

**DEEP THINKING:  
THE FUTURE OF THE LEGAL PROFESSION IN AN AGE OF  
TECHNOLOGY**

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and Conference

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The Honourable Chief Justice Sundaresh Menon

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**I. Introduction**

1. It gives me great pleasure to be here this evening to address you as part of this magnificent conference; an occasion that calls for us all to reflect on the current and foreseeable interactions between technology, business and the law. And how timely an invitation this is because, in my view at least, technology will be the single most potent force to reshape our profession in the years to come.

2. Anyone doubting the capacity of technology to transform an industry need only look back to the relatively recent past when everything moved a little slower. Letters were sent in envelopes with stamps, something that is referred to today with some derision as “snail mail”; answers took some effort to find; breaking news was delivered to our doorsteps; and we got lost, often.<sup>1</sup> But these experiences now belong in a sepia tinted past because our lives

have been so extraordinarily changed by the Internet which, some among you might be surprised to learn, is only in the third decade of its existence.<sup>2</sup> It is remarkable to think that what started out as a modest proposal for an information management system is today an indispensable part of the global communications infrastructure.

3. A more recent but no less striking example of the transformative potential of technology is of course the smartphone. Think back just a little over a decade or so and you will recall life without it being so very different. Back then, our mobile phones were just that; a device we could use to make and receive calls on the go. But then came the iPhone in 2007 and it has revolutionised our lives. Today, we rely on our smartphones to check the news, retrieve our email, access all manner of information, take photographs, play music, plan routes, message multiple groups, shop for a wide variety of goods, and even monitor the quality of our sleep. This is truly remarkable, and that it may not immediately strike us as such simply proves the point that technology can quietly transform our experiences and expectations in ways that we might once not even have imagined possible.

4. Against this backdrop, there is simply no reason for us in the legal community to think that these stories of the Internet and the iPhone will not play out in a similar way in altering our operating environment at frightening speed. As I hope to demonstrate in the remainder of this address, a sea

change is sweeping the profession and the challenge before us is multifaceted and formidable. But my message to you is this: if we all start thinking deeply now about the impact that technology is having and will have on the law, and if we do not shirk from taking the necessary and perhaps even painful steps to adapt to the changes this will bring, we might give ourselves a chance of safeguarding a future in which we can continue to play an important role in the delivery of a vital public service.

## **II. The change**

5. Let me begin by outlining the change that is taking place around us. I see this being manifested in at least three tangible ways.

6. The first relates to the massive proliferation of **new products** that have become available to all actors within the legal profession.

(a) Lawyers are increasingly able to rely on a host of digitised programs to perform a variety of legal tasks. For example, in the area of document review, advanced platforms such as Luminance can combine pattern-recognition algorithms, statistical analysis, and unsupervised machine learning to read, understand and learn from past interactions between lawyers and documents.<sup>3</sup> All these capabilities allow the program to flag with remarkable accuracy the potential areas of concern in a contract and experience has shown

that it can cut down as much as 85% of the time needed for contract review. Or consider the area of legal research. Several major law firms internationally have already “hired” ROSS, the world’s first “robot lawyer”, which relies on artificial intelligence to understand search queries put to it in natural language, retrieve the precise passages in precedents that relate to the queries, and rank them based on a scoring of their relevance.<sup>4</sup>

(b) Judges are also increasingly coming to terms with the availability of new technological tools in their domain. Compas Core is a software that relies on algorithmic patterns to help sentencing judges assess the risk of recidivism of an offender, and it is already being employed in courtrooms in several parts of the US.<sup>5</sup> While in China, speech recognition technology and two-way translation systems are just two ways in which technology is being used to facilitate courtroom proceedings.<sup>6</sup>

(c) As for consumers of legal services, they can now call upon a smorgasbord of new products which seek to provide direct legal assistance to them and that, as I said in my response at the Opening of this Legal Year, will no doubt drive a culture of “self-sourcing” amongst members of the public.<sup>7</sup> OCBC bank, for example, rolled out an online service here at the end of last year to help Singaporeans

prepare a will.<sup>8</sup> Compared to hiring a lawyer for this purpose, which can cost anywhere upwards of \$100, and perhaps several times as much, this online service is provided free of charge and enables users to complete the will-making process in just 10 minutes.

7. The second way in which technology is leaving a telling mark on the legal profession is through the **new players** it has spawned. Many of us are familiar with “alternative legal service providers” or “ALSPs” who have broken the mould of the traditional legal service delivery model by leveraging technology. A highly instructive report on ALSPs was published this year by Thomson Reuters in partnership with Georgetown University Law’s Centre on Ethics, the Saïd Business School at the University of Oxford, and Acritas, a UK based legal research firm. It revealed quite remarkably that, on the basis of their total revenue, ALSPs in North America and the UK have grown by a quarter in size in the last two years.<sup>9</sup> Independent legal process outsourcers such as the well-known Legal Zoom and Rocket Lawyer are the most typical of such ALSPs but, significantly, counted among their number are also the major accounting firms which have perhaps the greatest potential to make significant inroads into the legal services market. Indeed, the largest accounting firms “spend more on technology and training each year than the revenue of any law firm”.<sup>10</sup> It is surely just a matter of time before they will be able to “run entire legal departments through a managed service or outsourcing model”.<sup>11</sup>

8. Finally, the third perspective from which we might appreciate the impact of technology on the law is to notice the **new processes** that are being adopted to facilitate wider access to—and more efficient delivery of—justice. The courts in the UK, for example, are undertaking significant reforms, with some £1 billion being put into a programme that hopes to see most civil disputes resolved through an online court by 2022.<sup>12</sup> In Singapore, the Community Justice and Tribunals System (“CJTS”), which is an online filing and case management system with dispute resolution capabilities, was first launched in July 2017 in the Small Claims Tribunals. The positive user experience there led to it being rolled out in the Community Disputes Resolution Tribunals in February 2018 and the Employment Claims Tribunal in January this year. Indeed, from the launch of the CJTS until the end of February 2019, more than 1,700 claims filed in the Small Claims Tribunals have undergone e-Negotiation via the online platform, with about 35% reaching amicable settlement and thus saving parties much time and costs.<sup>13</sup> Looking forward, we are also aiming to launch an online dispute resolution platform for motor accident claims in phases over the course of the coming year.<sup>14</sup> To facilitate the resolution of such claims at low cost, we expect that the platform will feature an outcome simulator and a means for parties to negotiate a settlement with each other online without having to come to court. Looking beyond the courts, private companies too have developed online processes to enable the efficient resolution of disputes. An oft-cited example

is eBay, which uses a tiered method to resolve disputes through online negotiation, online mediation, and finally, e-adjudication.<sup>15</sup>

9. It is clear from whichever angle you analyse our current situation that the ground has already shifted beneath our feet. Technology will continue to birth a multitude of new products, players and processes, and as it does so, the professional landscape we inhabit will evolve until, without warning, the point is reached where it becomes totally unrecognisable from the past; where, like our experiences with the Internet and the iPhone, we suddenly find ourselves having entered the age of a new normal. By then, the expectations of clients and the very idea of how justice should be administered and legal services delivered might all be so radically different to what we have been accustomed to. This is why I suggest to you that it is critical that we be intentional about thinking and adapting to the changes we can expect. If we fail to do that, we may not be in time for the much-changed future that awaits.

### **III. The challenge**

10. Let me then map out the challenges that lie before us, at least as I see them. In my view, the impact of technology on the law requires us to seriously examine at least four areas. These have to do with:

- (a) how we train our lawyers and educate our students;
- (b) how we organise the profession;

(c) how we preserve our fundamental values and ethics; and

(d) how we safeguard the sound development of the law.

**A. *Legal education and training***

11. I begin with legal education and training. As technology becomes more deeply embedded in the practice of law, it is only natural to expect that certain skills that we developed in the past will no longer serve us as well as they once did. For one thing, we will need to develop the technological skills that will enable us to harness the modern tools at our disposal.

12. But we should not see the development of such skills as an optional extra. Rather, we should seek to integrate them within the core of our work. Indeed, since 2012, the professional conduct rules promulgated by the American Bar Association have considered it not just a question of personal convenience but one of *professional competence* that a lawyer should “keep abreast of changes in the law and its practice, including the benefits and risks associated with relevant technology”.<sup>16</sup> Today, the majority of US states hold lawyers to this standard,<sup>17</sup> and several practical implications have flowed from it. For example, the State Bar of California issued an opinion in 2015 that lawyers who handle litigation have an ethical duty to be competent in e-discovery or to associate with others who have that competence.<sup>18</sup> In Florida, technology training has been mandatory since 2017.<sup>19</sup> And just this week, the

Michigan Supreme Court proposed adding technological competency to the list of required skills under the state's rules of professional conduct for attorneys.<sup>20</sup> What is envisaged by this proposal is that attorneys who are licensed to practice within the state would be required, among other things, to engage in continuing education within the realms of "developing technology that are reasonably necessary to provide competent representation".<sup>21</sup>

13. Given where the practice of law is heading, training lawyers who are proficient in the use of technology must be a priority and, here, I think law firms have an important role to play. More than just centers for generating revenue and profits, law firms should see themselves as institutions of learning; places where lawyers go not only to work, but also to *learn* their trade. Encouragingly, some have already taken active steps to train a future generation of lawyers competent in technology. Clifford Chance, for example, announced the launch of its Tech Academy last year that is "dedicated to learning and development in the Technology space".<sup>22</sup> The Academy offers lawyers a range of online training programmes and webinars, short summaries of key technologies and trends, and even access to coding training. Rajah & Tann Asia has set up a digital arm, Rajah & Tann Technologies,<sup>23</sup> which has gone on to link up with the Singapore Academy of Law to develop and deliver a specialist training course for lawyers in e-discovery management.<sup>24</sup>

14. Another important site for transformation is our law schools. As I said in a lecture which I delivered last year on the subject of legal education, law schools are the recipients of a “dual entrustment” – they are entrusted by students with their personal and professional development, and by society with the formation of a new generation of competent lawyers.<sup>25</sup> It is therefore incumbent on them to examine how and what they teach in light of the considerable changes that are occurring in legal practice; to ask whether their students are being sufficiently exposed to technology in the classroom such that they may understand how technology can help them perform competently in the workplace and, if not, to think deeply about how they can remodel their curricula and structures to meet these challenges.

15. One particular area that I think our educators, especially in the polytechnics, should carefully consider is in the training of a corps of allied legal professionals. With the rapid rise of technology, we can no longer expect legal services to be delivered exclusively by lawyers; instead it will increasingly come to involve a number of other professionals from related disciplines such as data science, project management, knowledge engineering and process analysis.<sup>26</sup> An analogy can be drawn from the field of medical practice where doctors commonly work in tandem with professionals in related disciplines such as speech therapy, physiotherapy and psychology. It is instructive to note in this context that there are special programs to train such allied professionals. For example, the SingHealth Academy of Singapore has a

College of Allied Health that provides a comprehensive training framework within which undergraduate students can benefit from clinical attachment opportunities, postgraduate students can choose from a comprehensive range of residency and accreditation programmes, and full-fledged professionals have available to them quality continuing professional education programmes.<sup>27</sup> We in the legal profession should likewise examine how we can build up the capacity of our allied legal professionals so that legal services can be delivered more optimally through an integrated model.

***B. Organisation of the profession***

16. I turn to the second area, which concerns the organisation of the profession. For perhaps as long as we can remember, law firms have comprised the basic units of the legal profession. While they may differ in terms of their relative sizes, they all largely operate on the same model where senior partners sit atop a broad base of junior lawyers in a pyramidal structure and, to the extent that non-lawyers feature in this model, they do so only peripherally.

17. Our profession, however, is unlikely to continue to look like this for much longer. Technology is already driving change at two levels.

18. First, at the level of the law firm, it has been projected that the traditional pyramid model will soon shift towards a more streamlined “rocket”

structure where the space that was once occupied by large ranks of junior lawyers will shrink considerably as technology automates the routine work that they have hitherto been tasked to perform.<sup>28</sup> At the same time, we can expect part of that space to be filled by a new blend of allied legal professionals who will work, not merely in support of, but alongside lawyers, as their varied expertise in technology, business management, and process planning becomes increasingly important in helping deliver value to clients. If this is the future of the law firm, then I suggest that those occupying senior management positions have some fundamental questions to consider relating to their staffing and remuneration models.

19. The second change is occurring at the level of the industry. Traditional law firms will no longer be able to claim a monopoly over the delivery of legal services because technology has supplied momentum to a whole host of ALSs. But as more such non-conventional players emerge, the question we will have to grapple with is how we should approach the question of their regulation. Are we comfortable, for example, having online platforms like chatbots provide not just legal information but legal advice?<sup>29</sup> For that matter, how do we practically distinguish legal information from advice and, even if we were prepared to allow machines to go that far, who would liability attach to if such advice turned out to be wrong? Adopting a *laissez-faire* attitude in this context seems irresponsible because the unchecked proliferation of such new players and products might well lead to a dip in the overall quality of legal

services delivered. At the same time, too heavy-handed an approach risks stifling innovation. Regulators therefore will have to think carefully about how to strike a suitable balance. This will not be easy, but that is no reason for postponing a necessary exercise.

**C. *Values and ethics of the profession***

20. The presence of new products and new players in the legal marketplace also feeds into the third area that we will have to consider, namely, the values and ethics of the profession. I have spoken elsewhere of what it means to be a member of a profession such as ours – it is, in essence, a calling to the pursuit of a learned art in the spirit of public service.<sup>30</sup> But this idea of our standing shoulder to shoulder and being informed in our work by a set of shared values and beliefs will become increasingly difficult to sustain as our legal fraternity grows more heterogeneous. Indeed, as more non-law actors take up roles within the legal industry, the question will arise as to whether we can expect them to identify with the values and ideals of the legal profession as these are applied and upheld in a particular jurisdiction. If so, how will we go about securing this?

**D. *Development of the law***

21. The final area I want to touch on today is the sound development of the law. There is both a procedural and a substantive aspect to this.

22. In terms of the procedural aspect, I referred earlier to the increased use of technology in courts and even to the rise of online courts. While such initiatives are often taken as signs of a progressive judiciary, caution has also been sounded about pursuing them too enthusiastically. For example, the use of the Compas Core system in the US has come under heavy criticism not only because of the inscrutable nature of the underlying algorithm, but also because it is seemingly not immune from stereotyping and incorporating bias into its outcomes.<sup>31</sup> The paradigm shift to online courts in the UK is also not without its detractors. Last year, local magistrates issued a formal response to a consultation exercise in which they warned that the proposals to close more courts and to conduct more criminal trials via video-link will destroy public confidence in the legal system.<sup>32</sup> Indeed, early testing suggests “risks of unconscious bias and depersonalisation” in decision-making where defendants were not physically present.<sup>33</sup>

23. Turning to the substantive aspect of the law, we need to examine the impact that private dispute resolution mechanisms can have on the vitality of our jurisprudence. In common law systems, cases are the lifeblood of the law. But with online dispute resolution mechanisms growing in prominence, disputes will increasingly be diverted away from the courts. How, then, might we safeguard the continuing development of the law? At the same time, we should also consider how the content of the law should sensibly be developed to govern the modern interactions of a community driven by technology. For

example, last year, a victim in Arizona died after being hit by an autonomous vehicle.<sup>34</sup> The dispute was settled but it is not difficult to imagine the complex legal issues that will arise when a similar case is squarely before a court in the future.

#### **IV. A call to action**

24. If we pull all of that together, I think most of us will agree that our profession is fast approaching a crossroads and, equally, that the next steps we take are going to be crucial. But whatever these may be, I hope we will all agree that the biggest mistake we could make now would be to do nothing. There are many reasons that might attract us to this option—a fear of change, the desire to protect vested interests, or an inflated sense of our own resilience—but it is simply *not* how we should go about addressing the challenges that confront us. The consequences of inaction can be dire, and I hope to illustrate these with three examples.

25. The first relates to the fall of Nokia, which I see as providing a salutary reminder to law firms of how the rug can be pulled from under their feet if they fail to recognise the change in their surroundings. Nokia, as many of you might recall, was once the pre-eminent manufacturer of mobile phones. In 2005, it had cornered almost 50% of the global mobile phone market. But less than a decade later, and its fortunes had been completely reversed. In 2012, Nokia made a loss of \$4 billion. A year later, its share of the global smartphone

market had plummeted to just 3% and it later sold its phone business to Microsoft.<sup>35</sup> Where did it all go wrong? As I mentioned earlier, the iPhone was launched in 2007 and it changed everything by introducing touchscreens, apps, Bluetooth technology, and offering instant access to the Internet. In so doing, it created a completely new lifestyle, one which Nokia had not envisioned and so failed to become a part of.

26. My second example draws on the spectre of technological unemployment and I offer it as a warning to lawyers. Two years ago, it was reported that more than 30 employees in a Japanese insurance firm had been laid off and replaced by an AI system that could calculate payouts to policyholders.<sup>36</sup> Based on IBM's Watson technology, the AI system was reported to have the cognitive ability to analyse and interpret unstructured text, images, audio and video, so that it could read tens of thousands of medical certificates, factor in the length of hospital stays, medical histories and surgical procedures, and then calculate payouts. This dramatically reduced the man-hours needed for this purpose. In much the same way, law firms too are fast incorporating AI into their work processes and who is to say that the same fate will not befall those of us who would rather deny the impact that modern technology is having on our profession?

27. My final example, I hope, will find some resonance with regulators and policymakers. It has to do with the ethically difficult issue of human gene

editing. As some of you might have read in the news, it was reported towards the end of last year that a new technology called Crispr had been used to edit the genes of a pair of twins to make them resistant to the HIV virus. This has been called “irresponsible” and “deeply disturbing”,<sup>37</sup> and we now have a debate on whether gene-editing should be allowed. But one wonders whether this conversation has come a little late. After all, the technology behind Crispr has been around for some time; even being harnessed for genome editing as early as 2013.<sup>38</sup> Yet, until now, there exists only piecemeal regulations in different countries, with no meaningful consensus on how to control the use of such technology. The result is that the technology has *already* been used embryonically on human beings with potentially frightening consequences for all of humanity.<sup>39</sup>

28. These examples are all drawn from different fields, but there is the same important kernel of truth in each of them, which is the importance of actively adapting to our environment at a time of unprecedented change. As I have said, there are many reasons that might tempt us to turn away from the change but, as these examples show, surrendering our fates in this way will only take us closer to undesirable outcomes – the obsolescence of our skills, the irrelevance of what we provide, and the descent into ethical black holes. This simply isn’t an option when nothing short of the future of our profession is at stake.

29. How, then, should we respond? As I said at the Opening of our Legal Year, technology presents the profession with a “wicked problem”;<sup>40</sup> one that is made up of multiple moving parts, engages the concerns of different stakeholders, and is ultimately incapable of straightforward resolution. It is as enigmatic as it is colossal and so it would be foolhardy for any of us—the courts, practising bar, regulators or law schools—to think that we can master it on our own. Instead, what I think must lie at the heart of any response and animate all aspects of it is an unyielding “spirit of togetherness” among all of us who have a stake in the future of our profession.<sup>41</sup> The problem is an outsized one and we will make little headway if we concentrate only on fixing those issues that are apparent from where we each stand. Our greatest strength lies in our unity and, if we can draw on that to broaden our field of vision, to collaborate across borders and exchange perspectives on the lessons we have each learnt, I think that will offer us the best prospect of creating holistic and durable solutions that might prove fit for a time of epochal change.

## **V. Conclusion**

30. In 1862, President Abraham Lincoln, in his Annual Message to Congress, said this:<sup>42</sup>

“We can succeed only by concert. It is not ‘can *any* of us imagine better?’ but ‘can we *all* do better?’ The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high

with difficulty, and we must rise with the occasion. As our case is new, so we must think anew, and act anew.”

31. The legal profession today is mired in change and the challenge we face is profound. But even as technology comes to dominate so much of our professional lives, let us not discount the power of human ingenuity and endeavour to shape the future according to our will. We have always been the masters of our own destiny and, in *this* moment, we have a golden opportunity to chart a new course for the entire profession. And because we can only do this together, I hope that you will all step forward and take up your places at the vanguard of change.

32. Thank you very much and I wish you all a pleasant evening ahead.

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- <sup>1</sup> See the official website of the World Wide Web Foundation, accessible at <https://fortheweb.webfoundation.org>.
- <sup>2</sup> See the Guardian article, “Tim Berners-Lee on 30 years of the world wide web: ‘We can get the web we want’ (12 March 2019), accessible at <https://www.theguardian.com/technology/2019/mar/12/tim-berners-lee-on-30-years-of-the-web-if-we-dream-a-little-we-can-get-the-web-we-want>.
- <sup>3</sup> See the official website of Luminance, accessible at <https://www.luminance.com/index.html>.
- <sup>4</sup> See the official website of Ross Intelligence, accessible at <http://www.rossintelligence.com>.
- <sup>5</sup> See the New York Times article, “Sent to Prison by a Software Program’s Secret Algorithms” (1 May 2017), accessible at <https://www.nytimes.com/2017/05/01/us/politics/sent-to-prison-by-a-software-programs-secret-algorithms.html>.
- <sup>6</sup> See the Attic article, “Chinese New Year 2018: How China’s legal tech scene is breaking new ground” (7 February 2018), accessible at <https://theattic.london/2018/02/07/chinese-new-year-2018-chinas-legal-tech-scene-breaking-new-ground/>.
- <sup>7</sup> See Response by Chief Justice Sundaresh Menon at the Opening of the Legal Year 2019 delivered on 7 January 2019 at para 39, accessible at <https://www.supremecourt.gov.sg/docs/default-source/default-document-library/cj-oly-speech-2019-pdf.pdf>.
- <sup>8</sup> See the Today article, “OCBC Bank launches free online will writing service” (27 December 2018), accessible at <https://www.todayonline.com/singapore/ocbc-bank-launches-free-online-will-writing-service>.
- <sup>9</sup> See the joint report, “Alternative Legal Service Providers 2019: Fast Growth, Expanding Use and Increasing Opportunity” at p 3, by Thomson Reuters Legal Executive Institute, in partnership with Georgetown University Law’s Centre on Ethics and the Legal Profession, University of Oxford Said Business School, and the UK-based legal research firm Acritas, accessible at <https://legal.thomsonreuters.com/content/dam/ewp-m/documents/legal/en/pdf/reports/alsp-report-final.pdf?cid=9008178&sfidccampaignid=7011B000002OF6AQAW&chl=pr>.
- <sup>10</sup> See the 2018 Client Advisory by Citibank and Hildebrandt Consulting LLC at p 6, accessible at <https://www.privatebank.citibank.com/ivc/docs/2018CitiHildebrandtClientAdvisory.pdf>.
- <sup>11</sup> See the American Lawyer article, “As law firms stall, who will overtake them in the innovation race?” (30 January 2018), accessible at <https://www.law.com/americanlawyer/sites/americanlawyer/2018/01/30/as-law-firms-stall-who-will-overtake-them-in-the-innovation-race/>.
- <sup>12</sup> See article on The Lawyer, “Is the online court the future of litigation” (13 January 2016), accessible at <https://www.thelawyer.com/online-court-litigation/>.
- <sup>13</sup> See the State Courts Workplan 2019 delivered by Justice See Kee Oon, Presiding Judge of the State Courts, “State Courts” 2020 and Beyond” (8 March 2019).
- <sup>14</sup> See the Business Times article, “Singapore public can resolve motor accidents disputes online from year-end” (7 January 2019), accessible at <https://www.businesstimes.com.sg/transport/singapore-public-can-resolve-motor-accidents-disputes-online-from-year-end>.
- <sup>15</sup> See Colin Rule, “Resolving Consumer Disputes” in ACResolution (Fall 2008), accessible at <http://colinrule.com/writing/acr2008.pdf>.
- <sup>16</sup> See “Rule 1.1 Competence – Comment”, American Bar Association, 16 August 2018, accessible at [https://www.americanbar.org/groups/professional\\_responsibility/publications/model\\_rules\\_of\\_professional\\_conduct/rule\\_1\\_1\\_competence/comment\\_on\\_rule\\_1\\_1/](https://www.americanbar.org/groups/professional_responsibility/publications/model_rules_of_professional_conduct/rule_1_1_competence/comment_on_rule_1_1/).
- <sup>17</sup> See Robert Ambrogi “Tech Competence”, accessible at <http://www.lawsitesblog.com/tech-competence/>.

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<sup>18</sup> See “The State Bar of California Standing Committee on Professional Responsibility and Conduct Formal Opinion No. 2015-193”, accessible at [https://www.calbar.ca.gov/Portals/0/documents/ethics/Opinions/CAL%202015-193%20%5B11-0004%5D%20\(06-30-15\)%20-%20FINAL.pdf](https://www.calbar.ca.gov/Portals/0/documents/ethics/Opinions/CAL%202015-193%20%5B11-0004%5D%20(06-30-15)%20-%20FINAL.pdf).

<sup>19</sup> See Supreme Court of Florida Opinion No. SC16-574, accessible at <https://www.floridasuperemecourt.org/content/download/323470/2902135/file/sc16-574.pdf>.

<sup>20</sup> See the Jurist article, “Michigan Supreme Court proposes changes to attorney rules in light of new technology” (22 April 2019), accessible at <https://www.jurist.org/news/2019/04/michigan-supreme-court-proposes-changes-to-attorney-rules-in-light-of-new-technology/>.

<sup>21</sup> See Order of the Michigan Supreme Court, accessible at [https://courts.michigan.gov/Courts/MichiganSupremeCourt/rules/court-rules-admin-matters/Court%20Rules/2018-11\\_2019-04-22\\_FormattedOrder\\_PropAmendtofMRPC1.1-1.6.pdf](https://courts.michigan.gov/Courts/MichiganSupremeCourt/rules/court-rules-admin-matters/Court%20Rules/2018-11_2019-04-22_FormattedOrder_PropAmendtofMRPC1.1-1.6.pdf).

<sup>22</sup> See the news bulletin on the official website of Clifford Chance, “Clifford Chance launches Tech Academy” (5 April 2018), accessible at <https://www.cliffordchance.com/news/news/2018/04/clifford-chance-launches-tech-academy.html>.

<sup>23</sup> See the Straits Times article, “Legal giant Rajah & Tann Asia launches digital unit” (16 November 2018), accessible at <https://www.straitstimes.com/singapore/legal-giant-rajah-tann-asia-launches-digital-unit>.

<sup>24</sup> See the news bulletin on Rajah & Tann Singapore’s official website, “Rajah & Tann Technologies and SAL Ventures launch first e-discovery certification in Asia” (16 November 2018), accessible at <https://sg.rajahtannasia.com/news/news/media-release-rajah-tann-technologies-and-sal-ventures-launch-first-e-discovery-certification-in-asia>.

<sup>25</sup> See the James P White Lecture delivered by Chief Justice Sundaresh Menon at the Indiana University Robert H McKinney School of Law, “Law Schools: A Time of New Burdens and New Beginnings” (30 October 2018) at para 59, accessible at [https://www.supremecourt.gov.sg/Data/Editor/Documents/James%20White%20Lecture%20-%20Law%20Schools%20-%20A%20Time%20of%20New%20Burdens%20and%20New%20Beginnings%20\(301018\).pdf](https://www.supremecourt.gov.sg/Data/Editor/Documents/James%20White%20Lecture%20-%20Law%20Schools%20-%20A%20Time%20of%20New%20Burdens%20and%20New%20Beginnings%20(301018).pdf).

<sup>26</sup> See Richard Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future* (Oxford University Press, 2<sup>nd</sup> Ed, 2017) at p 135.

<sup>27</sup> See the SingHealth Academy College of Allied Health website, accessible at <https://www.singhealthacademy.edu.sg/cah>.

<sup>28</sup> See the joint report by Boston Consulting Group and the Bucerius Law School, “How Legal Technology Will Change the Business of Law” at p 10, accessible at [http://www.bucerius-education.de/fileadmin/content/pdf/studies\\_publications/Legal\\_Tech\\_Report\\_2016.pdf](http://www.bucerius-education.de/fileadmin/content/pdf/studies_publications/Legal_Tech_Report_2016.pdf).

<sup>29</sup> See the report prepared by the University of Melbourne, “Current State of Automated Legal Advice Tools” especially at p 6, accessible at [https://networkedsociety.unimelb.edu.au/\\_data/assets/pdf\\_file/0020/2761013/2018-NSI-CurrentStateofALAT.pdf](https://networkedsociety.unimelb.edu.au/_data/assets/pdf_file/0020/2761013/2018-NSI-CurrentStateofALAT.pdf).

<sup>30</sup> See, generally, the 2017 Mass Call Address delivered by Chief Justice Sundaresh Menon, “A ‘Conscientious Bar’: Organisation, learning and public service” (28 August 2017), accessible at [https://www.supremecourt.gov.sg/Data/Editor/Documents/Mass%20Call%202017%20Speech%20\(Final\)290817.pdf](https://www.supremecourt.gov.sg/Data/Editor/Documents/Mass%20Call%202017%20Speech%20(Final)290817.pdf).

<sup>31</sup> See article on The Atlantic, “A popular algorithm is no better at predicting crimes than random people” (17 January 2018), accessible at <https://www.theatlantic.com/technology/archive/2018/01/equivant-compass-algorithm/550646/>.

<sup>32</sup> See the Guardian article, “Trials by video link will destroy local justice, magistrates warn” (5 September 2018), accessible at <https://www.theguardian.com/law/2018/sep/05/trials-by-video-link-destroy-local-justice-magistrates-warn>.

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- <sup>33</sup> See the Guardian article, “Trials by video link will destroy local justice, magistrates warn” (5 September 2018), accessible at <https://www.theguardian.com/law/2018/sep/05/trials-by-video-link-destroy-local-justice-magistrates-warn>.
- <sup>34</sup> See the Reuters article “Uber settles with family of woman killed by self-driving car” (29 March 2018), accessible at [www.theguardian.com/technology/2018/mar/29/uber-settles-with-family-of-woman-killed-by-self-driving-car](http://www.theguardian.com/technology/2018/mar/29/uber-settles-with-family-of-woman-killed-by-self-driving-car).
- <sup>35</sup> See the BBC article, “Nokia: The rise and fall of a mobile giant” (3 September 2013), accessible at <https://www.bbc.com/news/technology-23947212>.
- <sup>36</sup> See the Guardian article, “Japanese company replaces office workers with artificial intelligence” (5 January 2017), accessible at <https://www.theguardian.com/technology/2017/jan/05/japanese-company-replaces-office-workers-artificial-intelligence-ai-fukoku-mutual-life-insurance>.
- <sup>37</sup> See the Statement by the Organising Committee of the Second International Summit on Human Genome Editing (29 November 2018), accessible at <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=11282018b>.
- <sup>38</sup> See the Broad Institute article, “CRISPR Timeline”, accessible at <https://broadinstitute.org/what-broad/areas-focus/project-spotlight/crispr-timeline>.
- <sup>39</sup> See MIT Technology Review, “Exclusive: Chinese scientists are creating CRISPR babies” (25 Nov 2018), accessible at <https://www.technologyreview.com/s/612458/exclusive-chinese-scientists-are-creating-crispr-babies/>.
- <sup>40</sup> See Response by Chief Justice Sundaresh Menon at the Opening of the Legal Year 2019 delivered on 7 January 2019 at para 42, accessible at <https://www.supremecourt.gov.sg/docs/default-source/default-document-library/cj-oly-speech-2019-pdf.pdf>.
- <sup>41</sup> See Response by Chief Justice Sundaresh Menon at the Opening of the Legal Year 2019 delivered on 7 January 2019 at para 43, accessible at <https://www.supremecourt.gov.sg/docs/default-source/default-document-library/cj-oly-speech-2019-pdf.pdf>.
- <sup>42</sup> See the Time article, “President Obama again turns to Lincoln in State of the Union” (13 January 2016), accessible at <http://time.com/4178331/state-union-barack-obama-abraham-lincoln/>.