

Use of Artificial Intelligence in Legal Technologies: A critical reflection

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Abstract

The use of artificial intelligence in the legal sector flourished in recent years. This development is often met with excitement and unease. In this critical reflection, we analyse how artificial intelligence functions in modern legal technologies, and what its future implications are for the legal sector and critical legal thinking. We firstly discuss how machine learning and 'Narrow AI' are pertinent in this discussion, and how misleading the 'hype' on robot lawyers is. We then show how legal technologies are currently utilized, and the potential ways to map the modern legal technology landscape. Finally, we examine the potential effects of AI and legal technologies on legal decision-making, as complex algorithms open up the potential to disarrange or obscure critical analysis.

Keywords: Legal technologies; law; artificial intelligence; machine learning; lawtech

Artificial Intelligence in Legal Technologies

We ought to firstly discuss what artificial intelligence means within legal technologies. The first and crucial term is ‘machine learning’. Modern machine learning is a data-driven, learning based system that works on a large collection of data. It attempts to detect a pattern or procedure to explain current data or to predict future data. This modern concept is different from an older, rule-based approach to AI. With previous software, programmers would first try to learn the rules and criteria which should govern a program’s decision-making process. These criteria would subsequently be translated to software code. Instead of simply emulating the rules dictated by humans, modern machine learning uses computational methods to find a decision procedure that is sufficiently practical (**NTSC, 2016**).

Modern legal technologies utilize this feature of machine learning extensively. This sort of artificial intelligence that legal technologies are based on is ‘Narrow AI’, as machine learning is applied to ‘narrow’ or specific operations, varying from automatic contract analysis and self-driving vehicles to language translation. Commercial applications of this breakthrough are highly consequential; Deloitte estimates that within the next 20 years, 114,000 legal jobs will be automated (**Deloitte LLP, 2017**). In the short run, legal technologies using Narrow AI will likely transform organizational structures in law firms and the way these firms undertake legal business. However, it is difficult to say that these developments in Narrow AI will cause the displacement of human lawyers anytime soon. Narrow AI is the focus of modern legal technologies, but it is not what ‘robot lawyers’, which will ostensibly replace humans, are built from.

For a comprehensive AI lawyer to emerge, technological breakthroughs to create General AI would need to proliferate. General AI refers to the idea of an AI system that can manifest human-like intelligent behaviour across multiple cognitive tasks (**EOPNSTCCT, 2016**). But the history of AI is ridden with excessive optimism when it comes to the pace of progress. For example, AI pioneer Herb Simon predicted that computers would outplay humans in chess within the next decade — but he assumed this in 1957. This took almost 40 years to occur (**Ibid**). It is proven that technology forecasts beyond a 10-year horizon are rarely better than coinflips (**Mullins, 2012**), so we ought to refrain from speculating when legal technologies will be comprehensive enough to exhibit General AI that can revolutionize the entire legal system.

It is important to restrict the discussion of artificial intelligence in modern legal technologies to Narrow AI. The excitement about robot lawyers was criticized by a few industry players for being hyperbolic and doing a ‘disservice’ to the legal technologies discussion (**LexisNexis, 2017**). This is

despite compelling headlines like ‘The Robot Lawyers Are Here – and They’re Winning’ (**Cellan-Jones, 2017**) that are written when AI outperforms humans in legal competitions. Such hype was blamed for creating a certain level of excitement and expectation for legal technology customers which existing products and organizations in the market are not ready to match (**LexisNexis, 2017**). While this claim itself may be somewhat exaggerated, it does nonetheless convey the problem of defining artificial intelligence poorly in the legal technologies and AI debate. For now, AI remains effective in specific tasks it is trained to do.

Uses of Legal Technologies and Mapping the Legal Technology Landscape

Artificial intelligence and legal technologies are already impacting legal practice. The advantage of machine learning in legal technologies is its ability to automate laborious tasks and solve problems that are expensive, inefficient or too data-heavy. In 2018, investments for legal technologies reached 1 billion USD for the first time (**Ambrogi, 2018**), while corporate law departments started to spend 1.5 billion USD annually on legal software in 2016 (**Friedmann, 2016**). In LexisNexis’s survey, 57% of General Counsels mentioned that investments in technology already increased their efficiency, and 60% of General Counsels acknowledged that technology will help improve the accuracy of their legal work over the next three to five years (**Gould, 2018**).

The burgeoning use of artificial intelligence in legal technologies can help firms run more efficiently and meet that demand (**Thomson Reuters, 2018**). In reports conducted specifically for legal technology and the banking sector, improving efficiency in legal tasks was unanimously mentioned as the key driver of technology adoption. Technology in cases like these are applied at opposite ends of the legal spectrum: from automating high frequency and low value tasks to supporting large scale due diligence and document review exercises (**Pinsent Masons, 2018**). These developments have a pervasive effect. Practitioners have begun using fledgling legal technologies in different areas of practice, and they are now in a good position to assess their benefits.

As AI-based legal technology products flourish, we need to categorize legal technologies according to their capabilities and aims. Currently, there is no widely accepted classification of legal technologies. In their paper on ‘Legal Technology for Law Firms: Determining Roadmaps for Innovation’, Kerikmäe (**et al., 2018**) called for a categorization system, since a system like that would clarify the current state of the burgeoning industry. Unlike more established portmanteaus like ‘fintech’ for financial technologies, it is uncertain that there is even a definite abbreviation for legal

technologies. Various names are sporadically used, such as lawtech, legaltech and regtech.

This and the lack of an established classification might reflect the nascent nature of the industry. Kerikmäe et al. (**ibid**) mention that some scholars, such as Praduroux et al. (**2016**), propose up to eight categories as they came up with classification ideas, which include operations as diverse as lawyer-to-lawyer networks and predictive data mining. Likewise, they mention that Rackwitz and Corveleyn (**2017**) took a unique approach and drafted a matrix in which legal technologies can be evaluated as Platform, Network, Software and Know-How, rather than rigid classes or categories (**Kerikmäe et al., 2018**).

Nevertheless, Boston Consulting Group's (BCG) report with Bucerius Law School on legal technologies perhaps provides the most practical and succinct categorization of the current legal technologies landscape (**BCG, 2016**). This approach essentially proposes three categories to classify legal technologies: enablers, support processes solutions and substantive law solutions. The first category is more unspecific and focuses on digitizing conveniently. Cybersecurity and cloud storage products are examples of these; they can be developed by non-legal tech vendors and are pertinent to industries other than law as well. Enabler technologies are quickly becoming essential for all law firms, but especially larger ones, since clients are becoming more conscious of the way their data is used and safeguarded. The second category, support-process solutions, improve law firms' back-office duties and organizational needs such as case-management. Human resources, work-flow management and client relationship management may be considered examples of these (**ibid**).

The final category, substantive law solutions, is where the products which are meant to support —and then ostensibly replace— legal professionals in substantive legal work belong. Basic support solution products, which facilitate legal tasks that require less experience such as drafting standard contracts, might be considered examples of these. Advanced support solutions belong in this category as well. These would include products which could help legal professionals in areas that need more legal insight, such as extracting and analysing case law or autonomously conducting due diligence (**BCG, 2016**).

Despite all these developments in legal technologies, we are still in the early stages of adoption and development. The pace and demand for legal technologies and automated legal tasks are steadily growing, but there have been no breakthroughs comparable to those from other industries, as it has happened in other sectors like retail, sales, and communications. The main reason behind this is most likely that the technologies which generate artificial intelligence have only recently been widely available.

Entrepreneurial and organizational cultures necessary to build and distribute legal AI products are developing gradually, and law firms are gradually adjusting the traditional ways they conduct business.

Some scholars speculated on other reasons why there have not been comparable breakthroughs. For example, Kerikmäe et al. (2018) mention McGinnis and Pearce's (2014) three potential reasons for this: Firstly, McGinnis and Pearce argue that AI is not advanced enough to act as an oral advocate, which gives lawyers a 'lucrative niche'. They also believe that machines are better suited for routine tasks, and lawyers working in specialized legal areas, like the application of the Dodd-Frank Act, are insulated from disruption. Finally, they believe that counsellors can create the empathetic and emotional relationships with their clients, which will be important to convince the client to do something they do not wish to do — this helps them prevail over machines.

It is still important to note that assumptions like these are problematic because of possible extrapolations behind their reasonings. They do not take the stupendously rapid developments in artificial intelligence enough into consideration. We should not, as mentioned, be unrealistically anticipative about developments in AI. But we also should not underestimate how far Narrow AI has come in such a short period of time, and the impact it is having on legal practice. An overall AI lawyer may not be imminent, but exponential improvements in natural language processing, the adaptability of machine learning, and clients' pragmatic interests for efficiency and cost reduction over the nebulous concept of 'emotional bonds' are major opportunities for legal technologies to thrive and eventually accomplish considerable breakthroughs of its own in the next decades.

Potential Effects on Legal Thinking

The two most notable ways legal technology will impact legal business in the short term are the way it will transform legal business and how it will influence legal thinking. The first transformation is relatively easy to envisage. The so-called 'more-for-less challenge' is one of the main drivers that fuels the growth of legal technologies, since it provides economic advantage (Hondao et al., 2019). Law firms serve clients that demand efficient and cheaper comprehensive legal service, and legal technologies can support law firms to face this task and become more competitive in the market. Legal technologies and the artificial intelligence mechanisms will increasingly automate routine works done in law firms and make them more accessible. This may significantly impact traditional structures of law firms and ultimately affect how law firms compete and meet client demands.

The impact legal technologies have on legal thinking, however, is more elusive. The idea that legal technologies will challenge the monopoly of lawyers in the legal market is hasty. But legal technologies have started to impact legal thinking and decision-making, and this warrants urgent scrutiny and analysis. Pervasive use of face recognition software is already causing law enforcement problems, as Amazon's Rekognition wrongly identified mugshots with pictures of twenty-eight members of congress (**Snow, 2018**), and African Americans get wrongfully arrested because the software becomes more error-prone with people of colour (**Burton-Harris and Mayor, 2020**). Furthermore, a defendant in the US was sentenced to life in prison without parole in 2018, and the prosecutors used a law enforcement tool that ran a sophisticated algorithm (**GSU, 2018**). Yet, the defendant's attorneys could not analyse the source code of the program, in order to see if it had any errors or biases. The prosecutors argued that the algorithm is a trade secret, and they succeeded (**GSU, 2018**). Early cases like these are significant. The transformative nature of legal technologies and the complexity of modern machine learning algorithms may obscure or distort critical legal thinking. Software cognition is not capable of overtaking critical legal thinking yet. However, the progress in deep learning techniques and natural language processing is continuing steadily. The impact legal technologies will have on legal thinking is only set to increase, and this is becoming more of an urgent issue.

Due to this concern, there are copious questions on how to integrate legal technologies into legitimate legal thinking. In an essay on transformative legal technology and the rule of law, Paul Gowder distinguished two 'models' of legal technology: cheaper lawyers and transformative artificial legal cognition (**Gowder, 2018**). Cheaper lawyers simply do what lawyers do, but quicker and for cheaper. Meanwhile, transformative artificial legal cognition delves into work inaccessible to lawyers, such as computational contracts. While Gowder focuses on how the latter can advance the rule of law, both models of 'legal cognition' impact legal thinking and can influence access to justice, as early examples show. As these technologies develop, will it be enough to merely have developers who are only responsible for making sure their program runs as intended? Will it be better to always have a human lawyer or legal scholar who works to steer AI into something more equitable, as nebulous that may sometimes seem?

These issues will most likely result in a balancing act. Software will always be susceptible to bias and errors, but it will be more efficient at data-heavy analysis than people. It will also likely be imperative to be able to understand how algorithms work, as transparently as possible, while the use of machine learning and big data proliferate in the legal field (**Bennet Moses and Chan, 2014**). As legal technologies increasingly impact legal thinking, legal professionals may have to regulate legal technologies, and

at the same time accept that they ought to take its analyses into consideration. As Kasparov wrote when discussing how the best chess games can be played, man and machine together may be better than either alone (**Kasparov, 2008**). This important issue of how to integrate legal technologies into legal thinking requires more debate and analysis.

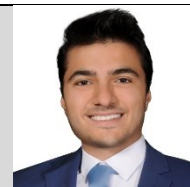
Conclusion

Artificial intelligence and legal technologies have begun to impact the legal profession. They are transforming how routine legal tasks are carried out and how legal professionals from diverse areas of practice undertake their business. The effects of AI on legal practice are only set to surge, but it is important to restrict the debate of AI and law to machine learning. Legal technology is a nascent industry and does not have a conventional classification, but it requires one as the industry grows. Similarly, more research needs to be done on what impact legal technologies will soon have on legal thinking. Decision-making on legal issues has belonged exclusively to humans, but AI has begun to influence our decisions. AI can bolster and improve legal practice and rule of law. But it needs to be directed and utilized deliberately, and with careful knowledge of what renders it simultaneously helpful and hazardous to legal decision-making.

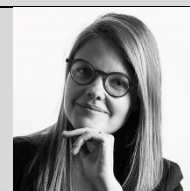
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