can be released to concentrate on the formulation of law, within the boundary of constitutional democracy of course. Thereby improving the quality of law. In turn, hopefully an improved society.

Anthony Tsang

October 11, 2016 at 4:08 am

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Comments are closed.