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Automation, Innovation and the Rule of Law – Oil and Water?

The Hon Justice Michelle Gordon
High Court of Australia

It is not possible to serve as a trial judge without recognising that our legal system is facing great challenges in providing appropriate mechanisms for the resolution of civil disputes; that people in dispute want certainty; and that they are willing to embrace judicial determination of disputes by mechanisms and processes never before contemplated.

Trial courts and the Australian legal profession not only face these challenges, but have a responsibility to meet them. Why? Because, unless the challenges are faced and met, the courts risk being sidelined. And if that happens, not only does the development of the rule of law risk being stifled but its maintenance, if not existence, is challenged.

Today I want to ask: "Is technology an, or the, answer?" Most of you know, I am a great fan of technology. But what I have

come to realise is that technology is two-sided – it is both an answer to, as well as one source[1] of challenge to, the rule of law.

It is useful, I think, to address two aspects of technology – "automation" and "innovation". Technology often engages both. I want to address each in turn.

Automation and Innovation: A brief *precis*

Automation streamlines and improves existing ways of working[2] – put simply, automation makes "business-as-usual" better. In law, rapidly developing technological tools assist in conducting our existing work more efficiently. We are all aware of the rapid progression of case law and legislation research databases, as well as document management tools. There are other ways in which automation is impacting legal practice, such as through automated discovery processes, automated registry systems and electronic trials.

These examples of automation are relatively uncontroversial. Tools such as these – aimed at efficiency and streamlined processes – are common place. And the automation tools available to the legal profession are becoming more analytical and sophisticated.

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1 See Susskind and Susskind, *The Future of the Professions*, (2015) at 33-37.

2 See Susskind, A Submission the House of Lords, Select Committee on the Constitution, *Legislative Process Inquiry* (November 2016) at 1 [4].

For example, in the United States, a legal research and analytics platform called "Court Analytics", which was launched in late 2016, applies data science, natural language processing and machine learning[3]. It offers the possibility of viewing historical trends on the success rates of certain motions across different courts and different judges, and data-based statistical analysis of how the different courts in the complex US judicial hierarchy cite and rely on each other's decisions[4]. And "Court Analytics" is not alone.

A similar platform "Legal Analytics" by the US company Lex Machina provides similar, predictive insights drawn from thousands of court decisions and filings which are analysed using automated data mining techniques[5]. And, in Europe, an algorithm has been developed which uses natural language processing and machine learning to predict the outcome in European Court of Human Rights cases with, on average, 79 per cent accuracy[6].

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[3] See Lewis, "Introducing Court Analytics", 5 December 2016, available at <http://ravellaw.com/introducing-court-analytics/>.

[4] See Practice Source, "US Publisher Ravel Law Launches New Analytics for US Court System", 5 December 2016, available at <http://practicesource.com/us-publisher-ravel-law-launches-new-analytics-for-us-court-system/>.

[5] See Lex Machina, *What We Do*, available at <https://lex machina.com/what-we-do/>. See also Bennett Moses, "Artificial Intelligence in the Courts, Legal Academia and Legal Practice" (2017) 91 *Australian Law Journal* 561 at 566.

[6] See Aletras et al, "Predicting judicial decisions of the European Court of Human Rights: A Natural Language Processing perspective (2016) *PeerJ Computer Science* at 2.

The examples I have mentioned so far can be generally described as directed at lawyers in their practice. But automation does not only assist the profession. It can provide meaningful ways for those without legal training to access the law – including by providing services that act as a "stand in" for legal assistance or even advice.

An example from closer to home is the provocatively named "Robot Lawyers" tool. Developed by a Melbourne defence firm, the free online service is designed to assist unrepresented persons at sentencing hearings. The website allows users to input information relating to the offence with which they have been charged – be it traffic offences, assault, theft or otherwise – and the website then produces a document which the unrepresented person can hand up to the magistrate[7]. Despite the name, the service is not seeking to replace lawyers and states directly that the service "does not give legal advice". It is designed for unrepresented people; people who would not otherwise have had access to legal services because they cannot afford them. And, in this sense, it is an example of technology assisting to address latent demand[8] for legal services that might not otherwise be addressed.

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7 See generally *Robot Lawyers AU*, available at <https://www.robot-lawyers.com.au>.

8 See Susskind and Susskind, *The Future of the Professions*, (2015) at 133.

Similar applications to "Robot Lawyers" have been described as "expert systems". They are applications underpinned by a finite and predictable factual matrix – not unlike the old decision tree – which are able to provide answers through "pre-programmed logical steps"[9]. Expert systems draw on the knowledge of human legal experts, which is processed and applied through different system designs[10]. These systems present an opportunity for the legal profession, including the courts. What do I mean?

Lawyers, and their knowledge, need to be accessible. The legal system needs to be transparent. Technology – like that I have just described – is assisting with both of those goals. It provides new forms of *access, or avenues,* to justice. But it also offers a new approach to *delivery* of justice – one in which the non-lawyer client does a large part of the work and "owns" the result; or where lawyers offer evidence-based advice as to the likely outcome of litigation, assisted by sophisticated data-mining technology.

If that is automation, what then is innovation? Evidently, both automation and innovation intersect and overlap with each other. However, innovation in technology fundamentally changes past

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[9] Bennett Moses, "Artificial Intelligence in the Courts, Legal Academia and Legal Practice" (2017) 91 *Australian Law Journal* 561 at 565.

[10] Bennett Moses, "Artificial Intelligence in the Courts, Legal Academia and Legal Practice" (2017) 91 *Australian Law Journal* 561 at 563.

practices or allows us to work in ways that were not previously possible. Professor Susskind gives the basic example of the ATM – it did not replace bank tellers, it opened up a new way of providing banking services altogether[11].

Technological innovation is opening up the possibility of a more fundamental shift in how disputes are decided and information is shared, as well as new ways of providing access to the law. This creates enormous opportunities but it also creates challenges, especially for the rule of law.

Challenges to the Rule of Law

At a recent public event in the United States, Chief Justice John Roberts was asked: "Can you foresee a day when smart machines, driven with artificial intelligences, will assist with courtroom fact-finding or, more controversially even, judicial decision-making?" Chief Justice Roberts' reply was: "[i]t's a day that's here and it's putting a significant strain on how the judiciary goes about doing things"[12].

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[11] See Susskind, A Submission to the House of Lords, Select Committee on the Constitution, *Legislative Process Inquiry* (November 2016) at 1 [4].

[12] Liptak, "Sent to Prison by a Software Program's Secret Algorithms", *The New York Times*, 1 May 2017, available at <https://www.nytimes.com/2017/05/01/us/politics/sent-to-prison-by-a-software-programs-secret-algorithms.html>.

One aspect of his Honour's answer, I accept: technology and its use are now fundamentally ingrained in our legal system and legal practices. Indeed, it is so ingrained that we cannot brush away the challenges posed by the innovative aspects of technology as something to deal with at some unspecified time in the future. That point has already been reached. But, for my part, the question put to Chief Justice Roberts, and therefore the answer, were incomplete.

Like all issues, the first, and often the most critical, step is to ask the right question. Ask the right question and there is some hope that you will come up with a relevant answer to at least some of that question. Ask the wrong question and you are condemned to debating either irrelevant matters or matters where you cannot draw the necessary connection between the problem and any solution.

So, what might have been the right question? In order to identify that question, it is useful to consider some current – and I emphasise current – examples of the ways in which technology is being used in aid of, and simultaneously impacting on, the rule of law. Many of these examples you will know of, have heard about, or may even have used.

The first is the increasing prevalence of "online dispute resolution" platforms or "ODR" – dispute resolution, outside the

courts, using on online platforms[13]. The eBay ODR process is a simple example – each year, it resolves 60 million disagreements concerning such things as non-payment by buyers or complaints by buyers that items delivered did not match the pre-sale description[14].

These kinds of platforms are becoming increasingly sophisticated. The Civil Resolution Tribunal (or "CRT") in British Columbia, Canada, is a leading example. It employs a question and answer system – the "Solution Explorer" – at a preliminary stage to assist in resolving strata disputes between owners, tenants, occupants and strata corporations, or small civil claims such as insurance and personal injury claims of amounts up to $5,000, by consent, before a claim is commenced[15]. Commencing a dispute involves filling in an online application form, which is followed by the "case management phase"[16]. That phase involves an attempt to resolve the dispute with the assistance of a facilitator[17]. If that phase fails to resolve the dispute, the dispute may proceed to the

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[13] See Legg, "The Future of Dispute Resolution: Online ADR and Online Courts", (2016) 27 *Australasian Dispute Resolution Journal* 227.

[14] See Civil Justice Council, *Online Dispute Resolution for Low Value Civil Claims*, (2015) at 11-12 [4.2].

[15] See Civil Resolution Tribunal, *What do I need to do before I can start a dispute with the CRT?*, available at <https://civilresolutionbc.ca/how-the-crt-works/getting-started/>.

[16] s 17(1)(a) of the *Civil Resolution Tribunal Act*, RSBC 2012, c C-25 ("the CRT Act").

[17] s 17(2) of the CRT Act.

"tribunal hearing phase"[18]. The tribunal "hearing", including the reception of evidence, may take place entirely over the telephone, videoconferencing or email[19]. And to facilitate the whole regime, each phase of the online platform can be accessed at any time of the day or night from a computer or mobile device[20].

And Canada is not alone. In the UK, as you heard yesterday, Lord Justice Briggs recently recommended the creation of an "Online Court" for smaller claims, again involving an initial online interactive process[21], which creates a document that is effectively a simplified pleading. Indeed, in 2017, the judiciary of England & Wales, Her Majesty's Courts and Tribunals Service (an agency of the Ministry of Justice) and non-government organisations held a competitive "hackathon" at which teams of lawyers, programmers and designers were invited to come up with tools that would support the work of online courts[22].

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18 s 17(1)(b) of the CRT Act.

19 ss 39(1) and 42(3) of the CRT Act.

20 See Civil Resolution Tribunal, *New CRT Online Tools*, available at <https://civilresolutionbc.ca/new-crt-online-tools/>.

21 Lord Justice Briggs, *Civil Courts Structure Review*: *Final Report*, (2016) at 118-120 [12.15.5]-[12.15.26]. See also Legg, "The Future of Dispute Resolution: Online ADR and Online Courts", (2016) 27 *Australian Dispute Resolution Journal* 227 at 231-232; Harvey, "From Susskind to Briggs: Online Court Approaches" (2016) 5 *Journal of Civil Litigation and Practice* 84.

22 See *Online Courts Hackathon*, available at <https://www.onlinecourtshackathon.com>.

But ODR is not the only form of technological innovation that is impacting the way disputes are resolved. There is also the emergence of *automated* decision-making technology.

An aspect of this technology lies at the heart of the case of *State of Wisconsin v Loomis*[23], decided by the Supreme Court of Wisconsin in 2016. Eric Loomis was sentenced to eleven years in prison. The State alleged that Mr Loomis was the driver in a drive-by shooting. Mr Loomis denied this, but pleaded guilty to two less severe charges. At his sentencing, the trial court relied on risk assessment results provided by a proprietary risk assessment instrument, the "Correctional Offender Management Profiling for Alternative Sanctions", or "COMPAS". The risk assessment was based upon information gathered from Mr Loomis' criminal file and an interview with him[24]. That assessment predicted the likelihood of Mr Loomis reoffending by comparing him to a data group of similar offenders[25]. However, because the developer of COMPAS considered the program's algorithm to be a trade secret, it did not disclose how the risk scores were determined or how the assessment factors were weighted[26].

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[23] 881 NW 2d 749 (Wis 2016).

[24] *Loomis* 881 NW 2d 749 at 754 [13].

[25] *Loomis* 881 NW 2d 749 at 754 [15].

[26] *Loomis* 881 NW 2d 749 at 761 [51].

COMPAS identified Mr Loomis as "an individual who is at high risk to the community"[27]. But Mr Loomis could not access, analyse or understand, and therefore had no basis to challenge, the accuracy and scientific validity of the risk assessment – the algorithm was and remains a secret[28]. Nor did the sentencing judge have access to the algorithm. And, of course, because it is an algorithm, it is not static. It changes as the underlying data group changes. And, logically, it should change each time a person reoffends.

In October 2016, Mr Loomis filed a petition for a writ of certiorari in the Supreme Court of the United States. In response, the Attorneys for the State of Wisconsin submitted that Mr Loomis' petition should be denied, in part, because "[t]he use of risk assessments by sentencing courts is a novel issue, which needs time for further percolation"[29]. They further contended that Mr Loomis was free to question the assessment and explain its possible flaws. How Mr Loomis was to challenge such flaws was not explained. The United States, as amicus curiae, recognised that the use of actuarial risk assessments by sentencing courts "raises novel

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[27] *Loomis* 881 NW 2d 749 at 755 [19].

[28] See Butt, "Should Artificial Intelligence play a role in criminal justice?", *The Globe and Mail*, 1 June 2017.

[29] Attorneys for the State of Wisconsin, *Loomis v Wisconsin*, Brief in Opposition at 1.

constitutional questions" that may merit the Supreme Court's attention in a future case[30] – just not this one.

The Supreme Court denied Mr Loomis' petition in June last year[31].

The use of tools such as COMPAS raises difficult issues that are unlikely to go away. In the Supreme Court of Wisconsin, it was recognised that there are certain benefits of "evidence-based sentencing"[32]. But the Court also acknowledged that it was important to circumscribe the use of a COMPAS risk assessment[33]. For example, some studies have concluded that "there is little evidence" that COMPAS does what it is supposed to do[34]. There are also concerns that COMPAS disproportionately classifies minority offenders as higher risk. One analysis suggested that black defendants were far more likely than white defendants to be incorrectly judged to be at a higher risk of recidivism[35].

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30 United States, *Loomis v* Wisconsin, Brief as Amicus Curiae at 12.

31 See Supreme Court of the United States, Order List: 582 US, 26 June 2017 at 5.

32 *Loomis* 881 NW 2d 749 at 758-759 [36]-[42].

33 *Loomis* 881 NW 2d 749 at 757 [35].

34 See *Loomis* 881 NW 2d 749 at 762-763 [59]-[60].

35 See *Loomis* 881 NW 2d 749 at 763 [63] citing Larson et al, "How We Analyzed the COMPAS Recidivism Algorithm ", 23 May 2016, available at <https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm>.

Should more "evidence-based" sentencing come at the price of secrecy? Should "evidence-based" sentencing come at the price of secrecy when the justification for that secrecy is the protection of a private company's core business and therefore their profits? Is an answer that governments should develop their own algorithms and provide access to them to judges, the prosecution and defence lawyers? And could (or should) tools like COMPAS be used not as a risk assessment tool but as a tool for avoiding unconscious bias on the grounds of race?

Again, closer to home, s 495A of the *Migration Act* 1958 (Cth) provides that the Minister administering the Act is taken to have made a decision or exercised a power or complied with an obligation that was "made, exercised, complied with or done ... by the operation of a computer program" which the Minister has arranged to be used for the purposes of making that decision, exercising that power or complying with that obligation. The tension is self-evident. The systems have the ability to promote lawful decisions by "ensur[ing] decision-makers act within limits of powers"[36] but also raise concerns about the rule of law. Such concerns include the need to avoid the risk of automated processes impermissibly fettering a discretion of the

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[36] Hogan-Doran, "Computer Says 'No' – Automation, Algorithms, Artificial Intelligence & Government Decision-Making", presentation to the Public Sector Law and Governance Seminar, UNSW CLE, 23 May 2017 at 4.

decision-maker[37] as well as the need for clarity around the reasoning process and the materials that were considered in the decision-making process, particularly for the purposes of any later review of the decision[38].

These innovations, and others like them, raise important questions concerning the legality of actions by public bodies, minimum standards of fairness (both procedural and substantive), accountability of government decisions and access to merits and judicial review[39]. That list is not exhaustive. I doubt that it can be said that any of these technological innovations ensure that all persons and authorities within the state, public or private, are bound by and entitled to the benefit of laws *publicly made*, taking effect generally in the future and publicly administered by the courts.

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[37] Hogan-Doran, "Computer Says 'No' – Automation, Algorithms, Artificial Intelligence & Government Decision-Making", presentation to the Public Sector Law and Governance Seminar, UNSW CLE, 23 May 2017 at 6 citing Administrative Review Council, *Automated Assistance in Administrative Decision Making*, Report No 46, (2004) at viii.

[38] Hogan-Doran, "Computer Says 'No' – Automation, Algorithms, Artificial Intelligence & Government Decision-Making", presentation to the Public Sector Law and Governance Seminar, UNSW CLE, 23 May 2017 at 14.

[39] Perry and Smith,"iDecide: The Legal Implications of Automated Decision-making", speech delivered at the Cambridge Centre for Public Law Conference, 15-17 September 2014. See also Perry, "iDecide: Administrative Decision-making in the Digital World", (2017) 91 *Australian Law Journal* 29 at 31. See generally Justice Nettle, "Technology and the Law", speech delivered at the Bar Association of Queensland Annual Conference, 27 February 2016.

But we know that technology is not all bad. As I explained earlier, automated processes and programs are often *able* to be designed in a way that *enhances* aspects of the rule of law. For example, by allowing the public to observe hearings online; by assisting in the dissemination of information by publishing online information about processes and documents and decisions[40]; by addressing the economic problem that many people and organisations simply cannot afford legal services, or at least cannot afford them to the full extent they might need; by providing automated online complaint systems; by recognising that people today access and consume information differently and that those channels permit, and can encourage, people to solve or engage with their own legal problems.

Defining our task

The two categories of innovation I have described – ODR on the one hand, and decision-making technology on the other – illustrate how technology is at once enhancing as well as curtailing the rule of law. Acknowledging this reality helps frame the questions we, as members of the legal profession, must be ready to address.

Perhaps the question put to Chief Justice Roberts might have focused less on functional help, or hindrance, presented by

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[40] See, eg, Victoria, *Access to Justice Review*, (2016) at 284 [4.3.6].

technological innovation and more on what was being done to respond to new innovations intersecting with the judiciary. But even that would have provided an incomplete answer. Regard for the fundamental pillars of our legal system – and especially the rule of law – must guide our evaluation of new technologies, and inform the extent to which we adopt them.

So, what might have been the right question to ask about the innovative aspects of technology and the rule of law? As members of the legal profession, what is our task? When innovation becomes increasingly sophisticated, and its development increasingly rapid, how do we protect the fundamental principles of the rule of law that underpin our society? How do we avoid the very real risk of becoming passive participants in the tide of innovation, and thereby inadvertently condone or create fundamental problems for the rule of law? How do we take advantage of new technologies, rather than become a victim of them?

We cannot participate in, or contribute to, the Australian legal system without understanding how the system developed, how it has worked and how it works today. And I do not consider that we can anticipate changes to the legal system, or contribute to the making of those changes, without also understanding what matters in the existing system, and what does not. Fail in our understanding of any of those matters and we will be a passive responder to changes that will be forced upon us – changes that inevitably will

have consequences that fundamentally alter, or at least challenge, our present understanding of the rule of law.

If society demands that the law should be such that people can and will be (and, one should add, are willing to be) guided by it, what does that mean for the form and content of these technological innovations? Does it mean that society needs to rethink what until now have been considered important, if not essential, aspects of the rule of law?

Take transparency. It was and remains an important part of how our existing legal system works. The resolution of disputes in open court is said to be an important part of maintaining public confidence in the administration of justice and, consequently, the rule of law. Why? Because we can see how disputes play out, how the parties manage their cases, and on what basis a court makes a decision. And that learning is not limited to the participants in any particular dispute. The learning extends to, and is used by, the whole of society in a myriad of ways. But none of that is possible, for instance, with eBay's ODR process. Indeed, as Mr Loomis' plight demonstrates, technological tools may not only lack transparency but may also rely on a lack of transparency for purposes unconnected with, and potentially in conflict with, the rule of law.

Does that matter? There are aspects of our existing legal system that are not transparent: private judging and arbitration; mediation; non-publication orders; plea bargaining; "secret courts" for national security matters; independent corruption bodies; litigation involving trade secrets – and the list goes on.

So, are there other aspects of our legal system where we are willing to adopt technological change and at the same time abandon one or more aspects of the rule of law in order to reduce cost, minimise delay, increase access to justice, or for some other objective? Where is the line to be drawn – by reference to the nature of the claim, the size of the claim, the identity of the complainant or respondent, the jurisdiction, the nature of the tribunal, the relief sought, whether the liberty of an individual is at stake, the amount of the cost or time savings, or the extent to which access to justice is improved, or which aspect or aspects of the rule of law are subject to change or challenge?

And there are also practical questions that must be asked and answered about the development and funding of technological innovations. Should we be investing public funds in the development of technologies which may impact on the rule of law in unpredictable ways, both positive and negative? Should we periodically review these technological developments, to ascertain how to proceed and, if so, how?

It is only with those questions clearly at the forefront of our minds that we can and should engage critically with technology. And it is only with those questions answered that we can adopt and adapt technology appropriately.

Adopting and adapting technology for our profession

This brings me to the next question – practically, how do we achieve this? In adopting and adapting technological innovation, we need to think outside the square. We can learn from other industries, too. Take, for example, a trial project aimed at using a 3D printer to provide access to essential educational tools for the teaching of science, technology, engineering and mathematics in Kenya. The UK organisation behind the project – "Techfortrade", through its "Digital Blacksmith" initiative[41] – will use an open source design for a 3D printed microscope[42]. The components for the 3D printer – discarded and unused existing technology. The material for the microscopes – recycled plastic bottles. The organisation hopes this will be the first of many 3D printed teaching tools for

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41 See *TechforTrade*, available at <http://www.techfortrade.org>; *Digital Blacksmiths*, available at https://www.digitalblacksmiths.org>.

42 Created by the University of Cambridge: see generally "Open Source 3D-printed Microscope", available at <https://www.synbio.cam.ac.uk/synbiofund/3D_printed_microscope>.

Kenyan schools[43]. The possibilities of innovation are endless, with lateral thinking and open minds.

Or consider the approach adopted by Telstra. Telstra can no longer be described as a large telecommunications company. It now seeks to be seen as a provider of skills in the artificial intelligence market. It is not only the idea, but the way in which Telstra seeks to achieve that object that is a lesson to us all. First, Telstra is tracking the abilities and knowledge of its employees and then mapping those abilities and that knowledge against skills needed for roles as automation and artificial intelligence change the marketplace[44]. Knowledge and skills are no longer in silos. They are shared and, most importantly, sought to be shared with others – internally and, where appropriate, externally, in the form of partnerships with third parties.

There are lessons for the justice system and the legal profession. Just stop and think about the amount of legal knowledge – substantive, procedural and practical – sitting in silos which remains unused, and the volume and variety of skills that remain untapped. With automation and innovation, different skill sets will be needed in the legal system and the legal profession.

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[43] See Targett, "Meet the Digital Blacksmiths: Forging futures on a 3D Anvil", *Computer Business Review*, 19 March 2018, available at <https://www.cbronline.com/feature/meet-digital-blacksmiths-forging-futures-3d-anvil>.

[44] Tadros, "Telstra prepares its workforce for an automated future", *Australian Financial Review*, 22 March 2018 at 3.

So what, then, are the questions we need to ask and answer? To my mind, two are critical. First, how do we identify, map and utilise the existing knowledge and skill base; and, second, recognising that technology has the potential to bring enormous benefits to our legal system, how do we embrace those benefits but address risks and challenges to the rule of law that accompany technological change? Failing to consider – and, where appropriate, to address – the effects, the risks and the challenges is not an option. Pretending that they do not exist is also not an option. Indeed, the sooner we ask, and answer, these fundamental questions, the better it will be for the development of new tools and ideas that utilise technology, as well as for the rule of law.

Conclusion

The rule of law is not static. It will continue to change. Technology will hasten the rate of that change. The questions for each of us are: what kind of society do we want? And what role does the rule of law have in that society? The answer to those questions – informed in turn by answers to questions like how did the system develop, how has it worked and how does it now work, what matters in the existing system, and what does not – will guide our decisions about what technology we should adopt and what technology we should adapt and why. I do not think that we should, or can, let specific technology or specific circumstances deflect us from asking ourselves these fundamental questions. It is

the answers to these questions that will shape the future of our society, the rule of law and the courts.