Artificial Intelligence and the Legal Profession: Becoming The AI-Enhanced Lawyer

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Abstract

Recent advances in artificial intelligence (AI) have given rise to concerns about its impact on the labour market, including professional occupations such as lawyers. While some have foretold the end of lawyers, we suggest that AI will enhance humans' abilities and allow lawyers to better perform their role. While AI will reduce the cost of some elements of legal work that were previously undertaken by lawyers because AI can perform those elements more efficiently, other aspects of lawyers' work will become more valuable. In particular while machine prediction will replace human prediction, human judgement – which includes knowing what to do with machine predictions so as to achieve a desirable outcome for the client – will be more valuable. As with other advances in technology, though, there will be a need for retraining.

I INTRODUCTION

Artificial intelligence (AI) is enjoying a renaissance due to increased computing power, growth in the availability of data and improvements in algorithms.[1] This revival has heightened expectations as to what AI is capable of achieving and led to doomsday predictions where humans are redundant and there is mass unemployment.[2] This fetish for prophesizing the end of humanity has also afflicted predictions for the future of the legal profession, with some speculating that lawyers will be replaced by robots.[3]

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[1] See, eg, Jerry Kaplan, *Artificial Intelligence, What Everyone Needs to Know* (Oxford University Press, 2016).

[2] Martin Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future* (Oneworld, 2015); Jerry Kaplan, *Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence* (Yale University Press, 2015). Reporting has also focussed on automated weapons and developments which more directly impact human existence but which are not addressed here.

[3] See, eg, Gary E Marchant, 'Artificial Intelligence and the Future of Legal Practice' (2017) 14(1) *ABA SciTech Lawyer* 20, 21, providing the following sample of media headlines: 'Rise of the Robolawyers', 'Here Come the Robot Lawyers', 'Why Hire a Lawyer? Machines are Cheaper', 'Armies of Expensive Lawyers, Replaced by Cheaper Software', 'Law Firm Bosses Envision Watson-Type Computers Replacing Young Lawyers', 'Why Lawyers and Other Industries Will Become Obsolete. You Should Stop Practicing Law Now and Find Another Profession'.

A more nuanced perspective is that while AI may remove the need for human lawyers to undertake some steps in the lawyering process, whether that be litigation, transactions or advice, AI will not replace lawyers wholesale. Indeed, AI will enhance what lawyers can do, both by creating process efficiencies, and by increasing the relative value of exclusively 'human' skills. While the argument for AI augmenting rather than replacing humans has been made previously,[4] this article explains why and how that outcome will occur in relation to the legal profession.

Technology has augmented human activity for hundreds of years, from the wheel to the steam engine to the computer. Those technological advances changed the roles that humans played and enhanced what they could achieve. Humans needed to learn how to use those technologies which required reskilling. Some roles disappeared and new roles were created. Technology also made human attributes and skills more important.[5]

The use of AI in legal services has attracted similarly conflicting narratives centred around how automatable legal work might be. Recognising that 'AI' may denote widely different systems and models, we use the term here loosely to refer to the collection of computational methods which are being used in the practice of law. This may encompass 'expert systems' – examples of logic or rule-based programming – as well as machine learning systems, which develop and refine their models through analysing data. The path of AI development has not been linear.[6] Key reasons for its current prominence are increases in computer processing power and affordability,[7] the corresponding growth in electronically stored information[8] and, to a lesser extent, improvements in algorithms.

For the legal profession in the 21st century, AI will change the practice of law by automating parts of the lawyering process and lawyers will need to be able to use those new tools to enhance their professional offering, but also supervise, question and interpret AI. Importantly, the diversity of the profession in terms of sector, areas of practice and firm structures means that it is not useful to generalize about the impact of AI on lawyers or legal

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[4] Paul Daugherty and H James Wilson, *Human + Machine: Reimagining Work in the Age of AI* (Harvard Business Review Press, 2018); Thomas H Davenport, *The AI Advantage: How to Put the Artificial Intelligence Revolution to Work* (MIT Press, 2018).

[5] United Nations Department of Economic and Social Affairs, *The Impact of the Technological Revolution on Labour Markets and Income Distribution* (31 July 2017) <https://www.un.org/development/desa/dpad/wp–content/uploads/sites/45/publication/2017_Aug_Frontier–Issues–1.pdf>.

[6] Toby Walsh, *It's Alive! Artificial Intelligence from the Logic Piano to Killer Robots* (LaTrobe University Press, 2017) 51; Jerry Kaplan (n 1) 1.

[7] 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' (2013) 62(4) *Emory Law Journal* 909, 916.

[8] Viktor Mayer–Schonberger and Kenneth Cukier, *Big Data* (First Mariner Books, 2014) 8; Russell and Norvig Stuart J Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach* (Pearson, 3rd ed, 2016) 27.

practice as a whole. For this reason, this article focuses on three specific examples of AI in practice to examine its differential effects. Nevertheless, much of what lawyers currently do, such as providing judgement, guidance and human interaction, will continue. AI will enhance lawyers' capacity to perform those aspects of their role by freeing them from some of the mechanistic tasks that have consumed lawyer time in the past. AI will also mean that those legal skills that draw on the lawyer's humanity and ethics, and which AI cannot provide, will be more sought after and more valuable. While the 'rise of the machines' undoubtedly gives rise to challenges for the legal profession, AI also provides an opportunity to enhance the lawyer's abilities and professional fulfillment.

To aid in understanding these changes, the interaction of AI and the lawyer may be examined from the perspective that, in economic terms, AI reduces the cost of prediction.[9] When the price of prediction drops, the value of its substitutes will go down and the value of its complements will go up.[10] The main substitute for machine prediction is human prediction; so as the quality of AI prediction goes up, the value of human prediction will fall.[11] Human prediction is subject to various cognitive limitations or bounded rationality which give rise to heuristics and biases.[12] The greater the volume and complexity of the information to be considered in reaching a decision the greater the difficulty in correctly assembling and applying that information.[13] These limitations apply to lawyers.[14] In contrast, a machine learning system does not need to use some form of 'rule of thumb', 'gut instinct' or even recollection, as it can find patterns and correlations in large amounts of data. Correspondingly, the value of prediction's complements will go up. The complement usually focussed on is data – 'data is the new oil'.[15] As the cost of prediction falls, the value of data goes

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[9] Ajay Agrawal, Joshua Gans and Avi Goldfarb, *Prediction Machines — The Simple Economics of Artificial Intelligence* (Harvard Business Review Press, 2018) 13. See also Benjamin Alarie, Anthony Niblett and Albert Yoon, 'How Artificial Intelligence Will Affect the Practice of Law' (2018) 68 *University of Toronto Law Journal* 106, 114.

[10] Joshua Gans et al, *Principles of Microeconomics* (Cengage, 7th ed, 2018) 77 (When a fall in the price of one good reduces the demand for another good the two goods are called substitutes. When a fall in the price of one good raises the demand for another good the two goods are called complements).

[11] Agrawal, Gans and Goldfarb (n 9) 13.

[12] Daniel Kahneman, Paul Slovic and Amos Tversky, *Judgment Under Uncertainty: Heuristics and Biases* (Cambridge University Press, 1982); Daniel Kahneman, *Thinking, Fast and Slow* (Farrar, Straus and Giroux, 2011).

[13] Atul Gawande, *The Checklist Manifesto* (Henry Holt, 2010) 13.

[14] Robert Bone, *Civil Procedure — The Economics of Civil Procedure* (Foundation Press, 2003) 105–12; Charles Snyder, 'Moneyball Lawyering' (2012) 65 *Arkansas Law Review* 837, 851–854. The same limitations can apply to judges: Chris Guthrie, Jeffrey J Rachlinski and Andrew J Wistrich, 'Blinking on the Bench: How Judges Decide Cases' (2007) 93 *Cornell Law Review* 1.

[15] 'The World's Most Valuable Resource is No Longer Oil, but Data', *Economist* (online, 6 May 2017) <https://www.economist.com/news/leaders/21721656-data-economy-demandsnew-approach-antitrust-rulesworlds-mostvaluable-resource>.

up.[16] Machine learning depends on access to sufficient data to be able to make predictions, as insufficient or poor quality data can render its predictions unreliable.[17] A further complement that is particularly significant for lawyers is human judgement.

Typically, humans use both prediction and judgement to make decisions but previously these have been thought of as combined and therefore as a single step. AI allows for the unbundling of decision making but performs only the 'prediction' step. The value of human judgement goes up because AI does not perform the 'judgement' step. Humans must use judgement to determine what to do with the predictions.[18] However, while judgement is more valuable, there is still a need to consider at what price the client can afford to access lawyer judgement. Greater value can mean a higher price but only if there is demand for lawyer judgement at that price. If the price is too high the client may rely on their own judgement.

In terms of the lawyer's role, judgement is the capacity to make sensible or good decisions to achieve an outcome that is beneficial, or at least less harmful, for a client from a range of possible actions. Judgement is multidimensional, and involves combining a range of inputs, often both legal and non-legal, through using a range of human skills such as experience, empathy and creativity.[19] Judgement also involves an ethical component (moral judgement), as it gives rise to the consideration of consequences for the client.[20] It is important to note, therefore, the imperfections of human judgement, including that of lawyers, which can be criticised on a number of fronts.[21] Indeed, one claim made about statistical or machine learning analysis of case law is that it may illuminate the hidden and subconscious biases that influence human decision-makers.[22] It is not, however, within the scope of this article to investigate

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[16] Agrawal, Gans and Goldfarb (n 9) 43–51. See also Mayer–Schonberger and Cukier (n 8) ch 6: Value.

[17] Agrawal, Gans and Goldfarb (n 9) 59; Thomas C Redman, 'If Your Data is Bad, Your Machine Learning Tools are Useless', *Harvard Business Review* (online, 2 April 2018) <https://hbr.org/2018/04/if-your-data-is-bad-your-machine-learning-tools-are-useless>.

[18] Agrawal, Gans and Goldfarb (n 9) 83, 161–62. See also Daugherty and Wilson (n 4) 50–1.

[19] See generally David Luban and Michael Millemann, 'Good Judgment: Ethics Teaching in Dark Times' (1995) 9(1) *Georgetown Journal of Legal Ethics* 31.

[20] See Lisa Webley, 'Divorce Solicitors and Ethical Approaches – The Best Interests of the Client and/or the Best Interests of the Family' (2004) 7 *Legal Ethics* 231, 240–41; Angela Olivia Burton, 'Cultivating Ethical, Socially Responsible Lawyer Judgement: Introducing the Multiple Lawyering Intelligences into the Clinical Setting' (2004) 11 *Clinical Law Review* 15, 17–19.

[21] See, eg, Anthony T Kronman, *The Lost Lawyer: Failing Ideals of the Legal Profession* (Belknap Press of Harvard University Press, 1993); Benjamin Barton, *The Lawyer-Judge Bias in the American Legal System* (Cambridge University Press, 2011).

[22] See, eg, Ozkan Eren and Naci Mocan, 'Emotional Judges and Unlucky Juveniles' (2018) 10(3) *American Economic Journal: Applied Economics* 171; and see the summary of Tania Sourdin, 'Judge v Robot: Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *University of New South Wales Law Journal* 1114, 1128–29 and the references cited therein.

the flaws in lawyers' judgement. Rather, it utilises the concept of human judgement as a counterpart to the functions of AI within legal services. However, for the lawyer to incorporate machine prediction as an input into human judgement will require some reskilling, for example, management skills to combine technology and human resources, and statistical literacy to able to understand AI functioning and outputs.[23]

To discuss these issues, this article adopts the following structure. Part II provides a background on artificial intelligence. Part III describes three legal applications of AI software that are currently in use, namely technology assisted review for discovery in litigation, outcome prediction as part of legal advice or strategy, and automated advice and document creation. In each example the utility of AI to the lawyer and client is discussed and role of the lawyer is highlighted. Part IV discusses the role of lawyer judgement and how it is combined with AI predictions to give rise to the AI-enhanced lawyer. Finally, while AI does not spell the end of lawyers, there will be a need to acquire some new skills and refine existing skills. Part V concludes by discussing some of the ways that legal education and training may need to change in order to facilitate the development of the AI-enhanced lawyer.

II ARTIFICIAL INTELLIGENCE

Coined in the 1950s, "artificial intelligence" is a unifying term for various technologies (including robotics, speech and vision functions, machine learning and expert systems) but there is no clear consensus on a precise definition.[24] Different indicia or tests as to what comprises AI have been put forward. These generally rely on what AI does – whether this is mimicking human behaviour, actually thinking like a person, or perhaps being capable of rational action.[25] Surden has explained that contemporary AI systems

> excel in narrow, limited settings, like chess, that have particular characteristics – often where there are clear right or wrong answers, where there are discernible underlying patterns and structures, and where fast search and computation provides advantages over human cognition.[26]

The emphasis on narrowly defined tasks is important, as "general AI" (or strong AI) – futuristic systems which can perform many human activities,

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[23] Michael Legg, 'New Skills for New Lawyers: Responding to Technology and Practice Developments' in Kevin Lindgren, Francois Kunc and Michael Coper (eds), *The Future of Australian Legal Education* (Thomson Reuters, 2018) 375–6.

[24] See Russell and Norvig (n 8) 16–29 (for a history of AI); Alan M Turing, 'Computing Machinery and Intelligence' (1950) 49 *Mind* 433.

[25] See Russell and Norvig (n 8) 2 on definitions of AI.

[26] Harry Surden, 'Artificial Intelligence and Law: An Overview'' (2019) 35(4) *Georgia State University Law Review* 1305, 1309.

perhaps leading to "the singularity", when machines overtake humans[27] – is not (yet) available.[28] Further, it is narrow AI which presently has application to legal tasks. We here discuss pre-programmed logic systems and machine learning systems, as well as one particular application of machine learning: natural language processing.

Expert systems have a relatively long history of legal application.[29] They are knowledge representation systems which are programmed to process a series of steps to arrive at an answer, modelling human expertise. An early use of expert systems was a tool to aid medical diagnosis of blood disease, programmed with 450 "rules".[30] The rules had to be generated in consultation with human experts (medical professionals, drawing on textbooks, and their own knowledge). By the early 1980s, expert systems could be used for basic 'legal reasoning', such as a system for recommending settlements in product liability disputes.[31] These systems are, however, limited in their legal application. Firstly, they can deal only with narrow and straightforward legal problems and flounder with "fuzzy" concepts such as reasonableness, and interactions between different systems of rules (for example, real property and equity).[32] Secondly, the programming required is time-consuming, as all the rules (and any changes to the rules) must be expressly input. This is referred to as the 'knowledge acquisition bottleneck',[33] because the way the system acquires new knowledge is inefficient. For this reason, it has been argued that expert systems will not fundamentally transform legal practice,[34] though they still have application, as discussed below.

The more revolutionary development[35] in AI is the progress which has been made in recent years in machine learning. Itself an umbrella term, machine learning generally refers to systems which, by analysing large amounts of data, can detect patterns in that data and build their own

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[27] Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (Penguin, 2005); Ford (n 2) ch 9: Super-Intelligence and the Singularity.

[28] Michael Shick, 'Could a Computer Make a Cup of Coffee?', *Fast Company* (online, 2 March 2010) <https://www.fastcompany.com/1568187/wozniak–could–computer–make–cup–coffee> (Steve Wozniak).

[29] Lyria Bennett Moses and Janet Chan, 'Using Big Data for Legal and Law Enforcement Decisions: Testing the New Tools' (2014) 37(2) *University of New South Wales Law Journal* 643, 656–58.

[30] Russell and Norvig (n 8) 23.

[31] For a summary, see Kevin D Ashley, *Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age* (Cambridge University Press, 2017) 8–10; see also Richard Susskind, *Tomorrow's Lawyers* (Oxford University Press, 2nd ed, 2017) 185–86.

[32] See Lyria Bennett Moses, 'Artificial Intelligence in the Courts, Legal Academia and Legal Practice' (2017) 91(7) *Australian Law Journal* 561, 563.

[33] Russell and Norvig (n 8) 28; Michael Aikenhead, 'The Uses and Abuses of Neural Networks in Law' (1996) 12 *Santa Clara Computer & High Technology Law Journal* 31.

[34] Ashley (n 31) 11.

[35] Alarie, Niblett and Yoon (n 9).

computational models to process new and unfamiliar data. Yeung has explained:

> [C]omputational algorithms include those that encode simple mathematical functions, [but also] sophisticated *machine learning* algorithms, fed by massive (and often unstructured) data sets, that operate computationally and depart from traditional techniques of statistical modelling … machine learning does not require *a priori* specification of functional relationships between variables. Rather, the algorithms operate by mining the data using various techniques to identify patterns and correlations between the data, which are used to establish a working model of relationships between inputs and outputs. This model is gradually improved by iterative "learning" that is, by testing its predictions and correcting them when wrong, until it identifies something like what is understood in conventional statistics as a "line of best fit" to generate a model that provides the strongest predictive relationship between inputs and outputs.[36]

The limitation of expert systems – that human programmers effectively need to know the answer before starting – is addressed by systems which can teach themselves via learning algorithms. Machine learning systems use different algorithms and learn in different ways. In unsupervised learning, patterns are extracted simply from reviewing data (for example, by comparing sufficient numbers of photos with cats and photos without cats, common cat features are identified).[37] In reinforcement learning, the system receives rewards or punishments based on its actions.[38] In supervised learning, the system is provided with exemplars (such as photos already labelled 'cat' or 'no cat') from which to learn. In reality, as Russell and Norvig explain, there is a 'continuum' between supervised and unsupervised learning rather than a clear distinction.[39] At present, supervised machine learning is the most commonly used for legal tasks.[40] Typically, the more data analysed, the greater the accuracy of the model.[41] In fact, it is suggested that the volume of data may be more important than the algorithm which is used.[42]

Machine learning is frequently mentioned in relation to the concept of prediction, predictive analytics or big data analytics. With the capacity to

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[36] Karen Yeung, 'Algorithmic regulation: A critical interrogation' (2018) 12 *Regulation and Governance* 505, 506 (emphasis in original).

[37] John Markoff, 'How Many Computers to Identify a Cat? 16,000', *New York Times* (New York, 25 June 2012) 1.

[38] Russell and Norvig (n 8) 695.

[39] Ibid.

[40] David Lehr and Paul Ohm, 'Playing with the Data: What Legal Scholars Should Learn About Machine Learning' (2017) 51 *University of California Davis Law Review* 653, 676; Solon Barocas and Andrew D Selbst, 'Big Data's Disparate Impact' (2016) 104 *California Law Review* 671, 673.

[41] See Matt Kiser, 'Introduction to Natural Language Processing', *Algorithmia* (online, 11 August 2016) <https://blog.algorithmia.com/introduction–natural–language–processing–nlp/>.

[42] Russell and Norvig (n 8) 27.

identify patterns in large volumes of 'messy' data, machine learning can find statistical correlations which would otherwise be unknowable.[43]

There are a number of reasons why we might want to create a program which can 'learn': programmers cannot anticipate all future scenarios, or changes over time, or may not know how to program a solution.[44] Surden has explained:

> Such an incremental, adaptive, and iterative process often allows for the creation of nuanced models of complex phenomena that may otherwise be too difficult for programmers to specify manually, up front.[45]

Another important application of machine learning is to natural language processing (NLP) (or text analytics).[46] Here, the patterns analysed relate to human language use.[47] NLP is important for humans to be able to communicate with computers using 'natural' language (i.e., without necessarily using computer code or inputs), with all its nuances, use of slang and so on. One goal of NLP is to allow people to use everyday language to communicate with computers. The proliferation of 'home assistants' leverages this technology. It is also important for computers to use the knowledge contained in large text corpora.[48]

NLP is significant for law and legal applications because so much of what lawyers do is text-based.[49] It enables 'plain English' searches to be translated into legal search queries, for example; or can be used for applications like review of documents. Thus, it is important for various of the legal applications which are discussed below.

We now turn to discuss specific uses of AI in legal practice. We use three examples: Technology Assisted Review (TAR) of documents, outcome prediction, and legal document creation and automated advice.[50]

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[43] Mikella Hurley and Julius Adebayo, 'Credit Scoring in the Era of Big Data' (2016) 18(1) *Yale Journal of Law and Technology* 148.

[44] Russell and Norvig (n 8) 693.

[45] Surden (n 26) 94.

[46] NLP may use machine learning but also other techniques such as network diagrams and question answering which are described by Kevin D Ashley, 'Automatically Extracting Meaning from Legal Texts: Opportunities and Challenges' (2019) 35(4) *Georgia State University Law Review* 1117, 1117–18.

[47] Daniel Ben-Ari et al, 'Artificial Intelligence in the Practice of Law: An Analysis and Proof of Concept Experiment' (2017) 23(2) *Richmond Journal of Law & Technology* 2.

[48] Ashley (n 46).

[49] Ford (n 2) ch 4: White-Collar Jobs at Risk.

[50] V R Ferose and Lorien Pratt, 'How AI Is Disrupting the Law', *Digitalist Magazine* (online, 3 April 2018) < https://www.digitalistmag.com/digital-economy/2018/04/03/ai-is-disrupting-law-06030693> ('AI is already impacting current attorney practice in four discrete areas: (1) document review in e–discovery ("predictive coding" or technology–assisted review), (2) contract due diligence review in corporate transactions, (3) third-party legal research products in multiple practice areas, and (4) time entry and matter analysis'); John O McGinnis and Russell G Pearce, 'The Great Disruption: How Machine Intelligence

III HUMAN-AI DIVISION OF LABOUR

Economic theory suggests that the use of AI will enhance the relative value of a lawyer's judgement. While given the right conditions AI may be better at 'prediction', judgement is required to know what to do with the prediction. Thus, as with other occupations, particular tasks within the roles performed by a lawyer will be automatable but not the entire occupation.[51] Ideally, AI and the human lawyer will work together, with AI assisting, augmenting, or even enhancing, the human.[52]

The challenge becomes, then, to allocate tasks between AI and the human based on their relative strengths – a new division of labour.[53] This division, at a general level, has been described as machines 'performing repetitive tasks, analysing huge data sets, and handling routine cases', while humans, in contrast, are 'resolving ambiguous information, exercising judgement in difficult cases and dealing with dissatisfied customers'.[54] This paradigm applies to many current uses of AI in legal services, which are essentially process innovations – time-saving tools. The effect of these technologies is often referred to as 'freeing' lawyers from work which requires less skill and expertise ('grunt' or 'drudge' work).[55] Technology Assisted Review exemplifies this as lawyers do not need to review millions of (often irrelevant) documents as part of the litigation process. Process innovations are generally integrated with other, non-automable tasks. Brynjolfsson and McAfee point out that AI systems 'hardly ever' replace the entirety of a person's role, but rather:

> complement human activities, which can make [human] work ever more valuable. The most effective rule for the new division of labor is rarely, if

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Will Transform the Role of Lawyers in the Delivery of Legal Services' (2014) 82(6) *Fordham Law Review* 3041, 3042.

[51] Erik Brynjolfsson and Andrew McAfee, 'The Business of Artificial Intelligence', *Harvard Business Review* (online, 26 July 2017) <https://hbr.org/cover–story/2017/07/the-business-of-artificial-intelligence>; Melanie Arntz, Terry Gregory and Ulrich Zierahn, 'The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis' (OECD Social, Employment and Migration Working Paper No. 189, OECD Publishing, 2016); see also Richard Susskind and Daniel Susskind, *The Future of the Professions* (Oxford University Press, 2015) 212.

[52] Albert H Yoon, 'The Post-Modern Lawyer: Technology and the Democratization of Legal Representation' (2018) 66(4) *University of Toronto Law Journal* 456, 466; House of Lords Select Committee on Artificial Intelligence, *AI in the UK: Ready, Willing and Able? – HL Paper 100* (Paper No 100, 6 April 2018) [193], [225]; Brynjolfsson and McAfee, 'The Business of Artificial Intelligence' (n 51); Ajay Agrawal, Joshua Gans and Avi Goldfarb, 'Artificial Intelligence: The Ambiguous Labor Market Impact of Automating Prediction' (2019) 33(2) *Journal of Economic Perspectives* 31.

[53] Susskind and Susskind (n 51) 117; Agrawal, Gans and Goldfarb (n 9) 54; Daugherty and Wilson (n 4) 47.

[54] Daugherty and Wilson (n 4) 5.

[55] David Howarth, *Law as Engineering: Thinking about What Lawyers Do* (Edward Elgar, 2013) 34; Sean Semmler and Zeeve Rose, 'Artificial Intelligence: Application Today and Implications Tomorrow' (2017) 16 *Duke Law & Technology Review* 85.

ever, "give all tasks to the machine." Instead, if the successful completion of a process requires 10 steps, one or two of them may become automated while the rest become more valuable for humans to do.[56]

In this regard, the injection of AI into legal practice fits into part of a broader pattern of change to lawyers' work. The nature of both legal work and understandings of legal professionalism have already been significantly recast.[57] One argument is that traditional professionalism is morphing from a form of craft undertaken by human experts through to online provision of services in various forms.[58] Richard Susskind and Daniel Susskind claim that this evolutionary model involves four categories: craft, standardization, systematization and externalization (online provision of services for a fee, for free or as part of the commons).[59] The Susskinds' thesis is that 'any piece of professional work' can be broken down or 'decomposed' into constituent tasks and allocated to the appropriate category.[60] While not uniformly accepted,[61] and certainly not uniformly considered a positive or desirable development, the concept of decomposition provides one way by which to theorise how AI will infiltrate legal practice.

The decomposition of professional work allows for the identification of the most efficient way of completing the task 'consistent with the quality of work needed, the level of human interaction required, and the ease with which the decomposed tasks can be managed alongside one another and pulled together into one coherent offering'.[62] Arguably, the concept of unbundling or decomposition allows for the effective use of technology and the improved productivity of the lawyer.

Having said this, it is important to note that the legal profession is highly diverse. This can be illustrated by reference to a number of criteria or characteristics: employment sector (private practice, corporate, government, not-for-profit), practice structure (sole practitioner, small firm, large firm, global firm, virtual firm), location (city, suburban, regional, rural), type of client (individuals or entities), type of law (eg, conveyancing, wills, litigation, criminal, commercial), approach to practice (eg, adviser, problem solver) and tasks undertaken (eg, drafting, advocacy,

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[56] Brynjolfsson and McAfee (n 51).
[57] See, eg, John Flood, 'The Re-Landscaping of the Legal Profession: Large Law Firms and Professional Re-Regulation' (2011) 59(4) *Current Sociology* 507; John Flood, 'Professions and Professional Service Firms in a Global Context: Reframing Narratives' in Mike Saks and Daniel Muzio (eds) *Professions and Professional Service Firms: Private and Public Sector Enterprises in the Global Economy* (Abingdon, 2018) 26, 26–7.
[58] Susskind and Susskind (n 51).
[59] Ibid.
[60] Ibid 198.
[61] Frank Pasquale, 'Book Review: Automating the Professions?' (Legal Studies Research Paper No. 2016-21, University of Maryland Francis King Carey School of Law, 4 May 2016).
[62] Susskind and Susskind (n 51) 212.

client communications, strategy). Where AI reduces costs, increases efficiencies, and improves performance, it can create a competitive advantage for the lawyer who employs AI.[63] Yet the existing diversity in legal practice means that this will not happen uniformly or across the board, as attempts to quantify its impact have demonstrated.[64]

This Part now examines the differing ways that human lawyers' work can be enhanced – made more efficient, and more effective – by AI, and the continuing role of human lawyer judgement.

A *Technology Assisted Review*

Perhaps the best-known current application of AI to legal practice is Technology Assisted Review (TAR) of documents for discovery.[65] Historically, documents to be produced or inspected as part of discovery were reviewed initially through a manual process undertaken by a junior lawyer or paralegal. Documents for which relevance was unclear or involved issues of privilege or confidentiality would be escalated to a more senior lawyer for review.[66] The growth of electronically stored information such as email led to an explosion in the scope of potentially discoverable documents. Due to limitations in lawyer review capacity and client budgets the manual process was no longer feasible.[67] Just as technology had created the problem of voluminous discovery, technology was resorted to as a solution. This was first addressed through keyword searches in a form of set-based searching using simple words or word combinations, with or without Boolean operators such as 'and', 'or' and 'not'. Keyword searches were a step forward from manual review but were frequently inaccurate and would miss synonyms, abbreviations and jargon. The substantial improvement came with the use of machine learning.[68]

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[63] Katherine Medianik, 'Artificially Intelligent Lawyers: Updating the Model Rules of Professional Conduct in Accordance with the New Technological Era' (2018) 39 *Cardozo Law Review* 1497, 1506–7; Alarie, Niblett and Yoon (n 9) 121 (lawyers are able to do more in the same amount of time); House of Lords Select Committee on Artificial Intelligence (n 52) [193] (examining the prospect of productivity improvements on an economy-wide basis).

[64] See Dana Remus and Frank Levy, 'Can Robots Be Lawyers: Computers, Lawyers, and the Practice of Law' (2017) 30(3) *Georgetown Journal of Legal Ethics* 501. Cf Tanina Rostain, 'Robots Versus Lawyers: A User-Centered Approach' (2017) 30(3) *Georgetown Journal of Legal Ethics* 559.

[65] Other terms include 'computer-aided review', 'content-based advanced analytics', and 'predictive coding', though the latter is argued to be a misnomer: Shannon Brown, 'Peeking Inside the Black Box: A Preliminary Survey of Technology Assisted Review (TAR) and Predictive Coding Algorithms for Ediscovery' (2016) 21 *Suffolk Journal of Trial & Appellate Advocacy* 221, [4.3].

[66] Michael Legg, *Case Management and Complex Civil Litigation* (Federation Press, 2011) 84.

[67] Australian Law Reform Commission, *Managing Discovery: Discovery of Documents in Federal Courts – Report 115* (2011) 13–14.

[68] The same technology is used for contract review as part of contract negotiation/management or due diligence: Beverly Rich, 'How AI Is Changing Contracts', *Harvard Business Review* (Cambridge, 12 February 2018) 3.

TAR uses ML's capacity to identify patterns in textual data. A number of forms of TAR exist.[69] This article illustrates the operation of TAR by starting with simple passive learning. The program is provided with a set of documents referred to as a 'seed set' (also referred to as a starter set or training set). The seed set may be randomly compiled from all the potentially discoverable documents, or documents may be selected for particular characteristics.[70] A human lawyer reviewer then codes the documents in the seed set, labelling them (for example) as 'relevant, not relevant, privileged, or not privileged'.[71] Using this information, the program applies this to other documents. Just as an ML program can eventually successfully label a not-previously seen picture of a cat, as a cat, once trained it can also identify which documents in the discovery are relevant, and which are not.[72] Using the seed set the software creates a model of the different types of documents, which 'can then predict the classifications of other documents'.[73]

Human review is needed to 'teach' the software whether it has classified different documents correctly, and the method for teaching the software about which documents are relevant is referred to as a TAR "protocol". TAR is an example of supervised ML, as humans – preferably a senior lawyer familiar with the case – present the initial labelled documents and review (and correct where necessary) the software's categorisations.

TAR is an application where, for voluminous discovery, the economic efficiency of the AI process is undeniable when compared to a 'manual' or human review of documents,[74] and courts in the United States, Ireland, England and Wales, and Australia have approved its use in the litigation process.[75] In the only detailed Australian decision on TAR to date, *McConnell Dowell Constructors v Santam*,[76] Justice Vickery of the Supreme Court of Victoria held that manual review would be too time-consuming and expensive.[77] Following *McConnell Dowell* the Court

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[69] See, eg, Supreme Court of Victoria, *Practice Note SC GEN 5:* Technology in Civil Litigation (First revision), 29 June 2018, [8.9] (referring to simple passive learning, simple active learning, continuous active learning and other systems).

[70] Which method is preferable has given rise to debate in the US: see, eg, Matthew Paulbeck, 'The Ethics of Predictive Coding: Transparency and Judgment-Formed Seed Sets' (2017) 30(4) *Georgetown Journal of Legal Ethics* 971.

[71] Ibid.

[72] Ibid.

[73] Brown (n 65) [2.1] (see generally for a more comprehensive technical overview of the TAR process).

[74] Maura R Grossman and Gordon V Cormack, 'Technology-Assisted Review in E-Discovery Can be More Effective and More Efficient than Exhaustive Manual Review' (2011) 17(4) *Richmond Journal of Law & Technology* 1; Ernst and Young, *Insiders' Guide to Technology-Assisted Review* (Wiley, 2015) ch 3: The Economics of TAR.

[75] *Da Silva Moore v Publicis Groupe* 287 ER D 182 (S.D.N.Y. 2012); *Irish Bank Resolution Corporation Limited v Quinn* [2015] IEHC 175, *Pyrrho Investments Ltd v MWB Property Ltd* [2016] EWHC 256 (Ch); *McConnell Dowell Constructors v Santam* [2016] VSC 734.

[76] [2016] VSC 734 ('*McConnell Dowell*').

[77] Ibid [5].

introduced a new Practice Note dealing with technology in civil litigation which clarified the acceptability of using TAR for discovery, and noting that the Court may order the use of TAR in large cases even if the parties do not consent.[78]

When the simple passive learning approach to TAR is considered as a series of steps, the need for a lawyer's input becomes apparent, as at each step, a lawyer must make important 'judgement calls':

1. Lawyer (with client and IT professional's assistance) identify universe of documents to be reviewed.

2. Creation of seed set based on lawyer decision making – the seed set may be created using random sampling or judgemental sampling (eg, keyword searching, and/or conceptual ranking). Use of searches or ranking typically creates a seed set with more highly relevant documents.

3. Seed set coded by lawyer.

4. Computer codes some or all documents.

5. Sample of computer coded documents reviewed by lawyer – errors identified and checked – 'overturns'.

6. Overturns fed back to computer and software learns from overturn to recode all documents.

7. Steps 4 and 5 are repeated until errors within acceptable tolerances or limits.

8. Documents coded as non-responsive by the computer sampled and coded by lawyer to ensure that the level of overturns is within acceptable tolerances or limits (validation set).

However, these steps will be altered in other forms of TAR, namely simple active learning and continuous active learning. Simple active learning is where the software chooses some or most of the documents for training. The human still needs to code the documents but the software can identify the documents that will be most useful to it in developing its model or classifier.[79] In continuous active learning the human review and software

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[78] Supreme Court of Victoria, 'Technology Assisted Review Plays Key Role in Litigation', (Media Release, Supreme Court of Victoria, 19 October 2017) <https://www.supremecourt.vic.gov.au/contact–us/news/technology–assisted–review–plays–key–role–in–litigation>.

[79] Gordon Cormack and Maura Grossman, 'Evaluation of machine-learning protocols for technology-assisted review in electronic discovery' in *Proceedings of the 37th international ACM SIGIR conference on Research & development in information retrieval* (Conference Paper, SIGIR '14: International ACM SIGIR Conference on the Research and Development in Information Retrieval, July 2014) 153, 154; Bolch Judicial Institute, *Technology Assisted Review Guidelines* (Duke Law, 2019) 23.

training process are combined; review and training occur simultaneously. As the lawyer reviews and codes documents, the software re-ranks the documents, and then presents back to the human additional documents for review that it predicts as most likely relevant.[80] The lawyer still performs the fundamental role of training the software. It is the lawyer's knowledge or judgement of relevance (and other categories) that TAR seeks to model and then replicate.

In addition to the lawyer's role within the TAR process, a number of judgments in relation to the larger discovery process must be undertaken by the lawyer. Specifically, a lawyer must be involved in determining which documents to include in the TAR process, which in turn necessitates an understanding of how the client entity functions, who were the relevant employees and how documents were stored. The Australian Law Reform Commission in its review of discovery in the Federal Court noted that many organisations do not have systems for managing records and the lawyer will need to create such a system before a review can commence.[81] Other issues which may arise include the initial conversion of documents to a readable electronic format and indexing of documents,[82] and the question of whether the entire cohort of documents should be processed by the software or whether some kind of 'cull' (generally by keyword searches) should be undertaken first.[83] As Vickery J noted extra-curially, 'discernment and judgement is called for'.[84] In addition, the steps to be taken in discovery may be overlaid with a range of obligations necessitating judgements such as proportionality,[85] conducting a 'reasonable search'[86] or making reasonable inquiries,[87] and compliance with an overarching or overriding purpose that requires the conduct of a proceeding in a manner which promotes efficiency.[88]

TAR is an example of where AI can make the work of lawyers engaged in discovery more efficient, though it is presently cost-effective only in large-scale litigation, and it is likely to be lawyers working in the large firms who

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[80] Cormack and Grossman (n 79) 154; Bolch Judicial Institute (n 79) 5.

[81] Australian Law Reform Commission (n 67) 191–2.

[82] For more detail on these steps, see Brown (n 65). Some documents are not amenable to a TAR process, such as spreadsheets: see *Money Max Int Pty Limited (Trustee) v QBE Insurance Group Limited* [2018] FCA 1030, [166].

[83] Stephanie Serhan, 'Calling an End to Culling: Predictive Coding and the New Federal Rules of Civil Procedure' (2016) 23(2) *Richmond Journal of Law & Technology* 1, 3.

[84] Peter Vickery, 'Managing the Paper: Taming the Leviathan' (2012) 22(2) *Journal of Judicial Administration* 51, 69.

[85] See, eg, *Federal Court Rules 2011* (Cth) r 1.31; *Civil Procedure Act 2005* (NSW) s 60; *Civil Procedure Act 2010* (Vic) ss 9, 24.

[86] *Federal Court Rules 2011* (Cth) r 20.14(1)(b), (3); *Supreme Court (General Civil Procedure) Rules 2015* (Vic) r 29.01.1.

[87] *Uniform Civil Procedure Rules 2005* (NSW) r 21.4.

[88] See, eg, *Federal Court of Australia Act 1976* (Cth) ss 37M, 37N; *Federal Court Rules 2011* (Cth) r 20.11; *Civil Procedure Act 2005* (NSW) s 56; *Civil Procedure Act 2010* (Vic) ss 7, 10.

are engaged on such litigation who will be involved in using and training the software. Remus and Levy considered that TAR will have 'a strong employment effect on discovery practice',[89] but the lawyers whose work it is replacing are largely those junior lawyers and paralegals in large firms who would previously have undertaken a manual review.

However, lawyers on the other side of such disputes (for example plaintiff lawyers representing individuals against corporations or government) while they may not have to make such voluminous discovery themselves (and who TAR will not replace) must nevertheless understand the functioning and outputs of a TAR process. In particular, lawyers on both sides need to be able to tell whether the software is performing effectively, which is measured through statistical sampling.[90] In *McConnell Dowell*, the parties ended up in a dispute about TAR; specifically, whether additional rounds of training should be conducted.[91] This suggests that there is a tactical issue as to whether to adopt the traditional approach of conducting discovery unilaterally in response to court orders as to the scope of discovery, or to engage with an opponent in relation to the search strategy, which means 'the parties work together to develop, test and agree upon the nature of the information being sought'.[92] Pasquale and Cashwell have noted that TAR may in fact generate new issues around discovery, pointing to problems which arise when legal and technological departments or personnel fail to communicate effectively.[93]

B *Data Analytics*

The second example involves the use of data analytics or 'predictive' analytics in relation to law and legal practice. Most people are familiar with the outputs of data analytics: browse a website selling products and you will be offered other products that you might like, for example.[94] Data analytics is also used in contexts with far more significance for individual rights: in the financial services industry to assign credit scores and approve loans;[95] in the community to influence who is policed[96] and how welfare

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[89] Remus and Levy (n 64) 516.

[90] Charles Yablon and Nick Landsman-Roos, 'Predictive Coding: Emerging Questions and Concerns' (2013) 64 *Southern California Law Review* 633.

[91] *McConnell Dowell Constructors (Aust) Pty Ltd v Santam Ltd & Ors (No 2)* [2017] VSC 640, [10], [23] ('*McConnell Dowell (No 2)*').

[92] The Sedona Conference, 'The Case for Cooperation' (2009 Supp) 10 *Sedona Conference Journal* 339, 342; see also Michael Legg and Nicholas Turner, 'When Discovery and Technology Meet: The Pre-Discovery Conference' (2011) 21(1) *Journal of Judicial Administration* 54.

[93] Frank Pasquale and Glyn Cashwell, 'Four Futures of Legal Automation' (2015) 63 *UCLA Law Review Discourse* 26, 41.

[94] Walsh (n 6) 93.

[95] Hurley and Adebayo (n 43).

[96] Barocas and Selbst (n 40); Sharad Goel et al, 'Combatting Police Discrimination in the Age of Big Data' (2017) 20 *New Criminal Law Review* 181; Elizabeth E Joh, 'Policing by Numbers: Big Data and the Fourth Amendment' (2014) 89 *Washington Law Review* 35;

provision is regulated;[97] and in the criminal justice system to inform decisions about bail, parole[98] and even sentencing.[99]

Methods labelled 'actuarial' – in other words, based on statistical probabilities as opposed to clinical diagnoses – have been used in the criminal justice system for some time.[100] However, the present volume of available data and machine learning techniques provide a new edge. It has long been observed that the law is about prediction,[101] and it is suggested that in the future, machine learning may well be used to assist in predicting the outcomes of many kinds of legal cases.

The best-known current providers of legal outcome prediction services[102] are based in the US and analyse US data, such as LexMachina, now LexisAdvance (and formerly the Stanford IP Litigation Clearinghouse), which was created to analyse decisions on patents;[103] and Ravel Law, which made a 'Judge Analytics' tool available in 2015 and has since expanded this to include data about law firms and motions.[104] LexMachina works by obtaining court and patent office data every 24 hours which it codes using a proprietary NLP and ML engine called Lexpressions™. For every case, LexMachina extracts the patent involved, the participants (lawyers, judges, parties) and legal data such as findings and outcomes, including any damages awarded.[105] The variables that are extracted are analysed to look for 'meaningful patterns' that provide insights into how a

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Michael L Rich, 'Machine Learning, Automated Suspicion Algorithms, and the Fourth Amendment' (2016) 164 *University of Pennsylvania Law Review* 871.

[97] Dominique Hogan-Doran, 'Computer Says "No": Automation, Algorithms and Artificial Intelligence in Government Decision-Making' (2017) 13 *The Judicial Review* 345; Jennifer Raso, 'Displacement as Regulation: New Regulatory Technologies and Front-Line Decision-Making in Ontario Works' (2017) 32(1) *Canadian Journal of Law & Society* 75.

[98] Jon Kleinberg et al, 'Human Decisions and Machine Predictions' (Working Paper No. 23180, National Bureau of Economic Research, 2017); Joshua A Kroll et al, 'Accountable Algorithms' (2017) 165(3) *University of Pennsylvania Law Review* 633, 636.

[99] *State v Loomis* 371 Wis.2d 235, 235 (Wis, 2016); Recent Cases, 'Wisconsin Supreme Court Requires Warning before Use of Algorithmic Risk Assessments in Sentencing' (2017) 130 *Harvard Law Review* 1530; Nigel Stobbs, Dan Hunter and Mirko Bagaric, 'Can Sentencing be Enhanced by the Use of Artificial Intelligence?' (2017) 41(5) *Criminal Law Journal* 261.

[100] See Bernard E Harcourt, *Against Prediction: Profiling, Policing, and Punishing in an Actuarial Age* (University of Chicago Press, 2006) ch 1: Actuarial Methods in the Criminal Law.

[101] Oliver Wendall Holmes, 'The Path of the Law' (1897) 10 *Harvard Law Review* 457; Susskind (n 31).

[102] Other examples include CaseCrunch, <www.case-crunch.com> (complaints about payment protection insurance decisions made by the UK Financial Ombudsman); Blakeley B McShane et al, 'Predicting Securities Fraud Settlements and Amounts: A Hierarchical Bayesian Model of Federal Securities Class Action Lawsuits' (2012) 9 *Journal of Empirical Legal Studies* 482 (predicting likelihood of settlement and expected settlement amount in US securities fraud class actions); Premonition, <http://premonition.ai/law/>.

[103] See Bennett Moses and Chan (n 29) 644.

[104] Ravel Law, <http://ravellaw.com/products/#eluid7fcb4be2>.

[105] LexMachina, <https://lexmachina.com/what-we-do/how-it-works/>.

future case may resolve.[106] The AI behind LexMachina has been applied to other litigation areas such as competition law, employment law and insurance.

Ravel Law claims to 'surface' the most persuasive language to use dependent upon the judge and court, as well as 'uncover buried connections' between cases with its visualization tools.[107] Ravel Law, like LexMachina, combines NLP and machine learning, but also uses design principles to better communicate its insights. As academic critics note, 'these systems purport to predict how judges will decide cases, how individual judges will vote, and how to optimize submissions and arguments before them'.[108]

In the case of data analytics, there is potential not just to improve lawyer or firm productivity, but also to amplify a lawyer's skill set so that he or she can perform legal tasks better.[109] With outcome prediction, AI is moving up the value chain and can be seen as getting closer to the core, high value elements of what a lawyer does, namely advice and strategy. As Katz has argued, '[w]hile an experienced lawyer might be familiar with hundreds, if not thousands, of prior events, he or she is unlikely to have observed tens of thousands, hundreds of thousands, or millions of prior events'.[110] Yet this is the volume of data that AI software could have to draw on to make its 'predictions', and do so accurately and almost instantaneously. In addition to legal rules, 'statistical patterns, predictors, and correlations' will be available to inform lawyers' work.[111] However, AI is making a prediction using machine learning rather than legal reasoning and, in some applications, applying that learning to assumed facts rather than facts found at trial.[112]   Further, although AI seems to promise a more perfect application of a system of precedent by drawing on *all* past cases, statistical analysis of judgements is limited: it is necessarily based on past decisions; and settled cases are excluded, leading to datasets composed primarily of outliers. In a small jurisdiction such as Australia, there are also far fewer judgements in general on which to base predictions. For example, US entities such as LexPredict can work with vast numbers of decisions: for example, two years' worth of US federal Chapter 13 bankruptcy cases generated a dataset of nearly 750,000 cases (this

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[106] Ibid.

[107] Ravel Law, <http://ravellaw.com/products/#eluid7fcb4be2>.

[108] Frank Pasquale and Glyn Cashwell, 'Prediction, Persuasion, and the Jurisprudence of Behaviourism' (2018) 68(1) *University of Toronto Law Journal* 63, 64.

[109] Daugherty and Wilson (n 4) 7–8.

[110] Katz (n 7) 928.

[111] Dru Stevenson and Nicholas J Wagoner, 'Bargaining in the Shadow of Big Data' (2015) 67(5) *Florida Law Review* 1337, 1342.

[112] Agrawal, Gans and Goldfarb (n 9) 35.

comprising only one particular kind of bankruptcy proceeding).[113] In contrast, Australia's federal courts finalised fewer than 5,000 bankruptcy matters in total in 2016-17 (comprising all kinds of bankruptcy).[114] Even with data analytics that has a high accuracy there is still uncertainty which requires lawyer judgement.[115]

As with TAR, data analytics is currently the preserve of larger law firms – Macquarie Group suggested in its legal benchmarking survey of Australian firms that a number of large Australian firms were using 'predictive' AI in some form.[116] Data analytics will be most effective and useful in situations where there is an abundance of data and an economy of scale – for example, if a firm deals with high numbers of particular types of claims or applications (such as patent applications). Large clients, or litigation funders, may require or prefer statistical analysis to accompany a lawyer's advice.

For lawyers advising individuals in matters such as criminal or family law, predictive analytics may also come to have relevance. It is already being used within the criminal justice system: "risk assessment" algorithms are controversially used in the US to inform parole, bail and even sentencing decisions.[117] It has been suggested that courts could use such technology to triage interlocutory applications through identifying the likelihood of success of an application;[118] Legal Aid bodies might use such aggregate data to inform merits decisions – who should receive legal aid assistance. Increasingly, scholars are discussing the implications of the incorporation of AI into administrative decision-making, whether in the form of guidance for decision-makers, or complete automation.[119] Such developments will undoubtedly place sole practitioners or lawyers in smaller firms in the

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[113] Robert Sancrainte, 'Can We Predict the Outcome of Chapter 13 Bankruptcy Filings?', *LexPredict* (online, 30 August 2018) <https://www.lexpredict.com/2018/08/can-we-predict-the-outcome-of-chapter-13-bankruptcy-filings/>.

[114] Federal Circuit Court of Australia, *Annual Report 2016/17* (Report, 12 September 2017) 6; Federal Court of Australia, *Annual Report 2016–17* (Report, 20 September 2017) 138.

[115] Agrawal, Gans and Goldfarb (n 9) 35 (describing Blue J Legal which predicts Canadian tax law outcomes with 90 percent accuracy but for which 'a lawyer still makes the ultimate decision').

[116] Macquarie Bank, 'An Industry in Transition: 2017 Legal Benchmarking Results', *Legal Benchmarking Specialists* (Web Page) <https://www.macquarie.com/au/business-banking/campaigns/legal-benchmarking-2017/>; Katie Walsh, 'What Makes A Law Firm Profitable? Technology, Flexibility, Says Macquarie', *Australian Financial Review* (online, 16 November 2017) <https://www.afr.com/business/legal/what-makes-a-law-firm-profitable-technology-flexibility-says-macquarie-20171116-gzmm1k>.

[117] See above nn 98–9.

[118] Nikolaos Aletras et al, 'Predicting Judicial Decisions of the European Court of Human Rights: A Natural Language Processing Perspective' (2016) 2 *PeerJ Computer Science* 92.

[119] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decisionmaking' (2019) 82(3) *Modern Law Review* 425; Yee-Fui Ng and Maria O'Sullivan, 'Deliberation and Automation – When is a Decision a "Decision"?' (2019) 26 *Australian Journal of Administrative Law* 21.

position of needing to understand the processes and results of AI programs, even if not operating their own systems.

C *Automated Document Creation*

Our final example, the use of AI to automate document drafting, has the most wide-ranging potential impact, in that its effect is not confined to particular kinds of lawyers or areas of practice. This makes its overall impact more difficult to gauge.

As noted in Part II, the capacity to create simple documents or fill in forms using expert systems has existed for some time.[120] These types of system can be used by lawyers but also to enable consumers to themselves carry out straightforward legal tasks such as incorporating a company or drawing up a will, by prompting the user to answer a series of questions:[121]

> The software leads the client from one question to another via a decision tree. The system makes a sequence of decisions, based on user input, which classifies the problem. It then moves through nodes and subnodes to the solution. Once the client has completed the path and answered all the relevant questions, the software produces output.[122]

Increasing sophistication means that newer iterations can be more 'intelligent' than the early, pre-programmed versions of this kind of software. The ability for a consumer to purchase software which enabled production of a completed form, such as an application for bankruptcy, on their home computer, has existed for some time.[123] Later, such services moved online, and now, 'more intelligent systems can learn, adapt and potentially act autonomously rather than simply execute pre-defined instructions'.[124] Thus, some of the limitations present in early expert systems have been overcome.

As noted, such systems may be aimed directly to consumers of legal services, be used in conjunction with a lawyer (for example, the lawyer

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[120] Kathryn D Betts and Kyle R Jaep, 'The Dawn of Fully Automated Contract Drafting: Machine Learning Breathes New Life into a Decades–Old Promise' (2017) 15 *Duke Law & Technology Review* 216, 218, citing Kenneth I Guthrie, 'Document Assembly Software Systems' (1995) 9 *Probate and Property* 26, 27. See also Catherine J Lanctot, 'Regulating Legal Advice in Cyberspace' (2002) 16 *St. John's Journal of Legal Commentary* 569, 579; and Benjamin Barton, 'The Lawyer's Monopoly: What Goes and What Stays' (2014) 82(6) *Fordham Law Review* 3068.

[121] See generally Gerard J Clark, 'Internet Wars: The Bar against the Websites' (2013) 13 *Journal of High Technology Law* 247.

[122] Darryl R Mountain, 'Could New Technologies Cause Great Law Firms to Fail?' (2002) 52 *Syracuse Law Review* 1065, 1067.

[123] See, eg, *In re: Jayson Reynoso: Frankfort Digital Services et al, v Sara L Kistler, United States Trustee et al* (2007) 447 F.3d 1117.

[124] Judith Bennett et al, *Current State of Automated Legal Advice Tools: Discussion Paper 1* (Networked Society Institute, University of Melbourne, April 2018) 13 (referring to the 'fourth wave' of applications).

reviews a draft created by software), or be used by lawyers directly.[125] In the US, there are now hundreds of products like this, offering everything from advance care directives, to patent applications, to challenging parking fines.[126] Some US and UK providers have existed for 15 years or more[127] and may include lawyer consultation within their subscription fees or offer discounts to subscribers.[128]

Software for automated document drafting is beginning to be more widely marketed to Australian lawyers.[129] Macquarie Group recently reported that one-third of large firms were using automated document review and creation software.[130] There are also programs aimed at smaller firms – which may not previously have used document management systems – that enable the production of standardised documents such as simple contracts or wills. One claim made about this kind of technology is that it will enable smaller firms to be more competitive in their offerings.[131]

Lawyers have long utilised templates (known as precedents) for drafting documents.[132] Yet document drafting may be a controversial application of AI in legal practice because offerings directed to consumers threaten to bypass lawyers altogether. In the US, Ben Barton has argued that these services originally served clientele who would not otherwise have been able to afford a lawyer, but now are eating into the broader market for legal services.[133] Thus, this particular process innovation has the capacity to make lawyers faster and more efficient in an aspect of their work; but may potentially take work from lawyers. Barton argues that it is small firms and solo practitioners who will feel this the most;[134] however, it may also impact larger firms as it is taken up by businesses and in-house legal departments who would previously have sent their work to larger firms.

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[125] Ibid 9.

[126] See, eg, CodeX Techindex, < https://techindex.law.stanford.edu>.

[127] See, eg, Desktop Lawyer, <https://desktoplawyer.secureclient.co.uk/dtl/>; Rocket Lawyer, <www.rocketlawyer.com>, and LegalZoom, <www.legalzoom.com>. See also Benjamin H Barton, *Glass Half Full: The Decline and Rebirth of the Legal Profession* (Oxford University Press, 2015) Ch 5: *LegalZoom* and Death from Below.

[128] Paul Sullivan, 'Making Wills Easier and Cheaper with Do-It-Yourself Options', *New York Times* (online, 7 September 2018) <https://www.nytimes.com/2018/09/07/your-money/online-wills.html?smid=twnytimes business&smtyp= cur>.

[129] See, eg, Smarter Drafter, 'The First AI Lawyer Built for Australian Law Firms' (Media Release, 29 May 2018) <https://smarterdrafter.com.au/pdfs/Press%20Release%20–%20Smarter%20Drafter%20%2029%20May%20 2018.pdf>.

[130] Macquarie Bank (n 116) 26.

[131] See, eg, LexisNexis, *The Rise of Legal AI: Big–Firm Intelligence for Small Law Firms*, 2018 <https://www.lexisnexis.com.au/en/insights-and-analysis/research-and-whitepapers/2018/the-rise-of-legal-ai-big-firm-intelligence-for-small-law-firms>.

[132] Remus and Levy (n 64) 518; Howarth (n 55) 33–4.

[133] Barton (n 127).

[134] Ibid, Ch 5: *LegalZoom* and Death from Below; see also Susskind (n 31) 154–7.

III THE CONTINUING NEED FOR LAWYER JUDGEMENT

The Canadian Institute for Advanced Research has drawn a distinction between 'enabling technologies' that complement and increase the productivity of certain types of skills, and 'replacing technologies' that conduct tasks previously performed by labour.[135] As used in legal services, AI has the capacity to be both enabling and replacing. Its replacing role may be seen as part of a larger move toward breaking down what was once a comprehensive service into its constituent parts, and outsourcing and insourcing aspects of the traditional lawyer's role. Rostain has argued that the automation of tasks like discovery follows a trajectory which had begun with outsourcing and insourcing,[136] and Pasquale and Cashwell have noted that in less serious, lower value, more routine and obvious cases, people often already choose to dispense with the services of a lawyer.[137] While AI may 'compete with lawyers and undermine their monopoly' in some areas[138] it will more likely replace some aspects of the lawyer's role rather than replace lawyers per se. The economics approach discussed above suggests that this is because AI separates out human prediction and human judgement, but can only replace prediction, and even then, only under certain conditions.

Despite the diversity of lawyers' work, the concept of good or sound judgement is widely agreed to be a fundamental attribute of 'good' lawyers, regardless of practice context.[139] Though ill-defined (or in Caplan's phrase, 'vague but bankable'[140]), it is argued that this is 'the most valuable thing a lawyer has … more valuable than legal learning or skillful analysis of doctrine'.[141] Sound judgement represents a combination of qualities – knowledge, experience, common sense, perhaps with elements of an understanding of human behaviour and social norms, empathy, and the capacity to self-reflect. Discussing the advocacy role, Chief Justice Allsop of the Federal Court has observed:

> It involves being human and recognising the human elements at play in a dispute. It involves recognition and appreciation of the whole. It involves

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[135] Alan Bernstein, *Written Evidence to the House of Lords Select Committee (AIC0136)* (Canadian Institute for Advanced Research, 6 September 2017) [26]; cited in House of Lords Select Committee on Artificial Intelligence (n 52) [225].

[136] Rostain (n 64).

[137] Pasquale and Cashwell (n 93) 44.

[138] McGinnis and Pearce (n 50) 3057; Yoon (n 52) 465.

[139] Luban and Millemann (n 19) 31; Leona Vogt, *From Law School to Career: Where Do Graduates Go and What Do they Do?* (1986) 72–3 ('respondents placed the highest value on good judgment, common sense, creative problem solving and the ability to work well under pressure'); Robert L Nelson and Laura Beth Nielsen, 'Cops, Counsel, and Entrepreneurs: Constructing the Role of Inside Counsel in Large Corporations' (2000) 34(2) *Law & Society Review* 457, 462.

[140] Lincoln Caplan, *Skadden: Power, Money and the Rise of a Legal Empire* (Farrar Straus & Giroux, 1993) 3.

[141] Luban and Millemann (n 19) 31.

> bringing wisdom to resolution of the dispute. It involves wisdom in presentation of the case. It involves integrity, respect and civility … Independence (and the degree of abstraction within it) involves the recognition of the significance of the dispute to the lives of the humans involved. Every advocate (and every judge) should be conscious that what might seem a routine or banal case may represent the most significant and potentially catastrophic event in the lives of the people involved.[142]

Luban and Millemann suggest that the traditional professional ideal of the lawyer is fundamentally about good judgement. It 'represents … practical wisdom, of the kind of sound judgement in lawyers that cannot be captured in formulas or mechanical rules. Sound judgement … responds in a particularistic way to particularized situations'.[143] These authors, and others, have also reflected on the need for moral judgement in the practice of law, something which computer systems cannot perform.[144]

Whatever 'judgement' is, then, it has come to symbolise a non-automatable collection of exclusively human qualities or capacity. Further, while the focus for judgement is usually on questions of strategy and tactics, judgement is also required for many smaller constituent tasks, as illustrated by the preceding discussion of TAR. Lawyers' judgement will continue to be important, and indeed, will become even more valuable in the face of automation. This is for several broad reasons.

First, AI is not presently able to reason in context. Humans are good at extrapolating from incomplete information; AI, on the other hand, is poor at reasoning from partial information.[145] AI is also incapable of weighing up incommensurables. For example, in a family law matter, AI's prediction (based on a huge database of past decisions) might be that a husband should receive 70 per cent of the parties' assets. Yet pursuing this might lead to a protracted argument which broadens out to include issues about the parties' children as well as their assets. A lawyer's judgement might be that it would be prudent to accept a smaller portion of the asset pool for the sake of a quicker and more amicable compromise. AI cannot factor in any of the non-legal concerns that accompany legal decision-making. Yet statistical information is only useful in conjunction with contextual knowledge of the client's problem and range of options. A 57 per cent chance of success is relatively meaningless absent understanding of the meaning of success or failure (and various permutations in between) in terms of costs both financial and non-financial. Clients accordingly value lawyers for reasons other than the recitation of legal advice. Alarie, Niblett and Yoon have

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[142] James Allsop, 'The Future of the Independent Bar in Australia', Australian Bar Association and NSW Bar Association Biennial Conference, Sydney, 17 November 2018.
[143] Ibid 34.
[144] Luban and Millemann (n 19); Joshua P Davis, 'Artificial Wisdom: A Potential Limit on AI in Law (and Elsewhere)' (2019) 72(1) *Oklahoma Law Review* 51; W Bradley Wendel, 'The Promise and Limitations of Artificial Intelligence in the Practice of Law' (2019) 72(1) *Oklahoma Law Review* 21.
[145] Remus and Levy (n 64) 21–2.

argued that the lawyer's task 'is to advise a course of action that goes beyond the specific and immediate legal question, to consider the client's overall circumstances and interests'.[146] In so-called "bet the company" litigation, corporations still turn to external lawyers; in equivalent high stakes matters for individuals, lawyers are preferred.[147]

Second, AI cannot communicate reasons or provide explanations. There are initial issues of identifying legal need and asking a client the right questions.[148] The client may have self-diagnosed a legal problem but in fact have other, more serious legal issues – or their issue may not truly be a legal one. Lawyers have the ability to interrogate a process or challenge an outcome: an experienced lawyer may be able to tell when a client is holding something back, and knows the questions to ask the client to at least test versions of events or instructions. If non-lawyer users of software are not prompted to disclose certain facts, those facts may not be disclosed, but could be essential to the case or could alter the application of the law.[149] Lawyers are able to explain and justify the advice which they give. For example, drafting software cannot explain what the effect of a clause is, or how it should be modified. Nor can it account for the tactical inclusion of clauses, the negotiation which takes place over the drafting of a complex contract, which items the client considers essential and which dispensable, and so on. Judgement is required to understand the context of the drafting, and to explain this and the effect of different clauses and language to the client.

Finally, the professional responsibility obligations of lawyers mean that even when providing only simple advice, they are bound by numerous duties to their client, including confidentiality; and interactions are privileged.[150] To this may be added the fiduciary obligations that may flow from the lawyer-client relationship,[151] and which is characterised as a 'relationship of trust and confidence'.[152] In other words, lawyers offer a considerably 'safer' option as their work is underwritten by both professional ethical obligations, legal liability and (generally) insurance for malpractice. Lawyers owe duties to their clients which require them to act in their clients' best interests, to be competent, avoid situations of conflict of interest and keep their clients' confidences. Lawyers also owe duties to the court, including the fundamental obligation to the administration of

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[146] Alarie, Niblett and Yoon (n 9) 120; see also Yoon (n 52) 469.
[147] See Barton (n 127) 76–7, 99–100.
[148] Alarie, Niblett and Yoon (n 9) 120.
[149] Pasquale and Cashwell (n 93) 43.
[150] *Legal Profession Uniform Law Australian Solicitors' Conduct Rules 2015.*
[151] See, eg, *Maguire v Makaronis* (1997) 188 CLR 449, 463 (Brennan CJ, Gaudron, McHugh and Gummow JJ) ('The solicitor is classically a fiduciary to the client and as such owes certain duties in each particular case'); *Hospital Products Ltd v United States Surgical Corporation* (1984) 156 CLR 41, 68 (Gibbs CJ).
[152] *Hospital Products Ltd v United States Surgical Corporation* (1984) 156 CLR 41, 96–7 (Mason J).

justice. Professional obligations support the client's ability to receive not just high-quality judgement, but ethical judgement directed at advancing the client's interests.

A legal product utilising AI may be a substitute for a basic legal service, such as the drafting of a contract or provision of legal information, but it does not replace human judgement. As one group of academics have argued, '[u]ntil Al is able to integrate the data into a nuanced analysis that requires some form of higher thinking, creativity, and predicting likely outcomes based on human reactions, we still need lawyers'.[153] Esteem for these qualities will likely continue to increase as AI becomes more prevalent, as will other human characteristics that differentiate lawyers from a technological solution.[154] Understanding and responding to a client's concerns and goals is the 'value-add'.

Yet although the value of judgement has increased, the ability of the client to pay may not have increased. Indeed, for some sectors, such as individual legal services, affordability of legal services may have fallen.[155] If the value of the underlying transaction and risks of error are greater when compared to the cost of legal advice then it may be expected that a lawyer will be consulted. Where the cost of legal services is higher than that at stake, or the client simply lacks the resources to afford those legal services, then AI will be used alone. If lawyers are to demonstrate value for money in this context, greater transparency as regards to what the lawyer does may be required. It may also be the case that the lawyer works on a limited scope retainer assisting with only part of the matter rather than being retained for the entire matter.[156] The premise of many technology offerings is that people who may have never sought legal assistance because what was at stake was of less value than the cost of the assistance, may now take action. Having secured a basic document through technology they may still have sufficient budget for a lawyer in relation to more complicated or bespoke aspects of their matter.[157] AI may provide the productivity gains that law has long struggled to achieve because it has historically been labour intensive.[158]

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[153] Daniel Ben-Ari et al, 'Artificial Intelligence in the Practice of Law: An Analysis and Proof of Concept Experiment' (2017) 23(2) *Richmond Journal of Law & Technology* 2, 37.
[154] Legg (n 23) 26.
[155] William Henderson, *Legal Market Landscape Report Commissioned by the State Bar of California* (Report, State Bar of California, July 2018) 13, 19 (reporting shrinking demand for personal legal services in the US); Australian Government Productivity Commission, *Access to Justice Arrangements, Inquiry Report No. 72* (2014) 100 (finding unmet legal need with cost of the legal services being the reason for 39% of respondents).
[156] Michael Legg, 'Recognising a New Form of Legal Practice: Limited Scope Services' (2018) 50 *Law Society Journal* 74.
[157] Ibid.
[158] Henderson (n 155) 17, 19.

V CONCLUSION

The advances in AI will not replace lawyers wholesale but rather automate some constituent tasks of lawyering. The advent of AI does mean that lawyers, collectively, will need to adapt to significant change, however disparately its impacts may be distributed.[159] In particular lawyers must be able to identify appropriate uses of AI, especially where it offers productivity gains that can reduce the cost and delay associated with a legal service, and understand how AI functions. It may also require the lawyer in larger matters to marshal the necessary resources, including technology, and manage the law service process through developing legal project management skills.[160] Lawyers do not need to create or have the skills to create the technological solution, rather they need to be able to use it.[161] This includes being able to comprehend technological outputs. Many lawyers already deal with quantitative information in different settings,[162] such as when working with other experts to calculate damages or with accountants or bankers on commercial transactions.[163] Statistical literacy and the ability to comprehend quantitative data are likely to become ever more important skills as lawyers need to manage a TAR process,[164] conduct data-driven case assessment, or make decisions and advocate using statistical arguments.[165] Importantly, lawyers will need to be able to challenge or critique the results of the technology, such as looking for biases or reliance on incomplete data.[166] Lawyers may be able to obtain

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[159] Mark A Cohen, 'Legal Innovation is the Rage, But There's Plenty of Resistance', *Forbes* (online), <https://www.forbes.com/sites/markcohen1/2018/08/30/legal–innovation–is–the–rage–but–theres–plenty–of–resistance/amp/?__twitter_impression=true>.

[160] Susskind (n 31) 35; Therese Linton, *Legal Project Management* (LexisNexis, 2015) 4.

[161] The Law Society of New South Wales, *The Future of Law and Innovation in the Profession* (2017) 77.

[162] The Council of the Inns of Court (COIC) and the Royal Statistical Society (RSS), *Statistics and Probability for Advocates: Understanding the Use of Statistical Evidence in Courts and Tribunals* (2017); Daniel W Linna Jr, 'Why Law Students Should Take Quantitative Analysis: Big Data, Algorithms, Courtrooms, Code, and Robot Lawyers', *LegalTech Lever* (online, 22 October 2016) <http://www.legaltechlever.com/2016/10/law–students–take–quantitative–analysis–big–data–algorithms–courtrooms–code–robot–lawyers/>.

[163] See also Debra Cassens Weiss, 'Posner: Lawyers Bad at Math are an Increasing Concern; Inmate's Blood–Pressure Suit Shows Why', *ABA Journal* (online, 29 October 2013) <http://www.abajournal.com /news/article/posner_math_block_lawyers_an_increasing_concern_inmates_blood-pressure_suit>.

[164] Thomas Davey and Michael Legg, 'Predictive Coding: Machine Learning Disrupts Discovery' (2017) 32 *Law Society of NSW Journal* 82.

[165] Linna (n 162).

[166] See, eg, Aylin Caliskan, Joanna Bryson and Arvind Narayanan, 'Semantics Derived Automatically from Language Corpora Contain Human-Like Biases' (2017) 356(6334) *Science* 183; Daniel Shapiro, 'Artificial Intelligence and Bad Data', *Towards Data Science,* (online, 6 November 2017) <https://towardsdatascience.com/ artificial–intelligence–and–bad–data–fbf2564c541a>.

assistance in comprehension and critique from data scientists who will have advanced mathematics and statistical skills but lawyers still need to be able to communicate with and understand these experts.

As AI continues to impact upon legal services, changes to lawyers' education and training will also be required. The current focus of legal education, both tertiary and in terms of ongoing professional development, is not necessarily focused on or well-adapted to a landscape of rapidly developing legal technology.[167] There is a general question in legal education about how to develop 'sound judgement' in lawyers, particularly sound ethical judgement.[168] Consideration of this issue will take on even more importance with the automation of certain routinised forms of work, such as review of documents, which were previously part of the education of junior lawyers.[169] Some, like Susskind, argue that the training benefits of such tasks were oversold, and 'it is not at all obvious that aspiring lawyers become expert lawyers by spending months on what is largely administrative work'.[170] Nevertheless, in recognition that such tasks do have some educational value, Susskind suggests that junior lawyers could undertake 'samples' of such work,[171] even if the bulk of it is outsourced (or performed by an AI system).

The effects of AI are distinct for different areas of legal practice: some firms and lawyers might be wise to invest in AI systems for some of their work; others will need only to have a degree of familiarity with how such systems generate their outputs. It is less about working out how much of lawyering as an activity, or the practice of law as a whole, can be automated, as identifying where lawyers add the most value. Economic analysis suggests that while AI will automate some parts of a lawyer's role, namely prediction, it should render other areas – such as judgement, including empathy and creativity directed at beneficial, practical outcomes for clients – more valuable.

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[167] Legg (n 23) 375–76; Mark Cohen, 'How Will Legal Education and Training Keep Pace with Change?', *Forbes* (online, 10 September 2018) <https://www.forbes.com/sites/markcohen1/2018/09/10/how-will-legal-education-and-training-keep-pace-with-change/#337933c37055>.
[168] Luban and Millemann (n 19); Jennifer K Robbennolt and Jean R Sternlight, 'Behavioral Legal Ethics' (2013) 45(3) *Arizona State Law Journal* 1107.
[169] Brian Simpson, 'Algorithms or Advocacy: Does the Legal Profession Have A Future in a Digital World?' (2016) 25(1) *Information & Communications Technology Law* 50.
[170] Susskind (n 31) 169.
[171] Ibid 170.