Judges, Technology and Artificial Intelligence

ELGAR LAW, TECHNOLOGY AND SOCIETY

Series Editor: Peter K Yu, *Texas A&M University School of Law, USA*

The information revolution and the advent of digital technologies have ushered in new social practices, business models, legal solutions, regulatory policies, governance structures, consumer preferences and global concerns. This unique book series provides an interdisciplinary forum for studying the complex interactions that arise from this environment. It examines the broader and deeper theoretical questions concerning information law and policy, explores its latest developments and social implications, and provides new ways of thinking about changing technology.

Titles in the series include:

Judges, Technology and Artificial Intelligence

The Artificial Judge

Tania Sourdin

Professor of Law, Dean, University of Newcastle, Australia

ELGAR LAW, TECHNOLOGY AND SOCIETY

Contents

Preface

In writing this book I have drawn upon a wide range of experiences. As a lawyer, mediator and someone who has worked in courts and tribunals and conducted many hearings, much of my work over the past three decades has focused on 'everyday' justice as well as how the justice system can be improved. My academic work that has happened alongside this practical work has taken me in similar directions and as an early tech adopter (I carted around my 'portable' Osborne in 1989) part of my research has involved considering how technology can reshape justice. From my work on a wide range of empirical projects looking at how people perceive justice processes in 13 courts and tribunals and in six External Dispute Resolution (EDR) schemes, to Australian Law Reform Commission Inquiries into the Australian justice system (the Adversarial Inquiry with a focus on technology) to more specific Australian Research Council projects on artificial intelligence (AI) in the legal domain in 2003 and 2007 and projects evaluating justice apps and a book in this area in 2020, I have been an enthusiastic 'techie' and keen innovator.

However, that enthusiasm has always been tempered by a fear that technology might have a range of impacts on the justice system that include threatening the independence of the judiciary and which could make the justice system 'worse'. Working with many people who have a legal problem, shows that legal problems are not simple. They are often multi-faceted and complex. Human connection is important and judges and courts often help people to sort out issues that can be regarded as overwhelming. This has also been a research interest area – essentially how do judges, and courts engage with people and what impact does this have?

In this regard, over the past decade, I have also had the opportunity to work with some extraordinary judges and have been privileged to lead a group of international scholars and judges who are focused on judicial innovation. A Collaborative Research Network (CRN), established under the auspices of the Law and Society Association (LSA), has led to a number of vibrant conversations and also collaborations that have resulted in two edited books – *The Multi-Tasking Judge* (Thomson Reuters, 2013) and *The Responsive Judge* (Springer, 2018). In 2020, an International Research Collaboration was established through the LSA looking at Judges and Technology – a topic area that has been a focus of our CRN for the past five years.

All of this work has informed my thinking on technology and judges. In addition, I have drawn upon a range of articles that I have published over the last decade, which have enabled an exploration into the breadth and depth of the justice system and how technology can support judges, and potentially how it might replace them. In examining Chinese courts, it is also clear that there are significant differences between countries (and judges) regarding how the relationship between judges and technology might develop in the future.

There are also issues relating to technological hype in that some technologists may consider that AI can replace many humans already and the reality may not live up to this promise (at least not yet). For example, the author experimented with one AI writer program in August 2020, to evaluate how a simple commercial AI tool would explore the topic of Judges, AI and Technology. The results are noted below. It seems clear that, although some concepts are expressed, many are not, and the result on any reading could be regarded as defective. Newer AI writer programs such as GPT-3 may be much more effective but even then, there are limitations.[1] Judge AI, even when trained with court decisions and opinions, may produce similarly disappointing outcomes (although most would suggest that these would be improved over time).

> *Results from AI-writer.com with the topic Judges, AI and Technology*
> *Ai-writer.com*
> **Judges, AI And Technology**
> *In conjunction with machine learning, AI touches on almost every aspect of modern life, and judges address emerging AI problems and create jurisdiction that will shape the future course of technological innovation. As digital technology replaces certain human activities, legal battles over artificial intelligence are inevitable.*
> *Claims for damages are about who is liable if a semi-autonomous or autonomous vehicle injures a pedestrian or passenger and whether the driver or the driverless vehicle is responsible for it.*
> *In the future, it is conceivable that companies will be accused of abusing rights, even if they do not use artificial intelligence (AI). If you want to know more about how artificial intelligence, big data and online courts will change the legal system, here's what we've been investigating. Artificial intelligence today offers a solution that resolves, or at least makes a problem of, access to justice, rather than completely changing traditional legal systems.*
> *The Verge spoke with Chen about the many factors that can affect the judiciary's bias and the future of AI in law. In a new working paper, Chen suggests that large*

---

[1] See the discussion in Chapter 10 of this book and also in Will Douglas Heaven, 'OpenAI's New Language Generator GPT-3 is Shockingly Good – and Completely Mindless', *MIT Technology Review*, 20 July 2020 at <https://www.technologyreview.com/2020/07/20/1005454/openai-machine-learning-language-generator-gpt-3-nlp>.

data sets, combined with artificial intelligence, could help predict judges' decisions and make them more equitable in their decision-making.

It is now well known that the decisions of the judges are often influenced by factors that are not relevant to the present case. Can you give us a concrete example from your study in this area?

Jerry Kaplan observes that long-distance travel is one of the areas where increasing automation will lead to robots replacing humans, and that highways are the easiest roads to navigate without human intervention. Let's be clear: autonomous vehicles will not be involved in the decision-power that AI is assuming, at least not yet.

Even if AI systems replace people in the workplace, such substitutions risk replacing people in poverty with people in high-risk professions such as judges, lawyers, and judges. By combining AI and other forms of human-machine interaction, it is hoped that this level of automation will help improve the effectiveness of our human resources. The US justice system also uses other algorithms, known as risk assessment algorithms, to handle cases of post-arrest.

These factors determine what kind of rehabilitation services a particular defendant should receive, whether he should remain in prison after the trial, and how large his sentence should be. The use of artificial intelligence in Indian courts does not replace the wisdom, experience, and objectivity of judges in reaching judgments. But the possibility that automation will replace human thought, logic, and intelligence in justice is conceivable for the future.

There are many technologies that can be adopted and integrated immediately, such as the use of artificial intelligence in court services. Technology can either be used to help with problems, or to make court a service, rather than a place where we can put legal decisions online.

The first generation are the people who use the court system and present evidence and arguments to judges online in some form of electronic communication. In a digital society, there should certainly be some kind of diagnostic system, where we have an enlarged court, where judges make decisions that show people the legal options, how evidence is collected and offer alternative ways of resolving disputes. Using technology to transform the legal system would be part of what Richard calls the 'first generation' that it uses to resolve disputes without the need for lawyers or traditional court systems.

Mireille Hildebrandt also noted that emerging technological infrastructure such as artificial intelligence and machine learning is reconfiguring our lives and regulating our behavior. In this way, the AI technology that influences judges also acts as a behavioral regulation tool. Judges can increasingly rely on determination – AI systems to determine a person's risk of recidivism are developing, and intellectual property rights could protect such algorithms as trade secrets.

Supporters of what Hildebrandt calls the 'regulatory paradigm' view the framework law as a neutral instrument of social engineering that can be freely replaced by other policy instruments. How will the AI's ability to uphold human rights, norms and the rule of law inevitably be affected by its use in law enforcement and other areas of society?

Instead, I hope to provide regulators with the means to make sense of these vital issues in the face of ubiquitous AI in society. In this article, I will address several legal and human rights issues raised by the development of AI technology. What follows is a series of vignettes or threads of interest, joined together by questions about what constitutes AI, its role in regulating behavior, and the tools, including the technology, with which it develops, particularly in constitutional democracies.

> *Over the summer, I developed a fascination with AI and technology in connection with the US Supreme Court's Citizens United v. United States decision.*[2]

The results noted above are disappointing and indicative of the fact that commercial 'off the shelf', AI writing programs have some way to go before either authors or judges can be replaced. However, given the advances of the past five years, it is likely that supportive judge AI will become more important in the coming years and that Judge AI will continue to be developed in various jurisdictions.

There are already some examples of AI informing human decision making in the justice sector. In the United States and in other jurisdictions[3] AI is already changing judicial decision making, and in the legal sector there are predictive analytics developments that enable predictions to be made relating to the outcome of litigation.[4] There is also evidence of AI being used in rela-

---

[2]   *AI Writer.com* cited the following sources: Christopher McFadden, 'Can AI be More Efficient than People in the Judicial System?', *Interesting Engineering* (Blog Post, 4 January 2020) <https://interestingengineering.com/can-ai-be-more-efficient-than-people-in-the-judicial-system>; Amitabh Kant, 'Openly Courting AI', *Economic Times* (Blog Post, 29 December 2019) <https://economictimes.indiatimes.com/blogs/et-commentary/openly-courting-ai/>; Melissa Whitney, 'How to Improve Technical Expertise for Judges in AI-Related litigation', *Brookings* (Online, 7 November 2019) <https://www.brookings.edu/research/how-to-improve-technical-expertise-for-judges-in-ai-related-litigation/>; Angela Chen, 'How Artificial Intelligence can Help Us Make Judges Less Biased', *The Verge* (Blog Post, 17 January 2019) <https://www.theverge.com/2019/1/17/18186674/daniel-chen-machine-learning-rule-of-law-economics-psychology-judicial-system-policy>; Yuan Stevens, 'The Promises and Perils of Artificial Intelligence: Why Human Rights and the Rule of Law Matter', *Medium* (Blog Post, 5 September 2017) <https://medium.com/@ystvns/the-promises-and-perils-of-artificial-intelligence-why-human-rights-norms-and-the-rule-of-law-40c57338e806>; Bernard Marr, 'The Future of Lawyers: Legal Tech, AI, Big Data and Online Courts', *Forbes* (Online, 17 January 2020) <https://www.forbes.com/sites/bernardmarr/2020/01/17/the-future-of-lawyers-legal-tech-ai-big-data-and-online-courts/#89eaf70f8c46>.

[3]   For example in Mexico, the Expertius system is advising judges and clerks 'upon the determination of whether the plaintiff is or is not eligible for granting him/her a pension': Davide Carniero et al., 'Online Dispute Resolution: An Artificial Intelligence Perspective' (2014) 41(2) *Artificial Intelligence Review* 211, 227. See also Kevin Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge University Press, 2017); Jasper Ulenaers, 'The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?' (2020) *Asian Journal of Law and Economics* (forthcoming).

[4]   Cromwell Schubarth, 'Y Combinator Startup Uses Big Data to Invest in Civil Lawsuits', *Silicon Valley Business Journal* (Blog Post, 24 August 2016) <https://www.bizjournals.com/sanjose/blog/techflash/2016/08/y-combinator-startup-uses-big-data-to-invest-in.html> accessed 19 August 2020; 'California Legal AI Co. Gavelytics Aims to Be Case Prediction Local Hero', *Artificial Lawyer* (Blog Post, 14 November

tion to claims determination in the insurance sector and limited use of AI in adjudicatory settings.[5] In this regard, some disruptive technologies are linked to Artificial Legal Intelligence (ALI) which can be viewed as a system that has the capacity to render expert legal advice or decision making.[6] For example, as discussed in Chapter 1 of this book, in Mexico, simpler administrative decision making is already supporting some decision making. The Mexican *Expertius* system is currently advising judges and clerks 'upon the determination of whether the plaintiff is or is not eligible for granting him/her a pension'.[7] There are, however, important issues about whether such processes will be supported in terms of judicial decision making. As Harvey has noted: 'what is at stake [in developing Judge AI] is continued confidence in and adherence to the rule of law'.[8]

In addition, more evolved AI support systems which do not just emulate human intelligence but which create additional and different intelligent systems based on neural networks are already in use and predicted to be significantly more important over the coming decade.[9] Essentially, what takes place is that the system asks a number of questions or uses existing data about users and poses questions about the dispute to enable an accurate description of the dispute to be built. The computer then forms a conclusion by applying the law to the dispute description. It does this by applying rules for specific sets of facts. Finally, the computer can perform tasks based on the description

---

2017) <https://www.artificiallawyer.com/2017/11/14/california-legal-ai-co-gavelytics -aims-to-be-case-prediction-local-hero> accessed 19 August 2020.

[5]   See, for example: 'What We Do', *Lex Machina* (Web Page) <https://lexmachina .com/about/> accessed 19 August 2020. Notably, Susskind has indicated that legal analytics company *Lex Machina* may be able to predict the outcome of patent litigation more accurately than human lawyers: Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 282–283. See also: Nicola Lettieri, Antonio Altamura, Rosalba Giugno, Alfonso Guarino, Delfina Malandrino, Alfredo Pulvirenti, Franceso Vicidomini and Rocco Zaccagnino, '*Ex Machina*: Analytical Platforms, Law and the Challenges of Computational Legal Science' (2018) 10(37) *Future Internet* 1, 8.

[6]   Richard Susskind, *The Future of Law: Facing the Challenges of Information Technology* (Clarendon Press, 1998) 120.

[7]   See Davide Carniero et al., 'Online Dispute Resolution: An Artificial Intelligence Perspective' (2014) 41(2) *Artificial Intelligence Review* 211, 227.

[8]   David Harvey, 'From Susskind to Briggs: Online Court Approaches' (2016) 5(2) *Journal of Civil Litigation and Practice* 84, 95.

[9]   See, for example: NB Chaphalkar, KC Iyer and Smita K Patil, 'Prediction of Outcome of Construction Dispute Claims Using Multilayer Perceptron Neural Network Model' (2015) 33(8) *International Journal of Project Management* 1827.

given.[10] This process may enable indicative decisions or even final decisions to be expressed. Such systems can be continuously updated and reflective in that machine learning enables systems to improve and be constantly revised with new data sets.

Some jurisdictions have already used forms of Judge AI to deal with simple disputes.[11] For example, it has been noted in the Declaration of Montreal that the US has already invested in a range of simple AI tools in both criminal and civil jurisdictions with a focus on informing judges about decision-making options.[12] In China, as discussed in Chapter 4 of this book, there has been a shift in some 'model courts' to use Judge AI.[13] Although these systems appear to be somewhat limited and there are issues about what data is used, reports suggest that:

> Chinese courts have tried to use AI techniques to assist and supervise judges. On the one hand, many local courts in China are developing a 'similar cases pushing' system based on this database, which can push the judgments of similar cases to judges for reference. On the other hand, some courts have tried to develop an

---

[10]   P Savasdisara, 'Computer-Assisted Legal Analysis Systems: Part 1: The Origins of Computer-Aided Support Systems' (1994) 5(2) *Computers and Law* 28.

[11]   Other jurisdictions are developing systems – see, for example: Thomas Connelly, 'Estonia to Build "robot judge" to Clear Case Backlog', *Legal Cheek* (Blog Post, 26 May 2019) <https://www.legalcheek.com/2019/03/estonia-to-build-robot-judge-to -clear-case-backlog/> accessed 19 August 2020, where it is noted that: 'Justice officials have asked Velsberg, the Baltic nations' chief data officer, to design and create an artificial intelligence-powered (AI) system that can adjudicate small claims cases of less than €7,000 (£6,000), Wired reports. The system, when complete, will analyse legal documents and other information relevant to the case, before reaching a decision. However, parties to the case can appeal to a judge made of flesh and bone. The ambitious project is still in its infancy and will likely start later this year with a pilot focusing on contract disputes …'.

[12]   See 'The Montreal Declaration for a Responsible Development of Artificial Intelligence: A Participatory Process', *Université de Montréal* (Web Page, 11 March 2017) <https://nouvelles.umontreal.ca/en/article/2017/11/03/montreal-declaration-for -a-responsible-development-of-artificial-intelligence/> accessed 19 August 2020.

[13]   See Meng Yu and Guodong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Online, 19 January 2019) <https://thediplomat.com/2019/01/why-are -chinese-courts-turning-to-ai/> accessed 13 August 2020. This appears to have been motivated by a desire for uniformity and consistency: 'In the latest round of judicial reform of Chinese courts (from 2014 to 2017), China's Supreme People's Court (SPC) has been promoting the system of "similar judgments for similar cases," in order to ensure the effective supervision of trial activities. The system of similar judgments for similar cases mentioned by the SPC means that judgment criteria should be consistent between a case that a judge is trying now and previous cases that have been concluded by the court concerned and the court at a higher level or other similar cases with guiding significance.'

'abnormal judgment warning' function based on this database – that is, if a judgment significantly differs from the judgments of similar cases, the system will automatically send a warning to the judge's superiors, prompting them to initiate a supervision mechanism on the judge concerned. At present, this function is mainly used in criminal cases to monitor whether the judge's sentencing is reasonable'.[14]

These developments raise numerous questions about how the judicial role will develop in the future, whilst also raising questions about judicial independence and how decisions can be made about AI and the technology that might be used or relied upon by judges.

---

[14] Meng Yu and Guodong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Online, 19 January 2019) <https://thediplomat.com/2019/01/why-are-chinese-courts-turning-to-ai/> accessed 13 August 2020.

group of people and exceptional students who delight in working to make the world a better place. From our elder law clinic to our public interest work, our early entry scheme for indigenous and refugee students, our law school shows what can happen if people work collaboratively. At the same time, our work on justice apps and our ongoing research on justice innovation means that we are focused on the future as well as the present.

Lastly, thanks to my family and particular thanks to my son Alexei Brown. Alexei who graduated with first class honours in Neuroscience at UNSW has co-presented with me and has greatly impacted on my views about AI and ethics. My daughter Ella Brown is always both a critic (in a good way) and a supporter. She tells me that I use 'in terms of' too frequently when writing so in her honour I have tried to remove these (where possible!). Ella reviewed every chapter of the book as her planned gap year was set aside by COVID. Naturally, any mistakes that remain are my own. Lastly, I thank Garth and my mother who were both in separate cities from me when I was writing much of this book and who, as always, keep me focused.

1.   Judges and technology

INTRODUCTION

In the years leading up to 2020, many of the processes used by judges around the world reflected those that had been used by judges for decades. Although there were a number of judicial and court outliers,[1] often judges and courts relied on paper-based and in-person oral exchanges with limited use of technology.[2] If they did not rely on these operational modes, technological advances tended to mimic or reflect existing paper-based and in-person approaches.

However, by 2020 some courts had begun to operate in quite different ways and had integrated Online Dispute Resolution (ODR) features into their activities, digitized records, enabled paperless e-filing systems and begun to develop new ways of engaging with people that were supported by technology. Courts adopting such approaches were sometimes referred to as 'online courts' or 'e-courts' to distinguish them from courts that had yet to adopt technologically driven reforms. In some justice systems, these developments were led by courts and Chief Justices (particularly in the USA), and in other places the developments were supported by organizations that were external to the court,[3] by government or a combination of judicial officers working with government (for example in the UK and in China with the 'smart court' initiatives).

In 2020, as a result of the COVID-19 pandemic, more courts began to change how they operated or enhanced and accelerated technological changes that were already underway.[4] Some courts were not, however, able to rapidly

---

[1]   See examples noted at <https://remotecourts.org/> accessed 24 September 2020.

[2]   Monika Zalnieriute and Felicity Bell, 'Technology and the Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[3]   John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18); Erika Rickard, 'Project: Civil Legal System Modernization', *PEW* (Web Page)   <https://www.pewtrusts.org/en/projects/civil-legal-system-modernization> accessed 11 September 2020.

[4]   See, for example: Courts and Tribunals Judiciary, *The Remote Access Family Court* (Version 3, 3 April 2020).

convert court systems to a remote mode of operating and, as a result, delay, postponement and confusion surrounded court activities, with jurisdictional novelty a feature of 2020 responses to a global pandemic (see discussion in Chapter 2).[5] In some instances, a shift to a remote court operation could not be undertaken because of judicial, court or societal issues that included a lack of access to technology or an inability to use existing technologies.[6]

This book is directed at mapping these changes, considering how judges use existing technologies and how technological change, often accompanied by sophisticated forms of artificial intelligence (AI), may alter and impact on the judicial function into the future. In this regard, distinctions can be drawn about the types of technological reforms that may reshape the judicial role and justice systems, and some reforms may have fewer impacts than others. For example, as discussed below, first and at the most basic level, technology can assist to inform, support and advise people involved in justice activities ('supportive technologies'). Second, technology can replace activities and functions that were previously carried out by humans ('replacement technologies'). Finally, at a third level, technology can provide for very different forms of justice, particularly where processes change significantly ('disruptive technologies').[7] Many changes in court systems to date have focused on the development of supportive technologies.

At each of these levels, judicial roles may be impacted and the level and type of judicial engagement may differ. This is partly because judges and courts vary extensively, with different functions, systems and processes in place in

---

[5]   For example, in Uganda, court responses to the COVID-19 pandemic were equated to the ability to issue judgments and rulings to parties via email: Paul Ampurire, 'Chief Justice Suspends Court Sessions Due to Coronavirus', *Soft Power News* (Blog Post, 20 March 2020) <https://www.softpower.ug/chief-justice-suspends -court-sessions-due-to-coronavirus/> accessed 11 September 2020. This is in comparison to courts in China, which were conducting entire litigation processes online: Xinhua, 'Across China: Internet Court Handles Cases Despite Coronavirus Epidemic', *China.org.cn* (Blog Post, 10 March 2020) <http://www.china.org.cn/china/Off_the _Wire/2020-03/10/content_75796760.htm> accessed 11 September 2020.

[6]   For example, an interim report issued by the Equality and Human Rights Commission found that 'video hearings can significantly impede communication and understanding for disabled people': Equality and Human Rights Commission, *Inclusive Justice: A System Designed for All* (Interim Evidence Report, 22 April 2020) 2.

[7]   This material is drawn from and discussed in more detail in Tania Sourdin, 'Justice and Technological Innovation' (2015) 25 *Journal of Judicial Administration* 96, 105. This taxonomy is also discussed in: Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 19; Tania Sourdin, 'Judge v Robot: Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *University of New South Wales Law Journal* 1114, 1118.

different courts across the globe (see Chapter 2). It is, however, primarily at the second level (replacement technologies) and at the third level (disruptive technologies) where more significant ethical and other issues may surface. At all three levels, there can be questions about innovation readiness and the preparedness of courts, judges, legal practitioners and the justice system more broadly to embrace technological change.[8] In addition, there are ongoing questions about the appropriateness of changes that may not only transform the work of individual judges but also transform the justice system and the place of judges within society.

JUDGES AND SUPPORTIVE TECHNOLOGICAL CHANGES

A number of courts and judges have made increasing and extensive use of supportive technologies. These include using websites, basic 'justice apps'[9] and information systems to inform and support court users.[10] In the past commentators have urged courts to increase innovation by resolving disputes online or over the phone.[11] However it is only recently that supportive technologies which enable videoconferencing have flourished in courts in the context of a global pandemic.[12] For example, court hearings and some other work under-

---

[8] See generally: Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17.

[9] 'Justice apps' are mobile or web-based platforms that purport to assist individuals with legal tasks. There has also been growth in legal 'chatbots' and more recently voice bots. Bots can offer legal advice based on conditional and causal decision logic trees, and in some instances, more sophisticated AI techniques. Apps and bots are discussed in more detail in Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[10] For example, the Supreme Court of New South Wales has available a mobile app which allows users to search court lists and also links users through to interactive maps detailing the court's location: 'Court Lists', *Supreme Court of New South Wales* (Web Page, 3 April 2020) <http://www.supremecourt.justice.nsw.gov.au/Pages/sco2 _courtlists/sco2_courtlists.aspx> accessed 11 September 2020.

[11] David Steven, Maaike de Langen, Sam Muller and Mark Weston, *Justice for All and the Public Health Emergency* (Justice in a Pandemic – Briefing One, April 2020) 5.

[12] See, for example: New South Wales Bar Association, *COVID-19: Information for Attending Court* (Guide, 6 April 2020); Family Court of Australia and Federal Circuit Court of Australia, *Joint Practice Direction* (JPD 2 – Special Measures in response to COVID-19, 2020); Judiciary of England and Wales*, Civil Justice in England and Wales: Protocol Regarding Remote Hearings* (Protocol, 26 March 2020); New York State Unified Court System, 'Virtual Court Operations to Commence in NYC Mid-week' (Press Release, 22 March 2020); 'Consolidated Notice to the Profession, Litigants, Accused Persons, Public and the Media', *Superior Court of Justice* (Web

taken by judges can now take place in environments that are entirely remote,[13] with the use of videoconferencing technology obviating the need for judges, legal practitioners, or parties to be physically present in a courtroom.[14] Many courts around the globe responded to access to justice in the COVID-19 period by supporting remote hearings.[15] The UK Family Court and Family Division of the High Court is one example, establishing a 'Remote Access Family Court' enabling disputes to be heard on a virtual access basis.[16]

An analysis of court responses to COVID-19 in 2020 shows that a number of courts used varying processes to shift to online hearing and case management approaches as a result of the COVID-19 pandemic (see later the discussion in Chapter 2 and Table 2.1). Often, the capacity to rapidly change ways of operating has been dependent on the circumstances of litigants (see Chapter 5 in relation to the digital divide) and the extent to which a court has already embraced technological change,[17] as well as the extent to which there is funding and judicial enthusiasm to enable a court to do so.[18] Funding levels are

---

Page, 13 May 2020) <https://www.ontariocourts.ca/scj/notices-and-orders-covid-19/consolidated-notice/> accessed 11 September 2020.

[13] Courtroom technology has been broadly defined in a somewhat dated manner as 'any system or method that uses technology in the form of electrical equipment to provide a clear benefit to the judicial process' – see Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' (2017) 80(6) *The Modern Law Review* 995, 998, citing Martin Gruen, *The World of Courtroom Technology* (Center for Legal and Court Technology, 2003).

[14] Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[15] At times these included changing arrangements for jury trials, see: Corinne Ramey, 'Covid Is No Excuse for Grand Jury Duty When You Can Serve From Your Bedroom', *The Wall Street Journal* (Online, 20 August 2020) <https://www.wsj.com/articles/covid-courts-virtual-jury-duty-zoom-wifi-indictments-grand-jury-pandemic-lockdown-11597931499?mod=e2tw> accessed 2 September 2020.

[16] Courts and Tribunals Judiciary, *The Remote Access Family Court* (Version 3, 3 April 2020).

[17] Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21) 3.

[18] For example, British Columbia's Civil Resolution Tribunal was able to 'remain fully operational' during the COVID-19 pandemic due to it embracing technological change and operating as a wholly online system since 2016: 'The Civil Resolution Tribunal and Strata Disputes', *British Columbia* <https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/resolving-disputes/the-civil-resolution-tribunal> accessed 13 August 2020; Elizabeth Raymer, 'B.C.'s Civil Resolution Tribunal Keeps "Doors Open" During Pandemic', *Canadian Lawyer* (Blog Post, 27 March 2020) <https://www.canadianlawyermag.com/practice-areas/adr/b.c.s-civil-resolution-tribunal-keeps-doors-open-during-pandemic/328037> accessed 11 September 2020.

particularly relevant as the underfunding of courts was an early 21st-century feature of government policy in many countries.[19] Additionally, in many jurisdictions, a bifurcation was present: civil courts were able to continue to operate while criminal courts could not. For example, it has been noted in England that 'digital technology has enabled certain *civil* jurisdictions to operate close to normal pre-COVID-19 levels' (emphasis added).[20]

At the same time, evidence from decades of research work suggests that clients (and perhaps to a lesser extent lawyers) are enthusiastic about supportive online approaches to justice, with many perceiving online approaches as enabling access to justice.[21] For example, in 2020 a review of arrangements in UK courts that were the result of COVID-19 changes found evidence for high levels of 'satisfaction' with remote hearings among many users.[22] However, despite enthusiasm for online options over nearly two decades, in many jurisdictions, reforms in the court and judicial areas have been sluggish.

In this regard, the many supportive technologies currently used outside court systems which feature supportive apps and bots, have so far had limited court uptake. However, the author notes that there has been some sophisticated development of these technologies in the broader justice sector (see the discussion below relating to replacement technologies).

Often, supportive technologies that rely on and can encourage digitization can have many benefits and pave the way for the development of additional technological developments (see discussion below). In addition, many commentators have argued that the digitization of court processes is the key to ensuring that principles of access to justice are maintained.[23] However, the

---

[19]   See, for example: Patrick Pantano and Anne-Louise Brown, '$20m Funding Increase, Single National Legal Assistance Mechanism Do Little to Address Huge "Justice Deficit"', *Law Council of Australia* (Blog Post, 2 April 2019) <https://www.lawcouncil.asn.au/media/media-releases/20m-funding-increase-single-national-legal-assistance-mechanism-do-little-to-address-huge-justice-deficit> accessed 11 September 2020.

[20]   Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21) 13.

[21]   Melissa Conley Tyler, Di Bretherton and Brock Bastian, *Research into Online Alternative Dispute Resolution: Needs Assessment* (Report, 2003).

[22]   Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21) 16, citing Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020). Note these reports are discussed in greater details in later chapters where it is noted that the perceptions of more vulnerable people may not be as positive – see Chapter 6.

[23]   See, for example: Sir Andrew McFarlane, President of the Family Division and Head of Family Justice, *COVID-19: National Guidance for the Family Court* (Guidance, 19 March 2020) [2].

extent to which the digitization is supportive can vary. For example, in a 2019 speech titled 'Technology and the Future of the Courts', Chief Justice Allsop of the Federal Court of Australia distinguished between 'internal' and 'external' digitization processes.[24] The former describes standard developments, such as the e-filing of documents and online databases. The latter is client-facing and encompasses more ambitious external and large-scale digital modernization projects (see the discussion regarding externally facing case management systems in Chapter 4).[25]

JUDGES AND REPLACEMENT TECHNOLOGIES

At the replacement technology level, the development of case management systems, online filing systems and more sophisticated and accessible systems that can include apps, and basic chat or voice bots have been a feature of some more evolved courts.[26] Susskind has identified such systems as being used to 'improve, refine, streamline, optimize, and turbo-charge our traditional ways of working'.[27] Susskind terms this approach to court technology 'automation', or 'grafting new technology onto old working practices'.[28] Although this approach may change the way in which courts and judges work, the changes assume that court operations will continue in a manner that resembles those of the past.

In recent years there has also been a significant growth in online dispute resolution (ODR) (see Chapter 4) which can be enabled by supportive and replacement technologies. As outlined by Legg, ODR is a broad term encompassing both alternative dispute resolution (ADR) which is conducted online, and systems of online courts.[29] More specifically, the author, together with

---

[24] James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 5.

[25] James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 5.

[26] A good example is CaseLines, an online filing and e-bundling platform which is used in UK courts: Courts and Tribunals Judiciary, *The Remote Access Family Court* (Version 3, 3 April 2020) [5.7]. Also see generally: 'About Us', *CaseLines* (Web Page) <https://caselines.com/about-us> accessed 13 August 2020.

[27] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 34.

[28] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 34.

[29] Michael Legg, 'The Future of Dispute Resolution: Online ADR and Online Courts' (2016) 27(4) *Australasian Dispute Resolution Journal* 227, 227. The author notes that the definition of ODR can be somewhat contentious. See Doug Van Epps, 'Assessing the Role – and Purpose – of ODR in Our Courts' (2020) 26(2) *Dispute Resolution Magazine* 13. For example, some suggest that dispute resolution processes

Liyanage, has noted that ODR can include facilitative processes such as online mediation, advisory processes such as online case appraisal, and determinative processes such as online arbitration or adjudication.[30]

Developments in ODR also have the capacity to reshape court activities and impact on the judicial role. The impact arises partly because ODR systems can enable greater access to justice by providing additional dispute resolution options and by informing and supporting disputants so that earlier resolution is possible.[31] Also, as the systems that are developed can be used to gather data they can provide a platform for the development of forms of AI that potentially have a direct impact on judges and may even lead to the replacement of judges ('Judge AI' – see discussion below).

ODR advisory and determinative processes can use a range of simplistic as well as more advanced AI processes. Such systems may go beyond providing information, instead taking a more active role in the finalization of disputes.[32] Perhaps the most widely used dispute resolution format in the world is established outside the court system through eBay and Paypal's ODR system, which handles approximately 60 million disputes per year.[33] In the United States, commercial ODR operator *Modria* (now part of Tyler Technology)[34] has been estimated to have resolved more than 1 billion disputes in these areas and in respect of more extensive simple claims.[35] ODR has also been embraced on

---

that use videoconferencing platforms fall within the definition of ODR. Others may suggest that ODR requires that technology must play a more significant role for it to be defined as ODR: A Schmitz and J Martinez, 'ODR Providers Operating in the U.S.' (Research Paper No 2020-14, University of Missouri School of Law, May 2020).

[30] Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[31] Erika Rickard, 'Technology Solutions Can Help Modernize U.S. Civil Courts: Resources for Policymakers, Court Officials Who are Considering Adopting Online Dispute Resolution', *PEW* (Blog Post, 14 April 2020) <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/04/14/technology-solutions-can-help-modernize-us-civil-courts> accessed 2 September 2020.

[32] Ayelet Sela, 'Can Computers Be Fair? How Automated and Human-Powered Online Dispute Resolution Affect Procedural Justice in Mediation and Arbitration' (2018) 33 *Ohio State Journal on Dispute Resolution* 91, 100.

[33] Tania Sourdin, *Alternative Dispute Resolution* (5th ed, Lawbook Co, 2016) 393.

[34] See for example: 'Online Dispute Resolution: Modria in Action' *Tyler Technologies* (Web Page) <https://www.tylertech.com/resources/videos-and-webinars/online-dispute-resolution-modria-in-action> accessed 13 August 2020.

[35] 'Modria: Increase Access to Justice with Online Dispute Resolution', *Tyler Technologies* (Web Page) <https://www.tylertech.com/products/Modria> accessed 13 August 2020. Notably, a Client Case Study conducted in the Travis County Small Claims Court further revealed that '60% of cases that utilised ODR were resolved

a much larger scale by the European Union (EU). EU Regulation 524/2013 created an ODR tool to assist consumers and retailers with consumer disputes. Since its initiation in January 2016, there have been more than 8.5 million visitors to the service and 120,000 claims made through the system.[36] ODR processes can be regarded as disruptive where they include AI processes which may not involve a 'human' practitioner (see discussion below).[37]

A number of international ODR projects act as 'add-on' systems to traditional justice systems and some ODR systems exist within courts. For example, in Utah's Small Claims Court, an ODR system adopted in September 2018 is able to manage an entire dispute online.[38] The Civil Resolution Tribunal (CRT), established in British Columbia in 2012,[39] is a wholly-online Tribunal that deals with small claims and condominium disputes, as well as motor vehicle accident and injury claims.[40] The CRT provides tailored legal information, tools and resources to help parties resolve their dispute.[41] As of July 2020, the CRT reported 16,194 completed disputes.[42] Notably, the digital nature of the CRT enabled it to 'remain fully operational' throughout the 2020 global pandemic.[43]

---

directly by the parties involved without intervention from a mediator or the court': Modria: A Total Tyler Solution, *Client Case Study: Travis County Small Claims Court* (Report) 2.

[36] European Commission, *Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the application of Directive 2013/11/EU of the European Parliament and of the Council on alternative dispute resolution for consumer disputes and Regulation (EU) No 524/2013 of the European Parliament and of the Council on online dispute resolution for consumer disputes* (Report No 425, 25 September 2019) 6, 14.

[37] Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[38] See Justice Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 881.

[39] *Civil Resolution Tribunal Act 2012* (British Columbia) clause 25.

[40] See, for example: Peter Kenneth Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39, 44.

[41] Michael Legg, 'The Future of Dispute Resolution: Online ADR and Online Courts' (2016) 27(4) *Australasian Dispute Resolution Journal* 227, 230.

[42] Civil Resolution Tribunal, *CRT Statistics Snapshot – July 2020* (Web Page, 13 August 2020) <https://civilresolutionbc.ca/crt-statistics-snapshot-july-2020/> accessed 11 September 2020.

[43] The Civil Resolution Tribunal and Strata Disputes', *British Columbia* (Web Page, 31 May 2017) <https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/resolving-disputes/the-civil-resolution-tribunal> accessed 13 August 2020; Elizabeth

There are some technological developments that can initially involve the replacement of humans which can also disrupt justice system operations. For example, in the five years from 2015 to 2020, there has also been a significant growth in 'justice apps' or 'legal apps' – mobile and web-based applications that purport to assist individuals with legal tasks.[44] More sophisticated 'robolawyer' apps can offer recommendations or solutions based on conditional and causal decision logic trees, and in some cases, more advanced AI techniques.[45] In addition, both bots and apps are increasingly being used in the justice sector to assist with referring disputes to humans (lawyers, mediators and experts) and to provide advice and support to people who may be engaged in court processes and are increasingly relying on AI to help them do so.[46]

Such replacement technologies can be used in online courts which, as Susskind argues, are clear illustrations of transformation, with such technologies going beyond a simple sustaining or streamlining of current court systems.[47] Notably, this level of technological change can involve more significant and wide-reaching changes that can reshape the way that courts operate (see Chapter 4).

Raymer, 'B.C.'s Civil Resolution Tribunal Keeps "Doors Open" During Pandemic', *Canadian Lawyer* (Blog Post, 27 March 2020) <https://www.canadianlawyermag.com/practice-areas/adr/b.c.s-civil-resolution-tribunal-keeps-doors-open-during-pandemic/328037> accessed 13 August 2020.

[44] See Tania Sourdin, Jacqueline McKenzie and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020). See also Teresa Scassa, Amy Salyzyn, Jena McGill and Suzanne Bouclin, 'Developing Privacy Best Practices for Direct-to-Public Legal Apps: Observations and Lessons Learned' (2020) 18(1) *Canadian Journal of Law and Technology* (forthcoming).

[45] Judith Bennett, Tim Miller, Julian S Webb, Rachel Bosua, Adam Lodders and Scott Chamberlain, 'Current State of Automated Legal Advice Tools' (Discussion Paper No 1, The University of Melbourne, April 2018) 26. See also Sherley Cruz, 'Coding for Cultural Competency: Expanding Access to Justice with Technology' (2019) 86 *Tennessee Law Review* 347, 364.

[46] Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming).

[47] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 35.

DISRUPTIVE TECHNOLOGICAL CHANGE AND JUDGES

It is at the third 'disruptive' level that technology can 'displace and revolutionize conventional working habits and bring radical change'.[48] Often, such changes are linked to the development of AI. AI is used in this book as an umbrella term which encompasses branches of science and technology and often involves the creation of complex algorithms to enable decisions to be made.[49] Machine learning is currently one emerging dominant mode of AI.[50] Machine-learning tools offer the potential to make more accurate decisions, based on larger quantities of data than humans are capable of processing.[51] According to Coglianese and Lehr, this is because machine-learning algorithms differ from traditional statistical techniques in two principal ways.[52] First, machine-learning algorithms are able to make *predictions*.[53] In this sense, machine-learning algorithms allow the actual data to 'dictate how information contained in input variables is put together to forecast the value of an output variable'.[54] This is in contrast to more traditional methods of AI, which

---

[48] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 34.

[49] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 89.

[50] Harry Surden, *The Ethics of Artificial Intelligence in Law: Basic Questions* (Draft paper for the Oxford Handbook of Ethics of AI, 2020). See also: Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147.

[51] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 87; Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1158.

[52] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1156–1157.

[53] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1156.

[54] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1156–1157.

have been more focused on a review of how well the data conform to particular pre-selected choices in terms of outcomes.[55]

The second way in which machine-learning differs from traditional techniques is through an ability to *learn.*[56] As data is collected and analysed, the algorithms are continuously updating and modifying their calculations to eventually enable more accurate predictions to be made.[57] Thus, if performing well, machine-learning algorithms may produce automated results or decisions that more accurately approximate those that would have been made by a similarly situated human.[58] In the context of the justice sector, machine learning can have a significant impact on litigation outcome prediction, the automated examination of legal documents, and the analysis of factual matters within a legal context.[59]

Processes conducted through AI can use coded logic or algorithms to make a decision, part of a decision, or a recommendation.[60] As outlined by Parasuraman and Riley, the process of automation is 'characterised by a continuum of levels rather than as an all-or-none concept'.[61] This means decisions can be either wholly or partially automated, with some requiring human involvement at the decision-making stage, and others operating autonomously

---

[55]   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1156.

[56]   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1157.

[57]   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1157.

[58]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 90.

[59]   Harry Surden, *The Ethics of Artificial Intelligence in Law: Basic Questions* (Draft paper for the Oxford Handbook of Ethics of AI, 2020); Dean Alderucci and Kevin Ashley, 'Using AI to Analyze Patent Claim Indefiniteness' (2020) 9(1) *IP Theory* 1. Indeed there are a number of tools that exist in this regard. See, for example: 'CARA A.I.', *Casetext* (Web Page, 2020) <https://casetext.com/cara-ai/> accessed 7 September 2020; 'Lex Machina', *LexMachina: A LexisNexis Company* (Web Page) <https://lexmachina.com/legal-analytics/> accessed 7 September 2020; 'Ross Intelligence', *ROSS* (Web Page) <https://www.rossintelligence.com/> accessed 7 September 2020; 'Ravel Law', *RAVEL: A LexisNexis Company* (Web Page) <https://home.ravellaw.com/> accessed 7 September 2020.

[60]   Australian Government, *Automated Assistance in Administrative Decision-Making: Better Practice Guide* (Guide, February 2007) 4.

[61]   Raja Parasuraman and Victor Riley, 'Humans and Automation: Use, Misuse, Disuse, Abuse' (1997) 39(2) *Human Factors* 230, 232.

without a human decision maker.[62] They can also be integrated at different stages of a decision-making process and involve differing degrees of human oversight and verification.[63]

As previously mentioned, machine-learning algorithms continuously update their calculations and hence can 'learn' how to make more accurate predictions as more and more data passes through their program.[64] In this sense, the learned knowledge or experience that would typically inform a person's outcome prediction is now an element which is no longer unique to human decision making.[65] A good example of this is provided by a 2016 study conducted by Google's DeepMind researchers.[66] In the study, researchers successfully used supervised and reinforcement learning techniques to train an AI program, AlphaGo, to play the notoriously challenging game of Go.[67] In doing so, researchers reported that the AlphaGo program 'defeated the human European Go champion by 5 games to 0'.[68]

There have also been a number of attempts to algorithmically predict court case outcomes.[69] For example, a machine-learning algorithm developed by

---

[62]   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 29; Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1173–1175.

[63]   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 29–30; Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1173–1175.

[64]   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1157.

[65]   Nicola Lettieri, Antonio Altamura, Rosalba Giugno, Alfonso Guarino, Delfina Malandrino, Alfredo Pulvirenti, Francesco Vicidomini and Rocco Zaccagnino, '*Ex Machina:* Analytical Platforms, Law and the Challenges of Computational Legal Science' (2018) 10 *Future Internet* 37.

[66]   David Silver, Aja Huang, Chris J Maddison, Arthur Guez, Laurent Sifre, George van den Driessche, Julian Schrittwieser, Ioannis Antonoglou, Veda Panneershelvam, Marc Lanctot, Sander Dieleman, Dominik Grewe, John Nham, Nal Kalchbrenner, Ilya Sutskever, Timothy Lillicrap, Madeleine Leach, Koray Kavukcuoglu, Thore Graepel and Demis Hassabis, 'Mastering the Game of Go with Deep Neural Networks and Tree Search' (2016) 529 *Nature* 484.

[67]   David Silver et al., 'Mastering the Game of Go with Deep Neural Networks and Tree Search' (2016) 529 *Nature* 484.

[68]   David Silver et al., 'Mastering the Game of Go with Deep Neural Networks and Tree Search' (2016) 529 *Nature* 484, 484.

[69]   Many of these have been in the private sector. See, for example: Michael Cross, 'Computer Says Win: Funder Ties Up with Case Prediction Startup', *The Law Society Gazette* (Online, 20 August 2020) <https://www.lawgazette.co.uk/practice/computer-says-win-funder-ties-up-with-case-prediction-startup/5105383.article> accessed 2

computer scientists at University College London, was able to predict decisions (n = 584) of the European Court of Human Rights with 79 per cent accuracy by applying natural language processing and machine-learning algorithms to text-based material.[70] However, as noted by Margaret Beazley, former President of the Australian New South Wales Court of Appeal, the European system may lack the oral tradition which forms a key part of judicial determination in some common law systems.[71] According to Morison and Harkens, such models can potentially be utilized as a method of triaging cases, in order to deal with rising caseloads. Morison and Harken explain that court applications could be algorithmically assessed based on previous jurisprudence in order to determine the likely outcome of the case, before being sorted (that is, accepted or rejected) prior to human examination.[72]

Chinese courts have begun using AI techniques to assist and supervise judges.[73] Broadly, these techniques may take one of two forms. On the one hand, many local courts in China are developing case pushing systems which

---

September 2020; Kevin Ashley, 'A Brief History of the Changing Roles of Case Prediction in AI and Law' (2019) 36(1) *Law in Context* 93. See also for example: 'What We Do', *Lex Machina* (Web Page) <https://lexmachina.com/about/> accessed 19 August 2020. Notably, Susskind has indicated that legal analytics company *Lex Machina* may be able to predict the outcome of patent litigation more accurately than human lawyers: Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 282–283. See also: Nicola Lettieri, Antonio Altamura, Rosalba Giugno, Alfonso Guarino, Delfina Malandrino, Alfredo Pulvirenti, Franceso Vicidomini and Rocco Zaccagnino, '*Ex Machina*: Analytical Platforms, Law and the Challenges of Computational Legal Science' (2018) 10(37) *Future Internet* 1, 8.

[70] Nikolaos Aletras, Dimitrios Tsarapatsanis, Daniel Preotiuc-Pietro and Vasileios Lampos, 'Predicting judicial decisions of the European Court of Human Rights: A natural language processing perspective' (2016) *Peer J Computer Science* 1, 2. More extensive and recent approaches are detailed at 'Lex Machina', *Lex Machina: A LexisNexis Company* (Web Page) <https://lexmachina.com/> accessed 2 September 2020.

[71] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [47].

[72] John Morison and Adam Harkens, 'Re-engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618, 632.

[73] Meng Yu and Guondong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Blog Post, 19 January 2019) <https://thediplomat.com/2019/01/why-are -chinese-courts-turning-to-ai/> accessed 13 August 2020. See also: Li Zhonghao and Jiang Hao, 'Anhui R&D Case Guide Project and Trial', *People's Court Daily* (News Article, 21 June 2016) <http://rmfyb.chinacourt.org/paper/html/2016-06/21/content _113216.htm> accessed 13 August 2020.

'push' judgments of similar cases to judges for their reference.[74] The goal of AI case pushing systems is to ensure that judgment criteria is consistent between analogous cases.[75] On the other hand, other courts in China are developing 'abnormal judgment' warning systems.[76] These systems take a risk management approach to supervision and issue alerts to a judge's superior if a decision made 'significantly differs from judgments of similar cases'.[77] One example of this approach is provided by the Taizhou Intermediate People's Court of Zhejiang Province, which has developed a risk management system aimed at enhancing judicial integrity.[78] The system works by setting 60 'risk indicators' across seven categories which work to evaluate judicial risks arising from trial, enforcement and administrative activities using colour-coded labels.[79] As of April 2019, a total of 248 risks had been detected and alerts sent by the system.[80]

Although the application of AI to legal problems has been investigated since the 1970s, rapid developments in recent years have generated new opportu-

---

[74]   Meng Yu and Guondong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Blog Post, 19 January 2019) <https://thediplomat.com/2019/01/why-are-chinese-courts-turning-to-ai/> accessed 13 August 2020. See also: Li Zhonghao and Jiang Hao, 'Anhui R&D Case Guide Project and Trial', *People's Court Daily* (News Article, 21 June 2016) <http://rmfyb.chinacourt.org/paper/html/2016-06/21/content_113216.htm> accessed 13 August 2020.

[75]   Meng Yu and Guondong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Blog Post, 19 January 2019) <https://thediplomat.com/2019/01/why-are-chinese-courts-turning-to-ai/> accessed 13 August 2020. See also: Li Zhonghao and Jiang Hao, 'Anhui R&D Case Guide Project and Trial', *People's Court Daily* (News Article, 21 June 2016) <http://rmfyb.chinacourt.org/paper/html/2016-06/21/content_113216.htm> accessed 13 August 2020.

[76]   Meng Yu and Guondong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Blog Post, 19 January 2019) <https://thediplomat.com/2019/01/why-are-chinese-courts-turning-to-ai/> accessed 13 August 2020. See also: Li Zhonghao and Jiang Hao, 'Anhui R&D Case Guide Project and Trial ', *People's Court Daily* (News Article, 21 June 2016) <http://rmfyb.chinacourt.org/paper/html/2016-06/21/content_113216.htm> accessed 13 August 2020.

[77]   Meng Yu and Guondong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Blog Post, 19 January 2019) <https://thediplomat.com/2019/01/why-are-chinese-courts-turning-to-ai/> accessed 13 August 2020. See also: Li Zhonghao and Jiang Hao, 'Anhui R&D Case Guide Project and Trial', *People's Court Daily* (News Article, 21 June 2016) <http://rmfyb.chinacourt.org/paper/html/2016-06/21/content_113216.htm> accessed 13 August 2020.

[78]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 82.

[79]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 82.

[80]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 82.

nities.[81] As noted by Donoghue, the courts and legal profession have been amongst the most conservative professional domains when it comes to technology adoption. However, in recent years, this has changed dramatically,[82] and while AI processes have emerged over the past 50 years, it is largely only in the last decade that they have been directed at processes within the justice sector.[83] Outside the justice sector, developments in this area have been significant, and in 2015 the McKinsey Global Institute concluded that, compared to the Industrial Revolution, the AI and big data revolution is 'happening ten times faster and at 300 times the scale, or roughly 3,000 times the impact'.[84] A 2016 survey of machine-learning researchers (n = 352) found that 45 per cent of researchers viewed high-level machine intelligence as having a 'good' or 'extremely good' outcome on humanity over the long-run. By contrast, only 10 per cent thought it would have a 'bad outcome', and 5 per cent an 'extremely bad' outcome.[85]

Nevertheless, some scepticism remains about the potential for AI to reshape the justice system in terms of the impact on individual cases. As noted by Morison and Harkens, in most cases, the technology acts primarily 'as a *tool* to assist in dispute resolution rather than an autonomous *system* which can actually process, adjudicate or settle disputes independently'.[86] Paliwala similarly notes that changes have resulted primarily from ordinary information technology methods such as data processing, and results have not been as successful when information technology has been applied to deeper legal processes.[87] According to Sunstein, this is because AI techniques are currently incapable

---

[81] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 103.

[82] Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' (2017) 80(6) *The Modern Law Review* 995, 997.

[83] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1119.

[84] Richard Dobbs, James Manyika and Jonathan Woetzel, 'The Four Global Forces Breaking All the Trends', *McKinsey Global Institute* (Web Page, 1 April 2015) <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-four-global-forces-breaking-all-the-trends> accessed 13 August 2020.

[85] Katja Grace, John Salvatier, Allan Dafoe, Baobao Zhang and Owain Evans, 'When Will AI Exceed Human Performance? Evidence from AI Experts' (2018) 62 *Journal of Artificial Intelligence Research* 729, 733.

[86] John Morison and Adam Harkens, 'Re-engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 622 (emphasis in original).

[87] Abdul Paliwala, 'Rediscovering Artificial Intelligence and Law: An Inadequate Jurisprudence?' (2016) 30(3) *International Review of Law, Computers & Technology* 107, 108.

of making the value judgments required by case-based reasoning.[88] There are also other issues, such as undesirable broader impacts that might include stifling the development of the law (see Chapter 8) or 'dehumanizing' the court experience (see Chapter 9), as well as broader potential negative impacts on governments and societies (see Chapter 7) that may partly arise as a result of the restructuring of governance arrangements in the justice system and courts that may be coupled with a loss of status and respect for judges.

INTRODUCTION TO JUDGE AI

Judge AI refers to developments in the various branches of AI specifically concerned with contributing to judicial tasks, and can incorporate a range of disruptive technologies. It includes a range of possibilities, from the increasing use of technology in judicial processes prior to trial, to playing a role in decision-making processes ('supportive Judge AI')[89] or replacing a judge altogether ('Judge AI'). As noted by the author and Cornes, even before a case comes before a judge, AI may have an impact on the judicial task by virtue of its impact on the legal profession and how cases are prepared and presented to the court.[90] The author has noted that this may include predictive coding developments which can influence which cases get before a judge. Once cases are before courts, supportive Judge AI can also play a role in aspects of judicial decision making.[91]

One simple – and arguably often overlooked – way in which supportive AI can contribute to judicial tasks is by offering administrative assistance. For example, a paper issued by the Supreme People's Court of China explains that Chinese courts have 'been developing various smart assistant platforms

---

[88]   Cass Sunstein, 'Of Artificial Intelligence and Legal Reasoning' (Working Paper No. 18, Public Law & Legal Theory, 2001).

[89]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 89.

[90]   For example, lawyers may work with clients and AI to determine whether to progress a matter and how to do so: Lyle Moran, 'Law Firm Teams Up with Canadian Legal Tech Company on AI-powered Case Prediction Tool', *ABA Journal* (Online, 25 August 2020) <https://www.abajournal.com/web/article/law-firm-teams-up-with-canadian-legal-tech-company-on-ai-powered-case-prediction-tool> accessed 2 September 2020.

[91]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 89.

for administrative works'.[92] Another example is the integrated smart court system used by the Suzhou Intermediate People's Court of Jiangsu Province.[93] This system allows for an entirely paper-free litigation process by digitizing case files and employing voice-to-text transcription technology for court hearings, voice-command navigation of e-evidence and 'one-click generation' of judgments for simple cases.[94] This system has proven to be extremely helpful in improving the efficiency of the judicial role, with judges' administrative workload reportedly decreasing by approximately 40 per cent.[95]

However, there are additional ways in which AI can impact the judicial function that are explored throughout this book. In regard to the potential for AI to replace human judges, machine-learning researchers believe there is a 50 per cent chance of AI outperforming humans in all tasks in 45 years, and of automating all human jobs in 120 years.[96] More specifically, a 2013 study which ranked 702 occupations from least likely to most likely to be replaced by technology predicted that there was a 40 per cent chance of 'Judges, Magistrate Judges, and Magistrates', and a 64 per cent chance of 'Administrative Law Judges, Adjudicators, and Hearing Officers', being replaced by robots. By contrast, in that study, the chance of lawyers being replaced by robots was only 3.5 per cent.[97]

Judge AI can impact on both the procedural and substantive[98] aspects of judicial decision making. As noted by Zalnieriute and Bell, the automation of procedural steps is quite different to automating a substantive decision, thus demanding 'a nuanced approach' to the use of technology in judicial decision

---

[92]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 80.

[93]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 81.

[94]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 81.

[95]   Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 81.

[96]   Katja Grace, John Salvatier, Allan Dafoe, Baobao Zhang and Owain Evans, 'When Will AI Exceed Human Performance? Evidence from AI Experts' (2018) 62 *Journal of Artificial Intelligence Research* 729, 729.

[97]   Carl Benedikt Frey and Michael A Osborne, 'The Future of Employment: How Susceptible Are Jobs to Computerisation?' (Workshop Paper, Machines and Employment Workshop, 17 September 2013) <http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf>.

[98]   See for example the discussion in Shang Li, Hongli Zhang, Lin Ye, Xiading Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for Legal Judgment Prediction' (2019) 7(1) *IEEEAccess* 151144.

making.[99] Tan explains that the degree of automation employed may vary from 'decision-support' to 'human-in-the-loop' processes, and even to the total removal of humans from the decision-making process (see also discussion of 'human-on-the-loop' processes in Chapter 9).[100]

Zalnieriute and Bell distinguish between two waves of AI which can be applied to judicial decision making. The 'first wave' of AI is a process that follows a series of pre-programmed rules to mirror the response of a human expert. *EXPERTIUS* – a decision-support system used in Mexico to advise judges and clerks as to whether a plaintiff is eligible for a pension – is one example of a 'first wave' AI process. The 'second wave' of AI includes techniques such as supervised machine learning and deep learning. These techniques, as previously noted, enable systems to 'learn' from data in order to draw inferences about new situations.[101]

Judge AI inevitably raises questions relating to ethics and the core values that are relevant in terms of the meaning of justice. Formulating broad ethical frameworks and also articulating the objectives of the justice system can assist in evaluating and determining to what extent technological developments could or should be pursued (see Chapter 9). In this regard, there is some work which can be useful that has been developed at a more micro level (such as that which considers justice apps)[102] as well as at a more macro level with the emergence of ethical frameworks relating to judicial use of AI.[103] These matters are more fully explored in Chapters 9 and 10 of this book, and the issues relating to judges in specific contexts are explored more closely in the following chapters.

---

[99]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[100]   Vivi Tan, 'Online Dispute Resolution for Small Civil Claims in Victoria: A New Paradigm in Civil Justice' (2019) 24(1) *Deakin Law Review* 101.

[101]   See Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020). See also the discussion relating to algorithmic bias in Chapter 3 – *COMPAS*, a risk-assessment tool in the United States is provided as an example of a tool that might draw on historical data and use machine learning to infer which convicted defendants pose the highest risk of re-offending.

[102]   See Tania Sourdin, Jacqueline McKenzie and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[103]   *European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018).

TECHNOLOGICAL EVOLUTION

As noted previously, not all courts – nor, for that matter, all judges – are at the same stage of technological development or understanding. However, it is worthwhile to consider the current stages of technological development in the context of overarching trends that impact on many societies around the world. In this regard, Susskind has suggested that advances in technology can be understood under four headings. First, technology is advancing at an 'exponential rate'.[104] This advance has fuelled a second trend: our systems are becoming 'increasingly capable'.[105] The third major trend has seen our systems become 'increasingly pervasive'.[106] Finally, humans are becoming 'increasingly connected'.[107]

The three main and interlinked ways in which technology is reshaping justice systems in terms of supportive, replacement and disruptive technologies discussed previously can also be understood in the context of these overarching trends.[108] In addition, these three levels, align with the three levels of innovation described by Katsh and Rabinovich-Einy. Katsh and Rabinovich-Einy identify three major phases or 'levels of evolution' in the development of ODR: (i) where information communication technology elements enable the dispute to be compiled and addressed by the parties online; (ii) where straightforward algorithms apply various rules in relation to multiple factors; and (iii) where 'data is collected in bulk quantities and examined and re-used by algorithms so as to analyse patterns and produce predictions or decisions regarding the outcome of a particular case'.[109]

Technological change will therefore often build on the technological change that has preceded it. For example, developments that include the digitization of court records will support the development of AI systems. Developments in data analysis which follow digitization will enable courts to understand far more about who uses the court, how and why, which in turn may lead to revised

---

[104] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 36.

[105] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 37.

[106] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 39.

[107] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 39.

[108] This material is drawn from and discussed in more detail in Tania Sourdin, 'Justice and Technological Innovation' (2015) 25 *Journal of Judicial Administration* 96, 105.

[109] Ethan Katsh and Orna Rabinovich-Einy, *Digital Justice: Technology and the Internet of Disputes* (Oxford University Press, 2017) 33–34.

case management approaches that are AI dependent. Judges may make their written reasons for a decision more 'machine readable', and such a change will also facilitate the later development of Judge AI.[110] While many judges may be unconcerned about the first stages in the technological evolutionary cycle they may be more concerned about what might follow initial developments, and, as noted below, some judges have been more critical than others about the potential longer-term impacts.

JUDICIAL COMMENTARY ABOUT TECHNOLOGICAL CHANGE

To date, a large number of judges have written about and/or presented on the topic of technological change and the justice system, with many recognizing the potential disruptive capacity as well as concerns relating to the ability of courts, judges and others to adjust to changes.[111] Sundaresh Menon, Chief Justice of Singapore, for example, has noted that 'technology will be the single most potent force to reshape our profession in the years to come'.[112] In a 2017 interview, John G Roberts Jr, Chief Justice of the United States, was asked '[c]an you foresee a day when smart machines, driven with artificial intelligences, will assist with courtroom fact-finding or, more controversially even, judicial decision making?' The Chief Justice responded: '[i]t's a day that's here, and it's putting a significant strain on how the judiciary goes about doing things'.[113]

However, while many judicial commentators may have some enthusiasm for supportive technologies that enable online hearings and replacement technologies that enable online filing they have not necessarily considered more disruptive technology use that could, for example, encourage Judge AI. For example, in response to the COVID-19 pandemic a number of judges have expressed positive views relating to the use of supportive technology and indicated that some arrangements that have been introduced are likely to remain.

---

[110] Jameson Dempsey and Gabriel Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit.edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

[111] See, for example: James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019).

[112] Chief Justice Sundaresh Menon, 'Deep Thinking: The Future of the Legal Profession in an Age of Technology' (Speech, 29th Inter-Pacific Bar Association Annual Meeting and Conference, Raffles City Convention Centre, Singapore, 25 April 2019) [1].

[113] Rensselaer Polytechnic Institute, 'A Conversation with Chief Justice John G. Roberts, Jr.' (YouTube, 11 April 2017) <https://www.youtube.com/watch?v= TuZEKlRgDEg> accessed 13 August 2020.

For example, Chief Justice McCormack of the Michigan Supreme Court, United States, has indicated that 'many pandemic-related "temporary" adjustments are likely to be permanent improvements: "I don't think that things will ever return to the way they were, and I think that is a good thing"'.[114] At the same time, in reflecting on the changes, Her Honour noted that:

> 'Most [courts] are learning months' worth of lessons in days. They are learning skills because they had to. Once you have to … you keep the parts that are helpful. This was not the disruption we wanted, but it was the disruption we needed'.[115]

The limited judicial commentary about the third level of disruptive change is, however, fairly divided in terms of whether or not more extensive technological changes are beneficial or not. To some extent, this is because judicial commentators remain focused on lower levels of technological change, with many not necessarily understanding the potential implication of third-level change or, in any event, perceiving such changes as having impacts on the courts rather than the judges themselves (or perhaps on the next generation of judges *after* they retire).[116] In addition, few judges necessarily understand how even basic AI may work. This is perhaps not surprising as judicial and, to some extent, legal education has often tended to focus more on content and less on process. Indeed, there are few courses that have introduced judges to coding or the concepts that could be relevant to the use of more evolved AI (see the discussion in Chapters 5 and 7).[117]

Opportunities

Marilyn Warren, former Chief Justice of the Supreme Court of Victoria in Australia, has outlined a number of 'good reasons' to urge technological change in the justice system. These include: cost savings; efficiency/time savings; openness with technology providing 'an opportunity for the world to

---

[114] PL Embley, *Judicial Perspectives on ODR and Other Virtual Court Processes* (Bulletin, Joint Technology Committee, 18 May 2020) 2.

[115] PL Embley, *Judicial Perspectives on ODR and Other Virtual Court Processes* (Bulletin, Joint Technology Committee, 18 May 2020) 2.

[116] James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 6.

[117] See, for example: 'Teaching Algorithms to Lawyers – a Webinar by Dr Khaled Dika', *University of Newcastle* (Web Page, 8 April 2020) <https://www.newcastle.edu .au/newsroom/faculty-of-business-and-law/teaching-algorithms-to-lawyers-a-webinar -by-dr-khaled-dika> accessed 13 August 2020.

come into the courtroom'; and a potentially higher quality of justice.[118] Justice Perry of the Federal Court of Australia has identified that automated processes offer the 'great benefit' of being able to 'process large amounts of data more quickly, more reliably and less expensively than their human counterparts'.[119] Former Judge of the Supreme Court of New South Wales in Australia, Robert McDougall, has identified a further benefit: how courtroom technology can provide advocates with an invaluable tool to 'persuasively and succinctly' present their case.[120] Further again, Chief Justice Helen Murrell of the Supreme Court of the Australian Capital Territory, Australia, has acknowledged the potential benefit technology provides to 'enhance the rule of law'.[121]

One of the key reasons judicial attention to technological innovation in law is seen as desirable by the judiciary is because of its potential to ensure the judicial system is not out of touch with the society it is supposed to serve. In this sense, Marilyn Warren, a former Chief Justice of the Supreme Court of Victoria, Australia, warns that there is a risk that judges will lose relevance in society if they do not adapt to technological change.[122] In the United States, Justice Deno Himonas of the Utah Supreme Court has also observed the potential for Utah's ODR system in its Small Claims Court to 'keep the courts relevant'.[123] Similarly, Chief Justice of the Federal Court of Australia, James Allsop, has noted that 'AI has shown its value' in making the courts more 'accessible and in line with society's daily digital usage'.[124]

In light of the above benefits, some judges have encouraged the legal profession to accept technological change. Former Chief Justice of the Supreme Court of Canada, Beverley McLachlin, has urged practitioners to accept the reality that some tasks traditionally performed by lawyers can be more efficiently executed through technological means. According to McLachlin,

---

[118] Justice Marilyn Warren, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227, 235.

[119] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 30.

[120] Justice Robert McDougall, 'The Uses and Abuses of Technology in the Courtroom' (Speech, Society of Construction Law, Australia Conference, 2 August 2013) [10].

[121] Chief Justice Helen Murrell, 'Turn and Face the Change – New Technology and the Internationalised Judiciary' (Speech, Supreme Court of the Australian Capital Territory, 1 February 2016) 2.

[122] Justice Marilyn Warren AC, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227, 235.

[123] Justice Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 880–881.

[124] James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 7.

'change should not be seen as an evil, but rather as the source of new opportunities'.[125] In this regard, Chief Justice Allsop of the Federal Court of Australia, has also identified the need for behavioural change across the profession, stating that 'judges, barristers, lawyers, and also clients and litigants need to be willing to embrace technology in the courts'.[126]

However, as noted above, there are concerns about a third level of change that could displace judges or more directly impact on the judicial role. At this level, Geoffrey Vos, Chancellor of the High Court of England and Wales, has taken a more cautious stance, arguing 'there is no reason whatever why decision-making should be undertaken by machines'.[127] Rather, Vos claims decision making will simply be assisted and informed by machine processed data.[128]

Challenges

Current and former judges have also commented on the limitations and challenges associated with the technological development of legal processes. For example, Margaret Beazley, former President of the New South Wales Court of Appeal in Australia, has observed that the 'cost and efficiency of a system that is essentially technologically based cannot be considered without reference to the cost of malfunctions, which includes the cost of down time, the cost of maintenance and repair, and the cost of ever increasing cyber security issues'.[129] Speaking specifically on the use of technology in judicial decision making, Beazley has also argued that 'the more fact based, complex, and evaluative the legal problem, the less likely online dispute resolution will be an appropriate forum'.[130]

---

[125] Chief Justice Beverley McLachlin, 'The Legal Profession in the 21st Century' (Speech, Canadian Bar Association Plenary, Calgary, 14 August 2015).

[126] James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 10.

[127] Sir Geoffrey Vos, 'The Tech Revolution: A Threat to the Core Values of Civil Society and the Legal Profession – Part 1: Opportunities Provided by Technology and their Correlation with Law, Values and Professional Ethics' (Speech, IBA Annual Conference, Rome, 11 October 2018) [15].

[128] Sir Geoffrey Vos, 'The Tech Revolution: A Threat to the Core Values of Civil Society and the Legal Profession – Part 1: Opportunities Provided by Technology and their Correlation with law, Values and Professional Ethics' (Speech, IBA Annual Conference, Rome, 11 October 2018) [15].

[129] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [7].

[130] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [26].

Similarly, according to Marilyn Warren (former Chief Justice of the Supreme Court of Victoria in Australia), the courts' democratic duty to balance efficiency, save costs, and provide open and impartial justice, means that not all technologies are appropriate for the courtroom.[131] This is especially so when one considers the strong customs that underpin legal practices. In this sense, Margaret Beazley, former President of the New South Wales Court of Appeal in Australia, has argued that we must ensure 'that technological change supports the administration of justice and the rule of law and does not supplant it with concepts that are alien to our rich legal tradition'.[132] In a similar vein, Beverley McLachlin from Canada has argued that:

> The integrity of legal processes and the interests of the client must never be sacri-ficed to efficiency – maintenance of these is the essence of what it is to be a lawyer in service of the public. Flexibility and innovation, yes. Abandonment of core professional values, never. Therein lies the challenge and the opportunity of the future.[133]

A number of judges have also emphasized the 'human element' in judging and noted the limitations of technology in this regard (see also the discussion in Chapters 8 and 9).[134] Justice See Kee Oon of the Supreme Court of Singapore has argued that 'while technology can lead to greater efficiency and enhance the delivery of justice, the human touch remains essential. In the delivery of justice, human experience, empathy and common sense reasoning play a criti-

---

[131] Justice Marilyn Warren, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227, 229.

[132] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [6].

[133] Chief Justice Beverley McLachlin, 'The Legal Profession in the 21st Century' (Speech, Canadian Bar Association Plenary, Calgary, 14 August 2015).

[134] See, for example: Justice GC Martin, 'How Far Has Technology Invaded the Criminal Justice System?' (Speech, Australia and New Zealand Education Law Association, Legal Studies Teachers' Conference, Brisbane, 11 May 2018) [21]; Justice John Middleton, 'The Life of the Trial Judge – What Has or Is Changing?' (Speech, Samuel Griffith Society, 11 August 2019); Chief Justice Tom Bathurst, 'iAdvocate v Rumpole: Who Will Survive? An Analysis of Advocates' Ongoing Relevance in the Age of Technology' (Speech, Australian Bar Association Conference, Boston, 9 July 2015) [7]; Michael Kirby, 'The Commonwealth Lawyer: Law in an Age of Fantastic Technological Change' (Speech, Eighth Greek/Australian International Legal and Medical Conference, 4 June 2001); Michael Kirby, 'The Future of Courts: Do They Have One?' (1999) 8 *Journal of Judicial Administration* 185; Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32; James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 2.

cal role'.[135] Former Justice of the High Court of Australia, Michael Kirby, has made similar remarks regarding the use of technology, stating that machines 'will reduce the risks of human error. But there will remain the need for human support'.[136] On this topic, Margaret Beazley of Australia has observed (see also Chapter 6 concerning justice objectives):

> One matter that cannot be overlooked in the proper functioning of the legal system is the human factor. Legal issues arise out of human conduct and court decisions have an impact on the individuals who participate in them. Individuals need to feel that they are treated 'fairly' in their interaction with the legal system. Fairness in this context is not only in the outcome of their case or resolution of their issue. It is the human need to be listened to.[137]

In addition to concerns about the impersonal and unempathetic nature of machines,[138] judges have also discussed a number of other issues associated with the use of technology in the law. These include: issues with coding law;[139] the potential for bias to creep into AI systems;[140] the need for discretion in

---

[135] Justice See Kee Oon, 'State Courts: 2020 and Beyond' (Speech, State Courts Workplan 2019, 8 March 2019) [11].

[136] Michael Kirby, 'The Commonwealth Lawyer: Law in an Age of Fantastic Technological Change' (Speech, Eighth Greek/Australian International Legal and Medical Conference, 4 June 2001).

[137] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [64].

[138] For a discussion of this issue in the administrative law context, see: Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1219.

[139] Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019); Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

[140] Lord Hodge, 'Law and Technological Change' (Speech, British Irish Commercial Bar Association, Edinburgh, 4 April 2019) [12]; Justice GC Martin, 'How Far Has Technology Invaded the Criminal Justice System?' (Speech, Australia and New Zealand Education Law Association, Legal Studies Teachers' Conference, Brisbane, 11 May 2018).

decision making;[141] the perils of online courts;[142] and the impact of technology on administrative decision making (see discussion in Chapter 8).[143]

Notably, Susskind has outlined three key reasons why judges (and, indeed, lawyers) may be reluctant to embrace new technologies. The first pertains to 'status quo bias', which Susskind explains is a tendency to resist change.[144] The second reason is termed 'irrational rejectionism', which is defined as the dismissal of a system with which the critic has no direct personal experience.[145] The final reason is the inability to anticipate that tomorrow's systems will be vastly more capable than those of today. This is termed 'technological myopia'.[146]

Thus, according to Susskind, judges strongly resist any technological shifts that directly impact on and are transformative to the judicial role.[147] However, as noted previously, to date most judicial commentators have primarily focused on the impact of technological change on the profession or the law, rather than the judiciary itself. For example, Sundaresh Menon, Chief Justice of Singapore, has outlined four key areas in which technology impacts on the law:

(i)   First, Menon notes the impact upon legal education and training, with questions arising as to how best to train the next generation of legal practitioners;

(ii)   Second, Menon argues technology has a significant impact on the organization of the legal profession. At the law-firm level, the traditional

---

[141] Justice G C Martin, 'How Far Has Technology Invaded the Criminal Justice System?' (Speech, Australia and New Zealand Education Law Association, Legal Studies Teachers' Conference, Brisbane, 11 May 2018) [20].

[142] Justice Anna Katzmann, 'The Future Role of the Judge – Umpire, Manager, Mediator or Service Provider?' (Speech, UNSW Faculty of Law 40th Anniversary Lecture, 1 December 2012).

[143] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 33. Notably, in 2020 legislation was proposed in Australia to enable automated decision making to be supported by courts: See Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020 available at <https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2021a/21bd003> accessed 18 September 2020.

[144] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 43.

[145] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 44.

[146] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 44–45.

[147] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 43.

pyramid model will shift to a streamlined 'rocket' model as the routine work previously performed by junior lawyers is automated. At the industry level, Menon notes that law firms will no longer claim a monopoly over the delivery of legal services as technology allows a host of alternative legal service providers to enter the market;

(iii) Third, technology challenges the fundamental values and ethics of the legal profession. As an increasing number of non-law actors play a role in the legal industry, questions arise as to whether such actors should be required to identify with the values and ideals underpinning the legal profession; and

(iv) Finally, Menon argues that technology raises questions when it comes to safeguarding the sound development of the law. His Honour notes that the 'inscrutable nature of the underlying algorithm', the potential for stereotyping and bias in outcomes, and the challenges posed by ODR mechanisms which divert cases away from the court raises issues for the continuing development of the law.[148]

ACCESS TO JUSTICE, COURTS AND JUDGES

There is other extensive judicial commentary about the use of technology in the justice sphere that is discussed in greater detail throughout this book. Yet despite the contention that exists here, there is widespread agreement among the legal community that technology can assist in upholding core principles of access to justice. Indeed, judges in Australia,[149] the United Kingdom[150] and the United States,[151] have reflected on the access to justice benefits associated with the digitization of court processes (see also Chapter 6).

In 2019 it was estimated that more than 1.5 billion people around the world were unable to access a justice system to assist them in dealing with a legal

---

[148] Chief Justice Sundaresh Menon, 'Deep Thinking: The Future of the Legal Profession in an Age of Technology' (Speech, 29th Inter-Pacific Bar Association Annual Meeting and Conference, Raffles City Convention Centre, Singapore, 25 April 2019).

[149] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 34. See also Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020 available at <https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2021a/21bd003> accessed 18 September 2020.

[150] Lord Hodge, 'Law and Technological Change' (Speech, British Irish Commercial Bar Association, Edinburgh, 4 April 2019) [9].

[151] Justice Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 880–881.

issue, and often those who were unable to access the justice system were the most marginalized members of the community.[152] In this respect, access to justice issues are not new. However, such issues have been exacerbated by the impacts of the 2020 global pandemic and have ultimately caused a re-evaluation of how technology may be deployed to address the access to justice crisis. Steven et al. explain:

> Now as well as before the pandemic, marginalised communities – already poorly served by justice systems – face the highest risks, as do vulnerable groups. The pandemic is widening the justice gap, with a sharp increase in the problems that many people face and the ability of justice actors to respond declining.[153]

However, in terms of access to justice, it would be too narrow a view to say that access to 'justice' equates to access to courts and court processes. As the author has previously noted, in recent years there have been significant changes in terms of how broadly justice is defined (see the discussion in Chapter 6).[154] Galanter, for example, has noted that 'just as health is not found primarily in hospitals or knowledge in schools, so justice is not primarily to be found in official justice-dispensing institutions'.[155] In other words, as the author has previously noted, 'justice resides outside as well as within courts'.[156] In a 2009 report, the Australian Access to Justice Taskforce explained that this broader view of justice 'means giving people choice and providing the appropriate forum for each dispute, but also facilitating a culture in which fewer disputes need to be resolved' (see the more extensive discussion in Chapter 6).[157]

---

[152] David Steven, Maaike de Langen, Sam Muller and Mark Weston, *Justice for All and the Public Health Emergency* (Justice in a Pandemic – Briefing One, April 2020) 2.

[153] David Steven, Maaike de Langen, Sam Muller and Mark Weston, *Justice for All and the Public Health Emergency* (Justice in a Pandemic – Briefing One, April 2020) 2.

[154] Tania Sourdin, 'Civil Dispute Resolution Obligations: What is Reasonable?' (2012) 35(5) *UNSW Law Journal* 889, 893.

[155] M Galanter, 'Justice in Many Rooms' in M Cappelletti (ed), *Access to Justice and the Welfare State* (Sijthoff and Noordhoff, Alphen aan den Rijn, 1981) 161.

[156] Tania Sourdin, 'Civil Dispute Resolution Obligations: What is Reasonable?' (2012) 35(5) *UNSW Law Journal* 889, 892.

[157] Access to Justice Taskforce, *A Strategic Framework for Access to Justice in the Federal Civil Justice System* (Report, Attorney-General's Department, Commonwealth of Australia, Canberra, September 2009) 4. This material is also drawn and discussed in more detail in: Tania Sourdin, 'Civil Dispute Resolution Obligations: What is Reasonable?' (2012) 35(5) *UNSW Law Journal* 889; Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *The Future of Dispute Resolution* (LexisNexis, 2012).

In many ways, this broader view of justice[158] and the acknowledgement that courts are not always an 'appropriate forum' for dispute resolution has paved the way for ODR processes that exist outside courts which are integrated within the justice system. As noted above, jurisdictions are now including ODR processes such as online mediation, online case appraisal and online arbitration or adjudication into their dispute resolution domain.[159] By incorporating these and also newer AI-based ODR developments,[160] justice systems are 'moving towards supporting resolution via technological means'[161] and ultimately substantiating the notion that access to justice does not depend on physical location.[162] This elimination of geographical proximity is of particular benefit in the context of the 2020 global pandemic. However, there are ongoing issues relating to the location of non-physical ODR activities. In some jurisdictions, these might be supervised by judges and courts and in others, such activities may be completely independent from courts. These approaches are discussed in some detail in Chapters 6 and 7 of this book with particular reference to e-justice portals and also online courts.

It is clear that increased access to the internet has enabled ODR processes to be embraced by jurisdictions in their bid to increase access to justice. However, literature exists that suggests disseminating justice by online means may actually hinder access to justice for some. In this regard, it is often assumed that as internet use increases, individuals will be able to access dispute resolution options online. Yet, for many people, this is not the case. Cashman and Ginnivan explain that the efficiency of ODR 'relies on parties having both digital access (access to a working internet connection) and digital ability (the ability to use the internet to navigate an online platform)'.[163] In this

---

[158] This is discussed in more detail in Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[159] Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[160] Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[161] Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, 2016) 19–36.

[162] Peter Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39, 52.

[163] Peter Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39, 54.

sense, as the author together with Li and Burke explain, a 'digital divide' exists among the community.[164] Cabral et al. further state that, due to this digital divide, ODR systems may be 'incapable of delivering appropriate justice to low-income persons'.[165] One solution posited by Steven et al. is to encourage donors to fund and partner with 'intermediaries who support the development and dissemination of open source apps and platforms that can be rapidly deployed by civil society actors'.[166] This is an interesting proposition pertaining to issues surrounding the digital divide, which is discussed in Chapter 6 of this book.

The ways in which newer technologies can enhance access to justice raise a number of issues that are relevant to the judicial role of the future. First, there are questions about how dispute resolution activities are related to the work of courts and judges. That is, the future structure of the justice system may be conceived of in a 'centralist' way where a court is the critical centre of justice and fosters ODR and other activities. Alternatively, a court and judges may be considered to be critical components in terms of justice and 'e-justice' systems that are enabled by newer technologies, and this can mean that courts become less relevant as ODR systems are increasingly established outside courts (see Chapter 10). Each option results in striking jurisdictional variation. There are related questions about what a court is and the extent to which it is independent that can be linked to technological change, with some commentators suggesting that 'non-judicial' activities could be supervised, managed and developed in a 'court' by the executive arm of government (see Chapter 7).

Second, the impact on litigants of either 'supportive Judge AI' (see Chapter 5) or 'Judge AI (Chapter 8) can be extensive in terms of access to justice. Some commentators have referred to somewhat dystopian outcomes that include a loss of judicial independence and negative impacts on democratic society (Chapter 7), the promotion of unfair outcomes and the dehumanization of the law. Others have pointed to the benefits of artificial 'judicial' decision making with potentially cheaper, faster and more accurate determinations.

Access to justice is also informed by 'access to data' developments, with significant jurisdictional differences that will be enlarged in the coming years

---

[164] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 32.

[165] James E Cabral, Abhijeet Chavan, Thomas M. Clarke, John Greacen, Bonnie Rose Hough, Linda Rexer, Jane Ribadeneyra and Richard Zorza, 'Using Technology to Enhance Access to Justice' (2012) 26(1) *Harvard Journal of Law & Technology* 241, 265.

[166] David Steven, Maaike de Langen, Sam Muller and Mark Weston, 'Justice for All and the Public Health Emergency' (Justice in a Pandemic – Briefing One, April 2020) 20.

as supportive Judge AI and Judge AI developments become more relevant over the next decade. 'Open access' arrangements may,[167] for example, enable more people to better understand court processes and outcomes, invite greater public scrutiny of the judicial role and also foster judicial concern about how such data might be interpreted and used.[168]

However, in relation to these arrangements, it is often assumed that judges only adjudicate and that developments in machine learning and predictive technologies that can be supported by greater access to data, will result in a decline in the number of judges. Much commentary appears to assume that this is the case and suggests that supportive and Judge AI will result in the replacement of human judges. However, apart from the many questions about the extent to which this is currently feasible or desirable, as the next chapter demonstrates, it is incorrect to assume that the decision-making function is the only function undertaken by judges.

---

[167] See 'Making Chinese Court Filings Public? Some Not-So-Foreign American Insights' (2020) 113 *Harvard Law Review* 1728.

[168] Jena McGill and Amy Salyzyn, 'Judging by Numbers: How Will Judicial Analytics Impact the Justice System and its Stakeholders?' (2021) 44(1) *Dalhousie Law Journal* (forthcoming).

2.   The role and function of a judge: the adoption and adaptation of technology by judges

INTRODUCTION

The ways in which technology can be utilized by judges is linked to their role and function, individual characteristics that include their technological literacy and enthusiasm, as well as broader systemic factors within and outside courts that impact on the availability and utility of newer technologies. In relation to the role and function of a judge, it can be described as multi-faceted, complex and subject to significant jurisdictional variation; however, despite this, the role of a judge is often perceived to be limited to judicial determination.

Beyond core adjudicatory functions, the judicial role can incorporate activism, complex interactions with people, dispute settlement, case management, public and specific education activities and social commentary, as well as adjudicatory functions which might be conducted with other judges or, less commonly, in some jurisdictions, with lay people (juries).[1] There is, perhaps somewhat surprisingly, little information about the broad roles that judges undertake.[2] However, there can be extensive media attention if a judge is

---

[1]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 88. For a helpful discussion see also: Tania Sourdin and Archie Zariski, *The Multi-Tasking Judge: Comparative Judicial Dispute Resolution* (Thomson Reuters, 2013).

[2]   See John Morison and Adam Harkens, 'Re-engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618. Noting that there is not a huge amount of *socio-legal* work on judges and their everyday activities. Much of what is known about the judiciary is focused on the USA. See N Meveety (ed), *The Pioneers of Judicial Behavior* (Ann Arbor: University of Michigan Press, 2002) or, from a different, insider perspective, Richard Posner, *How Judges Think* (Harvard University Press, 2008). In the UK the socio-legal focus has been mainly on the most senior courts. See for example: A Patterson, *Final Judgment: The Last Law Lords and the Supreme Court* (Hart Publishing, 2013); or even

perceived to be acting in an improper way both within and outside a courtroom setting given that judges are ordinarily expected to behave as 'model citizens'.

The context in which judges are appointed and the processes used to appoint judges also vary significantly. Some judges receive extensive training and embark on a judicial career not long after completing some initial legal education, whereas others may be appointed later in life after a career as an advocate or even as a non-lawyer. Judges can work in inquisitorial or adversarial systems or, more commonly, in systems that are a blend of both. Some judges work in systems where the notion of a clear separation of powers is unfamiliar; some are independently appointed; and others are elected with clear indications of their political leanings. Some judges may be appointed for fixed terms with retention approaches varying significantly, while others may have a tenure that extends to retirement or death (with retirement ages also varying significantly).[3]

The role and approach of judges when dealing with disputes can also vary significantly, with some modern trends in judicial approaches leading some judges to be more 'responsive' or to adopt therapeutic approaches.[4] Such judges embrace the notion that judging requires not only knowledge of the law and the surface facts of a case, but also the empathic ability to understand the emotions underlying the matters which come before their court: 'emotion not alone but in combination with the law, logic, and reason – helps the judges get it right'.[5]

---

on particular aspects of their work: B Dickson, *Human Rights and the United Kingdom Supreme Court* (University Press, 2013); G Gee, R Hazell, K Malleson and P O'Brien, *The Politics of Judicial Independence in the UK's Changing Constitution* (Cambridge University Press, 2015). There is some limited work on the everyday role of the judge. For a relatively rare example, see P Darbyshire, *Sitting in Judgment: The Working Lives of Judges* (Hart Publishing, 2011); and C Thomas and H Genn, *Understanding Tribunal Decision-Making* (Nuffield, 2013).

[3] For a discussion of how judicial retirement ages vary within Australian courts, see: Alysia Blackham, 'Judges and Retirement Ages' (2016) 39 *Melbourne University Law Review* 738.

[4] See the discussion in relation to criminal law applications in Jessica Traguetto and Tomas de Aquino Guimaraes, 'Therapeutic Jurisprudence and Restorative Justice in the United States: The Process of Institutionalization and the Roles of Judges' (2019) 63(11) *International Journal of Offender Therapy and Comparative Criminology* 1971.

[5] Denny Chin, 'Sentencing: A Role for Empathy' (2012) 160 *University of Pennsylvania Law Review* 1561, 1581. See also: Yuval Sinai and Michal Alberstein, 'Expanding Judicial Discretion: Between Legal and Conflict Considerations' (2016) 21 *Harvard Negotiation Law Review* 221, 221–227; Thomas Colby, 'In Defense of Judicial Empathy' (2012) 96 *Minnesota Law Review* 1944, 2015. See also Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and

In addition, some judges are also much more involved in 'creating' the law rather than simply applying it. Judicial systems that support the ongoing development of the law through the creation of precedent, which necessarily involves both creativity and an understanding of social change, may raise very different issues relating to the application of technology and AI to the judicial role. This can be contrasted with judicial systems which may only support limited creativity or which are bound by a limited consideration of contextual factors. As a former judge of the High Court of Australia has noted, in some countries legal innovation is not the top priority of parliaments, and therefore, the ability of judges to advance the law is required and should be maintained.[6] Indeed some judges have suggested that 'there is a need now more than ever for judges to fill in the legislative vacuum'.[7]

Levels of appointment also vary, with many judges being appointed at lower court levels and others appointed to appellate courts and superior courts. This difference can impact on workload, work type and the personal characteristics of judges, which may be reflected in appointment criteria which can in turn impact on opportunities to use technology and AI systems. For example, it could be suggested that lower court judges might not be required to be as collegiate as those appointed to appellate courts (who may be required to 'work together'). In addition, appointment level can impact on the capacity of judges to contribute to broader law reform measures, the revision of procedural rules as well as engagement in internal and external educative activities. While some judges are 'evaluated' on an ongoing basis, many may not have any clear performance criteria (or incentives in terms of workload or performance).

These factors are relevant when considering how technology will impact on the role of judges within our society. Clearly, judges cannot be perceived to be one homogeneous or cohesive group. They vary greatly in terms of background, skill, age, function and also in terms of their 'innovation readiness' or capacity and interest in technology.[8] There are other systemic factors that also

---

Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018).

[6]   Michael Kirby, President's Report, Extra-Judicial Notes (1997) 16 *Australian Bar Review* 2, 9.

[7]   MM Semwal and Sunil Khosla, 'Judicial Activism' (2008) 69(1) *The Indian Journal of Political Science* 113, 113; Clint Bolick, 'The Proper Role of "Judicial Activism"' (2019) 42 *Harvard Journal of Law & Public Policy* 1, 1; Learned Hand, 'Mr Justice Cardozo' in Learned Hand and Irving Dillard (eds), *The Spirit of Liberty* (Knopf, 1952) 99 cited in Michael Kirby, 'Judging: Reflections on the Moment of Decision' in Ruth Sheard (ed), *A Matter of Judgment: Judicial Decision-Making and Judgment Writing* (Lexis Nexis Butterworths, 2003) 43, 45.

[8]   See, for example: Chief Justice James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March

play a role in terms of the judicial take-up and interest in technology. Many of these factors can be linked to court cultures, budgets and support arrangements (see Chapter 4), as well as the availability of more disruptive technologies and the extent to which executive and judicial functions are related or linked (see Chapter 7). Broader systemic factors, including the availability and reliability of broadband access and access to good quality technology in developing countries, can also clearly influence the judicial take-up of technologies.

Responses to COVID-19 (see Table 2.1)[9] suggest how some of these factors influenced court responses to the pandemic. While some courts, at least initially, closed down or significantly reduced access to judges,[10] others moved to adopt supportive technologies (in particular, videoconferencing). In addition, a number of courts, as a result of digitization strategies, were able to utilize online filing and document exchange (see further the discussion about court arrangements in Chapter 4). Some courts in the COVID-19 period have also been able to consider transparency and open court hearings by streaming YouTube proceedings, or, promoting audio recordings and the online delivery of judgments (see also Chapter 10). Judicial responses have been partly dependent on justice 'system' readiness. However, other factors such as individual judicial preferences and lawyer readiness have played an integral role in the adoption of technology.

COURT RESPONSES TO THE COVID-19 PANDEMIC

As noted above, to some extent, the variations in the judicial role are illustrated by the variations in court and judicial responses to the COVID-19 pandemic. Essentially, some courts – particularly those in developed countries – were able to transition some judicial activities to support remote access arrangements because the basic infrastructure already existed to enable such a transition. In addition, the technological readiness of the community and the legal profes-

---

2019) 7; Chief Justice Beverley McLachlin, 'The Legal Profession in the 21st Century' (Speech, Canadian Bar Association Plenary, Calgary, 14 August 2015), cf Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [7], [26].

9   The author notes that the tiers of technological change are not entirely discrete and that some court responses may fall into multiple categories. In addition, the author further notes that court responses to COVID-19 have evolved at a rapid and almost daily pace in some jurisdictions and therefore the responses described in Table 2.1 reflect the innovations at the time of writing.

10   'Lessons Learned from Around the World About Managing Courts in a Pandemic' (Webinar, The National Judicial College, 23 April 2020). Notably, webinar participants also indicated that in many courts, judges and staff had been infected with COVID-19, thus causing a reduction in capacity to manage court-based disputes.

sion more generally meant that such arrangements were feasible and could be adopted relatively quickly. However, judicial comfort with such arrangements varies extensively and the lack of research[11] about the impact of supportive technologies such as videoconferencing on the judicial role and perceptions of justice has meant that such arrangements were often not introduced or undertaken from an 'informed' perspective (see also the discussion in Chapter 6).[12]

The extent to which judges are involved in the decision making about the adoption of newer technologies also varies considerably. In some courts, decisions are made by an administrative executive unit that may have little judicial engagement. In other instances, communication with audio-visual interface[13] and decisions to use web-based platforms such as Microsoft Teams, Skype, Zoom, Google Hangouts and WebEx have included extensive judicial

---

[11]   Some research is discussed in Chapter 6 of this book. In general, the research prior to the COVID-19 pandemic has tended to focus on the criminal law area. In relation to more general research see: Emma Rowden, and Anne Wallace, 'Remote Judging: The Impact of Video Links on the Image and the Role of the Judge' (2018) 14(4) *International Journal of Law in Context* 504; Laurence Dumoulin and Christian Licoppe, 'Videoconferencing, New Public Management, and Organizational Reform in the Judiciary' (2016) 8(3) *Policy & Internet* 313. In respect of more specific research in the criminal law area see: Yvonne Fowler, 'Non-English-speaking defendants in the Magistrates Court: A Comparative Study of Face-to-Face and Prison Video Link Interpreter-Mediated Hearings in England' (Doctoral Thesis, Aston University, 2013); Penelope Gibbs, *Defendants on Video – Conveyor Belt Justice or a Revolution in Access?* (Report, October 2017); Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' (2017) 80(6) *The Modern Law Review* 995; Yvonne Fowler, 'Business as Usual? Prison Video Link in the Multilingual Courtroom' in Christina Schaffner, Krzysztof Kredens and Yvonne Fowler (eds), *Interpreting in a Changing Landscape: Selected Papers from Critical Link 6* (Benjamins Translation Library, 2013); Sabine Braun, 'Recommendations for the Use of Video-Mediated Interpreting in Criminal Proceedings' in Sabine Braun and Judith Taylor (eds), *Videoconference and Remote Interpreting in Criminal Proceedings* (Intersentia, 2012); Cheryl Marie Webster, 'Out of Sight, Out of Mind: A Case Study of Bail Efficiency in an Ontario Video Remand Court' (2009) 21(1) *Current Issues in Criminal Justice* 103; Matthew Terry, Steve Johnson and Peter Thompson, UK Ministry of Justice, *Virtual Court Pilot Outcome Evaluation* (Report, Research Series 21/10, December 2010); Carolyn McKay, *The Pixelated Prisoner: Prison Video Links, Court 'Appearance' and the Justice Matrix* (Routledge, 2018); Nicola Padfield and Tom Hawker, 'Sentencing Via Video Link' (2017) 8 *Criminal Law Review* 585.
[12]   See Tania Sourdin, Jacqueline McKenzie and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).
[13]   Suzie Forell, Meg Laufer and Erol Digiusto, 'Legal Assistance by Video Conferencing: What is Known?' (Justice Issues Paper 15, Law and Justice Foundation of New South Wales, November 2011) 3.

input. In this regard, decisions in Australia,[14] the UK,[15] America,[16] Canada,[17] Singapore,[18] Peru[19] and China[20] by judges, court staff, justice ministries or other bodies have all encouraged the use of videoconferencing technology to enable hearings and other judicial work to be undertaken on a virtual basis.

In this sense, it is clear that court responses to the pandemic have tended to involve the adoption of technologies that are 'supportive' rather than technologies that could be described as 'replacement' or 'disruptive'.

Table 2.1 illustrates that court responses to COVID-19 have ranged from the introduction of videoconferencing and some basic digitization of filing systems, to the extension of more advanced technologies that can support or potentially disrupt the judicial role. In this regard, there are some stark differences between courts. For some, digitization has meant that emailed documents may be accepted by judges so that physical attendance at a court is not required. For others, where electronic case management and filing systems were already in place, the responses have been more consistent with an extension or continuation of what was already occurring within that jurisdiction.

---

[14] Family Court of Australia and Federal Circuit Court of Australia, *Joint Practice Direction* (JPD 2 – Special Measures in Response to COVID-19, 2020); 'Supreme Court Changes in Response to COVID-19', *Supreme Court of Victoria* (Web Page, 20 March 2020) <https://www.supremecourt.vic.gov.au/news/supreme-court-changes-in -response-to-covid-19> accessed 13 August 2020; New South Wales Bar Association, *COVID-19: Information for Attending Court* (Guide, 11 August 2020).

[15] Judiciary of England and Wales, *Civil Justice in England and Wales: Protocol Regarding Remote Hearings* (Protocol, 26 March 2020).

[16] New York State Unified Court System, 'Virtual Court Operations to Commence in NYC Mid-Week' (Press Release, 22 March 2020).

[17] 'Consolidated Notice to the Profession, Litigants, Accused Persons, Public and the Media', *Superior Court of Justice* (Web Page, 13 May 2020) <https://www .ontariocourts.ca/scj/notices-and-orders-covid-19/consolidated-notice/> accessed 13 August 2020.

[18] Supreme Court Singapore, *Guide on the Use of Videoconferencing and Telephone Conferencing & Videoconferencing for Hearings before the Duty Registrar* (Guide, 27 March 2020).

[19] 'Judiciary Implements Google Hangouts Platform for Virtual Hearings and Administrative Meetings', *Poder Judicial Del Peru* (Web Page, 27 March 2020) <https://www.pj.gob.pe/wps/wcm/connect/cortesuprema/s_cortes_suprema_home/ as_inicio/as_enlaces_destacados/as_imagen_prensa/as_notas_noticias/2020/cs_n-pj -utiliza-plataforma-google-hangouts-para-reuniones-virtuales-27032020> accessed 13 August 2020.

[20] 'China Steps Up Online Litigation Services Amidst Coronavirus Epidemic', *The Supreme People's Court of the People's Republic of China* (Web Page, 31 March 2020) <http://english.court.gov.cn/2020-03/31/content_37534820.htm> accessed 13 August 2020.

Table 2.1　　　　Court responses to COVID-19

Response	Jurisdiction	Response Details
Supportive Technologies	**North America**	
	United States Federal Circuit Court of Appeals[i]	All cases scheduled to be heard from April 2020 were to be conducted remotely, and parties were no longer required to lodge additional hard copy documents where they have been filed electronically. In addition, to facilitate open court principles, the Court also provided live audio access to arguments, with daily access information published on the Court's website. The conferencing technologies used by the Judiciary included 'AT&T Conferencing, Court Call, Skype for Business, Cisco Jabber, and Zoom'.
	United States Supreme Court[ii]	Beginning May 2020, the Court heard all oral arguments remotely by telephone conference. The Court also provided a 'live audio feed of the arguments to FOX News, the Associated Press, and C-SPAN', which, in turn, provided 'a simultaneous feed for the oral arguments to livestream on various media platforms'.
	New York City, USA Criminal Court[iii]	As of 25 March 2020, the Court conducted all criminal arraignments through videoconferencing technology. A virtual court model was implemented in every county on 6 April 2020, utilizing audio-visual and telephone communications as well as the digital exchange of documents. Chief Judge DiFiore stated that virtual operations would remain an integral part of court systems despite the gradual opening of courts from July 2020 onwards and Grand Juries resuming hearing cases as of 10 August 2020.
	State of New York, Court of Appeals[iv]	On 11 May 2020 the Court issued a Notice to the Bar amending its Rules of Practice to 'require, for motions and responses to jurisdictional inquiries, submissions in digital format via a Companion Filing Upload Portal'. The Court of Appeals also accepted submissions by mail and electronically. Oral arguments were webcast live. Notably, in a statement made on 31 August 2020, the Chief Judge DiFiore highlighted how 'virtual kiosks' situated near New York's Fourth Judicial District enabled self-represented litigants to participate in court proceedings remotely, while receiving 'live videoconference assistance from court personnel'.

Response	Jurisdiction	Response Details
Supportive Technologies	Ontario Superior Court of Justice[v]	On 2 April 2020 the Court dispensed with the requirement to file documents in hard copy; confirmed acceptance of electronically signed documents; permitted electronic service of documents where personal service is required; and heard matters virtually by way of telephone or videoconference. The Court also made Ministry-funded family mediation services virtually available for parties. In addition, on 2 September 2020 the Court announced that it had procured CaseLines (a case preparation and evidence sharing platform) to assist parties and the judiciary in participating in remote court proceedings.
	Asia	
	Supreme Court of India[vi]	'Important matters' were heard via videoconferencing and limitation periods were temporarily suspended by the Court.
	Qatar[vii]	Proceedings were heard remotely using videoconferencing technology.
	Dubai[viii]	As of 19 April 2020, hearings were conducted electronically through Microsoft Teams, allowing parties to be heard via videoconferencing. Parties were also encouraged to file new cases electronically.
	Oceania	
	High Court of Australia[ix]	Parties commencing proceedings on or after 1 January 2020 were to lodge all documents online using the Digital Lodgement System Portal. Registry services were provided online or via telephone; documents were to be filed electronically with the Court; and the Court temporarily allowed electronic signatures on documents. The Court also employed videoconferencing technologies to conduct video connection hearings ('VC hearings') and set up a courtroom to act as a specific VC hearing 'hub'.
	Northern Territory Supreme Court[x]	All pre-trial hearings, mentions and directions were conducted by audio-visual link or telephone conference. The Odyssey Integrated Case Management System implemented in October 2020 will further support electronic filing. On 22 June 2020, the Court resumed the conduct of jury trials.

Response	Jurisdiction	Response Details
Supportive Technologies	New South Wales Supreme Court[xi]	From 24 March 2020 to 2 June 2020 there were no personal appearances in matters save for 'exceptional circumstances' and all documents were to be provided by electronic means. The *Evidence (Audio and Audio Visual Links) Act 1998* (NSW) was amended to permit witnesses or legal practitioners to appear via audio-visual or digital technology if the court so directs. The Court had a 'staged return' of certain civil matters beginning 1 June 2020 and jury trials from 29 June 2020. However, the Court cautioned that not all matters will be suitable for in-person attendance: some matters will 'remain in the virtual courtroom environment', while others may be more suited for a 'hybrid model'.
	Supreme Court of Queensland[xii]	For the duration of a COVID-19 lockdown, parties and practitioners were only to make physical appearances where the matter could not be 'practicably dealt with by telephone or video'.
	Supreme Court of Victoria[xiii]	Civil proceedings were heard remotely using WebEx, Skype or Zoom and criminal hearings were heard via WebEx or existing video link technology. In addition, documents were filed electronically with the Court and, to facilitate remote access, the Court accepted unsworn affidavits, provided they met certain requirements published on the Court's website.
	Family Court and Federal Circuit Court of Australia[xiv]	Hearings were conducted virtually using Microsoft Teams and/or AAPT Teleconferencing. In addition, to facilitate matters being dealt with electronically, parties were to 'e-file', 'e-lodge' or email all documents. The Courts also accepted affidavits (other than where part of a divorce application) and financial statements that were signed without a qualified witness's signature, if the deponent of the document was available via telephone, videoconference or in person at a subsequent date.
	District Court of New Zealand[xv]	A Practice Note was issued on 23 April 2020 temporarily enabling judges of the Court to make directions as to the form of participation of any person at hearing or trial (whether by telephone or audio-visual link). However, a later Protocol issued by the Court on 12 August 2020 provided that, in relation to criminal proceedings, all defendants in custody were to appear via audio-visual link 'unless a judge otherwise directs'.

Response	Jurisdiction	Response Details
Supportive Technologies	**Africa**	
	Supreme Court of Uganda[xvi]	The Chief Justice issued a directive on 19 March 2020 enabling judgments and rulings to be issued to the parties via email or WhatsApp. On 29 April 2020 the Chief Justice issued guidelines relating to the judiciary's use of online hearings.
	South African Superior Courts[xvii]	On 27 January 2020 the Office of the Chief Justice implemented an online cloud-based collaborative solution enabling Digital Case Management and Evidence Management systems for the High Courts. On 16 April 2020 a direction was issued permitting 'unopposed applications already enrolled for hearing' to be heard by videoconference and directing parties to opposed applications to 'file their heads of argument electronically'.
	Europe	
	The UK Family Court and Family Division of the High Court[xviii]	The UK created a 'Remote Access Family Court' which allowed hearings to be conducted virtually, using, for example, Skype for Business. These remote hearings were supported by 'e-bundling' technology through the implementation of the Cloud Video Platform in July 2020 in civil, family and criminal courtrooms. This platform allows judges and parties to access documents that are filed electronically.
	Italian Supreme Court[xix]	Initially, all court activities were suspended and courts were armed with 'special discretionary powers' to postpone hearings. However, as of 16 April 2020 'e-trial measures' were implemented 'for any type of court activity, both civil and criminal'. Consequently, such matters were exclusively held on 'secure online platforms', which enabled parties to appear via videoconferencing technology.
	Republic of Ireland Criminal Courts[xx]	Defendants in custody appeared before the Central and Special Criminal Court through videoconferencing technology. The use of remote hearings was predominantly confined to the Supreme Court, Court of Appeal and High Court until courts re-open in September.
	Hungarian Civil and Administrative Courts[xxi]	On 31 March 2020 the Hungarian government issued a decree ordering that hearings are to be conducted electronically (viz. through videoconferencing) until the courts reopen.

Response	Jurisdiction	Response Details
Replacement Technologies	**North America**	
	British Columbia's Civil Resolution Tribunal[xxii]	The Civil Resolution Tribunal (CRT) is an online dispute resolution tribunal that hears – *inter alia* – simple personal injury, employment, construction and property matters. Applicants apply online to have their dispute resolved by the CRT. The system then automatically classifies the dispute and provides applicants with the necessary documents to file their claim. Thereafter, parties can lodge submissions and evidence for the tribunal member to assess online. Indeed, if an oral hearing is required, it is conducted via Skype. While the CRT was in operation before COVID-19, its inherently digital nature has allowed it to 'remain fully operational' since the outbreak.
Disruptive Technologies	**Asia**	
	Beijing Internet Court[xxiii]	The Beijing Internet Court is one of three 'virtual courts' in China. These courts engage in what is termed 'e-litigation' procedures, which enables the entire litigation process from 'filing to ruling and mediation' to be conducted online. The system operates 24 hours a day and, since the pandemic, has been investigating procedures to 'set protocols of online litigation proceedings in cyberspace'. This Court also has what is termed a 'mobile micro court'. This enables parties to appear via WeChat – China's leading social media platform – and is of particular benefit for individuals who do not have easy access to a computer during the COVID-19 outbreak. 'Case pushing', 'nudging' and 'decision correction' technology is in place in some courts and has not been a COVID-19 addition (see discussion below).

Notes: [i] Maurice Kenton and Ben Knowles, 'COVID-19 Global: Arbitration and Court Impacts', Clyde&Co (Web Page, 24 April 2020) <https://www.clydeco.com/insight/article/covid-19 -impact-on-courts-and-arbitration>; 'Public Advisory Concerning the June 2020 Court Session', United States Court of Appeals for the Federal Circuit (Web Page, 11 May 2020) <http://www .cafc.uscourts.gov/announcements/public-advisory-concerning-june-2020-court-session-may-11 -2020>; 'Courts Deliver Justice Virtually Amid Coronavirus Outbreak', United States Courts (Web Page, 8 April 2020) <https://www.uscourts.gov/news/2020/04/08/courts-deliver-justice -virtually-amid-coronavirus-outbreak>.
[ii] Maurice Kenton and Ben Knowles, 'COVID-19 Global: Arbitration and Court Impacts', Clyde&Co (Web Page, 24 April 2020) <https://www.clydeco.com/insight/article/covid-19 -impact-on-courts-and-arbitration>; Kathleen Arberg, 'Media Advisory Regarding May Teleconference Argument Audio' (Press Release, Supreme Court of the United States, 30 April 2020) <https://www.supremecourt.gov/publicinfo/press/pressreleases/pr_04-30-20>.

[iii] Centre for Justice Innovation, 'Justice Responses to COVID-19 Around the World', Centre for Justice Innovation (Excel Spreadsheet, 2020) <https://justiceinnovation.org/covid19>; State of New York Unified Court System, Message from Chief Judge DiFiore (Media Release, 3 August 2020) <http://www.nycourts.gov/index.shtml>.

[iv] State of New York, Court of Appeals, Notice to the Bar: Companion Filing Upload Portal (Notice, 11 May 2020); State of New York, Court of Appeals, Notice to the Bar: Court of Appeals Operations (Notice, 22 July 2020) <https://www.nycourts.gov/ctapps/news/nottobar/nottobar072120.pdf>; State of New York, Court of Appeals, Message from Chief Judge DiFiore (Media Release, 31 August 2020) 4 <https://www.nycourts.gov/whatsnew/pdf/August31-CJ-Message.pdf>; Rob Abruzzese, 'Chief Judge Highlights Technology in the Courts as Jury Trials Resume this Month', Brooklyn Daily Eagle (Online, 2 September 2020) <https://brooklyneagle.com/articles/2020/09/02/chief-judge-highlights-technology-in-the-courts-as-jury-trials-resume-this-month/>.

[v] Centre for Justice Innovation, 'Justice Responses to COVID-19 Around the World', Centre for Justice Innovation (Excel Spreadsheet, 2020) <https://justiceinnovation.org/covid19>; 'Notice to Accused Persons, Profession, Crown, Public Prosecution Service of Canada, Correctional Institutions, Witnesses, Jurors, the Public and the Media Regarding Criminal Operations', Superior Court of Justice (Web Page, 2 April 2020) <https://www.ontariocourts.ca/scj/covid-19-suspension-crim/>; 'Consolidated Notice to the Profession, Litigants, Accused Persons, Public and the Media', Superior Court of Justice (Web Page, 13 May 2020) <https://www.ontariocourts.ca/scj/notices-and-orders-covid-19/consolidated-notice/>; 'Supplementary Notice to the Profession and Litigants in Civil and Family Matters Including Electronic Filings and Document Sharing (Caselines Pilot)', Superior Court of Justice (Web Page, 2 September 2020) <https://www.ontariocourts.ca/scj/notices-and-orders-covid-19/supplementary-notice-september-2-2020/>.

[vi] Maurice Kenton and Ben Knowles, 'COVID-19 Global: Arbitration and Court Impacts', Clyde&Co (Web Page, 24 April 2020) <https://www.clydeco.com/insight/article/covid-19-impact-on-courts-and-arbitration>; Justice Madan Lokur, 'COVID-19, Technology and Access to Justice', United Nations Office on Drugs and Crime (Blog Post, 2020) <https://www.unodc.org/dohadeclaration/en/news/2020/04/covid-19--technology-and-access-to-justice.html>.

[vii] Maurice Kenton and Ben Knowles, 'COVID-19 Global: Arbitration and Court Impacts', Clyde&Co (Web Page, 24 April 2020) <https://www.clydeco.com/insight/article/covid-19-impact-on-courts-and-arbitration>.

[viii] Maurice Kenton and Ben Knowles, 'COVID-19 Global: Arbitration and Court Impacts', Clyde&Co (Web Page, 24 April 2020) <https://www.clydeco.com/insight/article/covid-19-impact-on-courts-and-arbitration>; 'COVID-19 and the Global Approach to Further Court Proceedings, Hearings', Norton Rose Fulbright (Blog Post, April 2020) <https://www.nortonrosefulbright.com/de-de/wissen/publications/bbfeb594/covid-19-and-the-global-approach-to-further-court-proceedings-hearings>.

[ix] 'Coronavirus and the Courts', Judicial College of Victoria (Web Page, 19 May 2020) <https://www.judicialcollege.vic.edu.au/news/coronavirus-and-courts#Victoria>; 'DLS Portal Overview', High Court of Australia (Information Sheet, 2020) <https://cdn.hcourt.gov.au/assets/registry/DLS/dls-portal-overview.pdf>; High Court of Australia, HCA Video Connection Hearings (Protocol, 2020) <https://cdn.hcourt.gov.au/assets/registry/information/VC_Hearings_Protocol.pdf>.

[x] 'Courts and Tribunals COVID-19 Response', Supreme Court of the Northern Territory (Web Page, 21 April 2020) <https://supremecourt.nt.gov.au/about/whats-new/2020/courts-and-tribunals-covid-19-response#Supreme%20Court>; Supreme Court of the Northern Territory, Electronic Filing in Civil Proceedings Temporary Arrangements (Practice Direction 1, 5 June 2020) <https://supremecourt.nt.gov.au/__data/assets/pdf_file/0007/810187/Practice-Direction-1-of-2020-amended-Electronic-Filing-in-Civil-Proceedings-Temporary-Arrangements.pdf>; 'Supreme Court and Local Court of the Northern Territory – Notice #6', Supreme Court of the Northern Territory (Web Page, 25 May 2020) <https://supremecourt.nt.gov.au/about/whats-new/2020/supreme-court-and-local-court-of-the-northern-territory-notice-6>.

xi 'Latest Operational Changes Made in Response to Coronavirus (COVID-19)', Supreme Court of New South Wales (Web Page, 23 March 2020) <http://www.supremecourt.justice.nsw.gov.au/Pages/Oar_Mace_Admiralty.aspx>; 'Covid-19: Governance: The Wheels of Justice Continue to Turn Despite the Global Pandemic', Herbert Smith Freehills (Web Page, 23 April 2020) <https://www.herbertsmithfreehills.com/latest-thinking/covid-19-governance-the-wheels-of-justice-continue-to-turn-despite-the-global>, citing Evidence (Audio and Audio Visual Links) Act 1998 (NSW) s 22(c); Supreme Court of New South Wales, Protocol – Court Operations – COVID-19 (Protocol, 9 June 2020) <http://www.supremecourt.justice.nsw.gov.au/Documents/Home%20Page/Announcements/Protocol_v4_09_June_2020.pdf>.

xii Naomi Neilson, 'Coronavirus and the Justice System: Updates as They Happen', Lawyers Weekly (Blog Post, 26 March 2020) <https://www.lawyersweekly.com.au/biglaw/27825-coronavirus-and-the-justice-system-updates-as-they-happen>; 'Coronavirus and the Courts', Judicial College of Victoria (Web Page, 19 May 2020) <https://www.judicialcollege.vic.edu.au/news/coronavirus-and-courts#Victoria>.

xiii 'Coronavirus and the Courts', Judicial College of Victoria (Web Page, 19 May 2020) <https://www.judicialcollege.vic.edu.au/news/coronavirus-and-courts#Victoria>.

xiv Family Court of Australia, 'Practitioner and Litigant Guide to Virtual Hearings and Microsoft Teams', Family Court of Australia (Practitioner and Litigant Guide, 22 April 2020); Family Court of Australia and Federal Circuit Court of Australia, Joint Practice Direction (JPD 2 – Special Measures in response to COVID-19, 3 August 2020) [1].

xv Chief Judge, District Court of New Zealand, 'Practice Note: Civil Proceedings – Covid-19 Preparedness', District Court of New Zealand (Practice Note, 23 April 2020); 'District Court Protocol – COVID-19 Alert Level 2–12 August 2020', The District Court of New Zealand (Web Page, 12 August 2020) <https://www.districtcourts.govt.nz/covid-19-information/district-court-protocol-covid-19-alert-level-2-12-august-2020/#Family_1.1>.

xvi Paul Ampurire, 'Chief Justice Suspends Court Sessions Due to Coronavirus', Soft Power News (Blog Post, 20 March 2020) <https://www.softpower.ug/chief-justice-suspends-court-sessions-due-to-coronavirus/>; Jarpa Dawuni, 'The Gendered Face of COVID-19: Women and Access to Justice', United Nations Office on Drugs and Crime (Blog Post, 2020) <https://www.unodc.org/dohadeclaration/en/news/2020/04/gendered-face-of-covid19-women-and-access-to-justice.html>; The Judiciary of Uganda, Office Instruction (OI 2 – Issuance of Guidelines for Online Hearings in the Judiciary of Uganda, 29 April 2020).

xvii Hanibal Goitom, 'South Africa: Directions for Court Operations During COVID-19 Lockdown Issued', Library of Congress (Blog Post, 23 April 2020) <http://www.loc.gov/law/foreign-news/article/south-africa-directions-for-court-operations-during-covid-19-lockdown-issued/>; 'About Court Online', The South African Judiciary (Web Page, 2019) <https://www.judiciary.org.za/index.php/caselines/e-filing-project-overview>.

xviii Courts and Tribunals Judiciary, The Remote Access Family Court (Version 3, 3 April 2020) [1.10], [5.70]; Her Majesty's Courts and Tribunals Service, New Video Tech to Increase Remote Hearings in Civil and Family Courts (Press Release, 1 July 2020) <https://www.gov.uk/government/news/new-video-tech-to-increase-remote-hearings-in-civil-and-family-courts>; Justice Committee, Coronavirus (COVID-19): The Impact on Courts (House of Commons Paper No 519, Session 2019–21).

xix Maurice Kenton and Ben Knowles, 'COVID-19 Global: Arbitration and Court Impacts', Clyde&Co (Web Page, 24 April 2020) <https://www.clydeco.com/insight/article/covid-19-impact-on-courts-and-arbitration>; 'The Impact of COVID-19 on Italian Litigation: Suspensions and Technological Advancements Under "Cura Italia"', Jones Day (Web Page, April 2020) <https://www.jonesday.com/en/insights/2020/04/impact-of-covid-19-on-italian-litigation>.

xx 'The Impact of Government Provisions to Tackle COVID-19 on the Activity of Tribunals. An Overview of Major European Jurisdictions', Dentons (Blog Post, 15 April 2020) <https://www.dentons.com/en/insights/articles/2020/april/15/the-impact-of-government-provisions-to-tackle-covid19-on-the-activity-of-tribunals>; 'Notice for Practitioners and Members of the Public Requiring Services from Court Offices in Respect of Criminal, Family Law and Civil Law Business', The Courts Service of Ireland (Web Page, 29 March 2020) <https://beta.courts.ie/news/notice-practitioners-and-members-public-requiring-services-court-offices-respect

-criminal>; Houses of the Oireachtas, Leinster House, Remote Courts (Library and Research Service Note, 28 July 2020) <https://data.oireachtas.ie/ie/oireachtas/libraryResearch/2020/2020 -07-28_l-rs-note-remote-court-hearings_en.pdf>.

xxi 'The Impact of Government Provisions to Tackle COVID-19 on the Activity of Tribunals. An Overview of Major European Jurisdictions', Dentons (Blog Post, 15 April 2020) <https://www .dentons.com/en/insights/articles/2020/april/15/the-impact-of-government-provisions-to-tackle -covid19-on-the-activity-of-tribunals>.

xxii 'The Civil Resolution Tribunal and Strata Disputes', British Columbia (Web Page, 31 May 2017) <https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/resolving-disputes/ the-civil-resolution-tribunal>; Elizabeth Raymer, 'B.C.'s Civil Resolution Tribunal Keeps "doors open" during pandemic', Canadian Lawyer (Blog Post, 27 March 2020) <https://www .canadianlawyermag.com/practice-areas/adr/b.c.s-civil-resolution-tribunal-keeps-doors-open -during-pandemic/328037>.

xxiii Xinhua, 'Across China: Internet Court Handles Cases despite Coronavirus Epidemic', China. org.cn (Blog Post, 10 March 2020) <http://www.china.org.cn/china/Off_the_Wire/2020-03/10/ content_75796760.htm>. For information regarding other countries please see Remote Courts Worldwide, Society for Computers and Law (Web Page, 8 August 2020) <https://remotecourts .org/terms.htm>.

Source: An earlier version of this table appeared in Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

The variation in responses can also be considered in the context of the role of judges as leaders in the management of these changes. As noted above, in many cases, judges play a central role. In some jurisdictions, however, decisions about the use of technology may be made by government bodies or by an administrative arm that may have limited judicial engagement (see the discussion in Chapter 7). Indeed, in some jurisdictions, there may be a lack of judicial interest in this matter.

The responses to the COVID-19 pandemic also indicate that some courts have been more actively engaged in ensuring that virtual hearings and judicial decision making is conducted in a type of 'open' forum – often with YouTube or other public options.[21] While, in other courts, the use of videoconferencing has limited any engagement with the public and such arrangements have effectively led to 'closed' courts (see Chapter 10). In most instances where jury trials have been in place, there has been either a shift to limit jury size or to conduct such hearings with judges only.[22] Whilst various commentators

---

[21]   For example, the Federal Circuit Court of Australia provided the public with an option to 'dial-in' to hearings through a video link: Federal Circuit Court of Australia, 'Notice to the Profession – 9 April 2020', *Federal Circuit Court of Australia* (Web Page, 9 April 2020) <http://www.federalcircuitcourt.gov.au/wps/wcm/connect/fccweb/ about/news/covid-notice-090420> accessed 13 August 2020. Similarly, emergency COVID-19 legislation enabled the UK High Court of Justice to livestream hearings on YouTube: Kate Beioley, 'High Court Trial Streamed on YouTube for First Time', *Financial Times* (Online, 30 March 2020) <https://www.ft.com/content/7a74241b -c039-4911-93ca-b92c30e1253a> accessed 13 August 2020.

[22]   Felicity Gerry, 'Jury is Out: Why Shifting to Judge-Alone Trials is a Flawed Approach to Criminal Justice', *The Conversation* (Blog Post, 5 May 2020) <https://

have indicated that such decisions are problematic from a justice perspective, in many cases decisions to change jury arrangements have not involved the consideration of 'complex' technological options that might enable jury trials or even potentially improve them.[23]

RESPONSIVENESS

To an extent, the variations in court responses to COVID-19 can be viewed in the context of how socially responsive judges consider that they should be. That is, there is variation amongst judges in how they perceive the capacity of technology to support and enhance the judicial function, which is linked to a consideration of how responsive judges are in relation to cultural and societal changes. In this regard, the author and Zariski have noted that judges have always been responsive in 'classic' or 'passive' respects. That is, they: (i) finalize all disputes before them; (ii) consider the submissions of litigants; (iii) use submissions in making decisions; and (iv) explain and justify their decisions.[24] A more passive model of responsiveness which previously dominated Western legal systems can be contrasted with a more 'progressive' or 'active' model of judging. Further to the above elements, the author and Zariski explain that this latter model involves at least one of the following additional elements:

> (i) responsiveness to accountability for public investment in the legal system and the demand for justice from it; (ii) responsiveness to the problems of interdependent,

---

theconversation.com/jury-is-out-why-shifting-to-judge-alone-trials-is-a-flawed -approach-to-criminal-justice-137397> accessed 13 August 2020. See also: Supreme Court of Victoria, *Criminal Division: Trial by Judge Alone COVID-19 Emergency Protocol* (Emergency Protocol, April 2020). There are a number of exceptions with some courts in the USA, see Corinne Ramey, 'Covid is No Excuse for Grand Jury Duty When You Can Serve From Your Bedroom', *The Wall Street Journal* (Online, 20 August 2020) <https://www.wsj.com/articles/covid-courts-virtual-jury-duty-zoom-wifi -indictments-grand-jury-pandemic-lockdown-11597931499?mod=e2tw> accessed 2 September 2020.

[23] For example, Richard Susskind has argued that 'a jury trial is a form of interpersonal communication that is much more complex than envisaged in the design of the current generation of videoconferencing systems' and, as a result, technologies used to enable or improve the juror role should be 'informed by experience': Law Society of Scotland, *Consultation Response: COVID-19 and Solemn Criminal Trials* (Scottish Government Discussion Document, 17 April 2020) 7.

[24] Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 1.

network society; (iii) responsiveness to litigants' experiences of the legal system and courts; and (iv) interactive responsiveness in the context of public attention.[25]

The author and Zariski have further noted that this shift from a passive to an active model of judging has contemporarily culminated in a holistic or more 'full' approach to judging.[26] In this regard, the author notes that apart from 'adhering to the essential principles of fidelity to law, impartiality, and integrity', today's 'fully responsive judge' is also:

- a cost-conscious manager of litigation with a concern for ensuring access to justice;
- a quick learner with the curiosity and patience to inquire into the foreseeable consequences of her decisions;
- a student of human nature who values and works at establishing respectful relations with litigants and colleagues; and
- a public figure comfortable in the roles of ambassador for justice and public legal educator.[27]

Judicial responsiveness in this sense may require an understanding of various support structures and referral opportunities, and a developed understanding of Alternative Dispute Resolution (ADR) processes that potentially enable disputants to achieve better or lasting outcomes.[28] In terms of the adoption of newer technologies, the more responsive judges (or at least those who perceive their role in this way) may be more likely to consider and welcome a level of technological change. However, there may also be a recognition by those in this area – and particularly those focused more on therapeutic jurisprudence – that such arrangements may impact adversely on the 'human' face of the judicial role and have potentially damaging effects on the perceptions of justice.[29]

---

[25] Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 2.

[26] Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 2.

[27] Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 2.

[28] Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 4.

[29] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87. See also: Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania

Linked to this notion is the extent to which effective communication and interpersonal skills are perceived as necessary or even fundamental to the judicial role. Clearly, if such skills are perceived as less relevant, there are issues about whether and how technologies can support or supplant the judicial role. This is particularly so if more disruptive technologies are considered where the replacement of human judges by forms of AI (at least at lower court levels) is an option. In this regard, many writers have recognized that a judge's work encompasses much more than passive judging and identified the importance of 'a range of interpersonal skills around how judges organize their court and manage cases, as well as how they deal with the personnel in the courtroom and the public' (see also Chapter 9).[30]

A number of current and former judges in Australia have recognized the importance of judicial responsiveness. Ronald Sackville, former Judge of the Supreme Court of New South Wales in Australia has commented on the idea of 'managing justice', noting that this concept:

> … encapsulates the idea that the courts should accept responsibility not merely for managing the conduct of litigation, but for a wider range of activities designed to enhance the responsiveness and accountability of the legal system to the community, but in ways that are consistent with judicial independence.[31]

Sackville also notes that judges should actively contribute to the public debate concerning the role and functions of courts.[32] John Middleton, a Judge of the Federal Court of Australia, has similarly argued that decision making involves many aspects, including the ability to be aware of and assess the social impact of decisions.[33] The extent to which judges do engage in such a debate varies considerably and is of course linked to the political systems and traditions within which the judge operates. In addition, court cultures can also play a role, with judges being more or less engaged depending on the judicial leadership within a court and the extent to which individual judicial commentary is

---

Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 6.

[30] John Morison and Adam Harkens, 'Re-engineering justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 629.

[31] Justice Ronald Sackville, 'From Access to Justice to Managing Justice: The Transformation of the Judicial Role' (Speech, Australian Institute of Judicial Administration Annual Conference, Brisbane, 12–14 July 2002).

[32] Justice Ronald Sackville, 'From Access to Justice to Managing Justice: The Transformation of the Judicial Role' (Speech, Australian Institute of Judicial Administration Annual Conference, Brisbane, 12–14 July 2002).

[33] Justice John Middleton, 'The Life of the Trial Judge – What Has or Is Changing?' (Speech, Samuel Griffith Society, 11 August 2019).

permitted, accepted or encouraged. Indeed, often such commentary is only available once a judge resigns from the bench and begins to vocalize concerns (although clearly many well-known judges will use dissenting judgment options, where available, as well as judicial speeches to contribute to public discourse).[34]

Gerard Brennan, former Chief Justice of the High Court of Australia, has also commented on the role of the judge.[35] Brennan notes that a judge's 'first role' is to preside and hear. More interesting, however, is Brennan's identification of a judge's 'second role'. Speaking in relation to criminal trials, he notes that the judge must take care to ensure that nobody in the courtroom is humiliated or has their dignity diminished.[36] This is significant as it has been noted that algorithmic decision making raises a number of concerns in relation to human dignity (see Chapter 6) and arguably 'human dignity' should be a guiding principle when considering how technology can be utilized by judges. According to Kaminski, 'allowing a decision about humans to be made by a machine inherently treats humans as objects, showing deep, inherent disrespect for peoples' [sic] humanity'.[37] Further, Kaminski argues that algorithmic decision making 'does not allow individuals to proclaim their individuality, then it violates their dignity and objectifies individuals as their traits, rather than treating an individual as a whole person'.[38] These issues are discussed in further detail in Chapters 3 and 9 of this book in the context of algorithmic justice generally and the development of ethical guidelines relating to judges and technology.

In relation to unrepresented or self-represented litigants, Brennan also observes that the judge must ensure that 'no points of merit are buried in what is oftentimes a mass of distracting irrelevancies'.[39] Brennan's observations here are reflective of one of the key characteristics of responsiveness

---

[34] For example, see generally: Ruth Bader Ginsburg, 'The Role of Dissenting Opinions' (2010) 95 *Minnesota Law Review* 1; Justice Michael Kirby, 'Appellate Courts and Dissent: Diversity in the Protection of Freedom' (2004) 16 *Judicial Officers Bulletin* 25; Joe McIntyre, 'In Defence of Judicial Dissent' (2016) 37 *Adelaide Law Review* 431.

[35] The Hon. Sir Gerard Brennan, 'The Role of the Judge' (Speech, National Judicial Orientation Programme, Wollongong, 13 October 1996).

[36] The Hon. Sir Gerard Brennan, 'The Role of the Judge' (Speech, National Judicial Orientation Programme, Wollongong, 13 October 1996).

[37] Margot E Kaminski, 'Binary Governance: Lessons from the GDPR's Approach to Algorithmic Accountability' (2019) 92 *Southern California Law Review* 1529, 1542.

[38] Margot E Kaminski, 'Binary Governance: Lessons from the GDPR's Approach to Algorithmic Accountability' (2019) 92 *Southern California Law Review* 1529, 1542.

[39] The Hon. Sir Gerard Brennan, 'The Role of the Judge' (Speech, National Judicial Orientation Programme, Wollongong, 13 October 1996).

previously identified: responsiveness to litigants' experiences of the legal system and courts.[40] Indeed, a responsive judge might acknowledge that the 'dignity, participation and voice' of participants in legal disputes are relevant in terms of the resolution of a dispute.[41] Much work in the procedural justice arena suggests that procedures, participation, and the timeliness and cost of arrangements will assist in determining whether an outcome is fair and just (see the discussion in Chapter 6).[42] In the context of technological changes, there may be particular concerns relating to participation as well as procedural understandings.[43]

In the United States of America, Richard Posner has also discussed the importance of an 'active' model of judging. A 'desire to change the world for the better' is identified by Posner as one of two key objectives which guide judicial performance.[44] In so far as technological changes are concerned, Posner identifies judges in many Western counties as pragmatic. That is, essentially, bending and shaping the judicial system with an individualistic approach that differs from that adopted in many continental systems where it is suggested that judges may be more 'docile' or constrained by a public service mentality.[45] Posner's work also raises questions about what incentives might drive judges to consider the adoption of newer technologies. In this regard, incentives would likely include significant concerns relating to access to justice which have been particularly relevant in the context of the COVID-19 pandemic. However, despite the pressure the COVID-19 pandemic has placed on judges and systems to embrace technological change, questions remain as to what extent incentives exist to encourage judges to adopt newer technologies on an ongoing basis. In this regard, supportive technology use which is less likely to significantly disrupt the judicial role is likely to be more palatable.

---

[40]   Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 1–2.

[41]   Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 4.

[42]   Tania Sourdin, *Exploring Civil Pre-Action Requirements: Resolving Disputes Outside Courts* (Australasian Institute of Judicial Administration, 2012) 88.

[43]   Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 23. See also: Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1124.

[44]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1056.

[45]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1055.

For example, some discussion about judges and technology is linked to the way in which innovations can alter the hearing or trial process, as opposed to the actual decision making that may follow it. Essentially, it is considered that online courts can replicate physical courts and that, therefore, the primary issues in the adoption of newer technologies would relate to procedural justice factors and the use of supportive technologies (unless hearings are reduced to an 'on the papers' approach – see Chapters 5 and 8).[46] For example, Marilyn Warren, former Chief Justice of the Supreme Court of Victoria in Australia, has envisaged a 'distributed courtroom' where participants are virtually placed in a physical courtroom by life-size screens or holographic projection through the use of online videoconferencing technology. This model thus allows parties the option of whether or not they physically attend court.[47] Such an approach arguably enables judges to be more responsive by meeting the communication preferences and needs of all court users.[48] However, in the absence of other reforms, it is noted that the online court approach is unlikely to significantly transform court hearings.

In this sense, the various critiques of responsive judging could also be applied to judges who are adapting to newer technologies:

(i)   The exceptionalism/personalism critique, which is based on the assumption that the necessary abilities and qualities that responsive judges possess are not shared by all judges;

(ii)   The judicial function critique, which assumes responsive judging (and, by extension, engagement in technological change) diverts and distracts judges from their core judicial function of adjudication;

(iii)   The judicial activism critique, which presupposes that it is inappropriate for judges to be 'active' and 'innovative';[49] and

---

[46]   Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 19–20.

[47]   Justice Marilyn Warren, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227, 232.

[48]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 91. The author notes that some 'online court' models assume that there would be no oral hearing and that decisions would be made on the papers – see Chapters 5 and 8.

[49]   For an in-depth discussion on the notion of judicial activism more broadly, see: Michael Kirby, 'Judicial Activism' (1997) 27 *Western Australian Law Review* 1; Michael Kirby, 'Judicial Activism: Power Without Responsibility? No, Appropriate Activism Conforming to Duty' (2006) 30(2) *Melbourne University Law Review* 576.

(iv)   The impartiality critique, which questions whether judicial impartiality is compatible with non-public hearings or with ADR and/or ODR processes such as mediation.[50]

Each of the critiques, when applied to technological judging, suggests that to support technological change, a clearer appreciation of the judicial function is required, as well as a recognition that the function is not only multi-faceted but also responsive in the broadest definitional sense. This approach informs a more effective analysis of the role of AI and judging, particularly when considering the extent to which judges can adapt to the introduction of more disruptive technologies.

IDEOLOGY, DISCRETION AND EXPERIENCE

Richard Posner has observed that the judicial mentality would be of little interest if judges did no more than apply clear rules of law. If this was so, 'judges would be well on the road to being superseded by digitized artificial intelligence programs'.[51] It is clear from the above analysis, however, that many judges are responsible for much more than the mere rigid application of legal principles.

Commentators have identified a judge's ideology, experiences and exercise of discretion as crucial to understanding the judicial role. According to Posner, the conception of the judicial role that is most descriptive of American appellate judges is one of pragmatism. Posner explains that there is almost always a 'zone of reasonableness' within which a decision either way is plausible and defendable.[52] Here, pragmatism embraces 'attitudinalism'. That is, when the zone of reasonableness is wide, a judge's ideological predilections will inevitably shape his or her decision.[53] Posner notes that this zone of reasonableness is likely to widen with judicial experience.[54] A judge's ideological predilections are mainly based in moral and religious values which are a product of the judge's 'upbringing, education, salient life experiences, and personal characteristics … and also of temperament, which shapes not only values but also

---

[50]   Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 1, 23–26.

[51]   Richard A Posner, *How Judges Think* (Harvard University Press, 2008) 5.

[52]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1053.

[53]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1053.

[54]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1065–1066.

dispositions, such as timidity and boldness, that influence a judge's response to cases'.[55]

In the context of AI and judging there are many comments that can be made about the capacity of AI and associated systems to nudge judges towards a 'zone of reasonableness' so that issues linked to judicial bias or the 'ideological predilections' can be somewhat ameliorated (see also Chapter 3 in relation to algorithmic bias).[56] Indeed, as noted in Chapter 1, this approach has been adopted in China, where some AI systems have been developed to 'push' or 'warn' judges of such predilections:

> On the one hand, many local courts in China are developing a 'similar cases pushing' system based on this database, which can push the judgments of similar cases to judges for reference. On the other hand, some courts have tried to develop an 'abnormal judgment warning' function based on this database – that is, if a judgment significantly differs from the judgments of similar cases, the system will automatically send a warning to the judge's superiors, prompting them to initiate a supervision mechanism on the judge concerned. At present, this function is mainly used in criminal cases to monitor whether the judge's sentencing is reasonable.[57]

There are currently a range of issues associated with judicial bias; the extent to which these may be alleviated as a result of enhanced technological systems is somewhat questionable and is explored further in Chapter 3 (together with questions linked to algorithmic bias). Undoubtedly, however, the moral compass or perhaps what could be negatively termed an 'old white man bias' can influence judicial decisions and processes. In this regard, Volokh has noted that whether or not a decision maker is persuaded by an argument varies according to the decision makers' view about 'which results are good or which moral principles ought to influence close calls about how to clarify or change the law'.[58] In translating this approach to Judge AI, importantly, Volokh notes that while this is part of the reason why people have varying views about the qualities of different human judges, a lack of consensus about which approach

---

[55]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1059–1060.

[56]   Richard A Posner, 'The Role of the Judge in the Twenty-First Century' (2006) 86 *Boston University Law Review* 1049, 1053.

[57]   Meng Yu and Guondong Du, 'Why Are Chinese Courts Turning to AI?', *The Diplomat* (Blog Post, 19 January 2019) <https://thediplomat.com/2019/01/why-are -chinese-courts-turning-to-ai/> accessed 13 August 2020. See also: Li Zhonghao and Jiang Hao, 'Anhui R & D Case Guide Project and Trial', *People's Court Daily* (Online, 21 June 2016) <http://rmfyb.chinacourt.org/paper/html/2016-06/21/content_113216 .htm> accessed 13 August 2020.

[58]   Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1184.

is best may simply mean that there will likely be rival AI judges designed to take different approaches.[59]

Past researchers in the access to justice movement have noted that the outcome of court adjudication can be influenced by many factors, including: 'the quality of representation, the resources available to the litigant, and the quality of the decision-making and surrounding rights-based framework'.[60] In addition, research also reveals that adjudicative decision making can be affected by a range of factors that may influence substantive justice. These involve a range of impacts on a judge that can include:[61]

- when and what a person has eaten;[62]
- the time of day;[63]
- how many other decisions a person has made that day ('decision fatigue');[64]
- personal values;[65]

---

[59] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1184–1185.

[60] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1129. For further discussion see: T Sourdin, 'The Role of the Courts in the New Justice System' (2015) 7 *Yearbook on Arbitration & Mediation* 95.

[61] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1129.

[62] See John Tierney, 'Do You Suffer From Decision Fatigue?', *New York Times* (Online, 17 August 2011) <http://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html?_r=2&pagewanted=1> accessed 13 August 202, referring to a study of parole board decision making reported in S Danziger, J Levav and L Avnaim-Pesso, 'Extraneous Factors in Judicial Decisions' (2011) 108(17) *Proceedings of the National Academy of Sciences of USA* 6889.

[63] See John Tierney, 'Do You Suffer From Decision Fatigue?', *New York Times* (Online, 17 August 2011) <http://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html?_r=2&pagewanted=1> accessed 13 August 2020, referring to a study of parole board decision making reported in S Danziger, J Levav and L Avnaim-Pesso, 'Extraneous Factors in Judicial Decisions' (2011) 108(17) *Proceedings of the National Academy of Sciences of USA* 6889.

[64] See John Tierney, 'Do You Suffer From Decision Fatigue?', *New York Times* (Online, 17 August 2011) <http://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html?_r=2&pagewanted=1>accessed 13 August 2020, referring to a study of parole board decision making reported in S Danziger, J Levav, and L Avnaim-Pesso, 'Extraneous Factors in Judicial Decisions' (2011) 108(17) *Proceedings of the National Academy of Sciences of USA* 6889.

[65] Richard Chisholm, 'Values and Assumptions in Judicial Cases' (Conference Paper, National Judicial College Conference, Judicial Reasoning – Art or Science, Canberra, 7–8 February 2009). See also: Victor Quintanilla, 'Different Voices: The Role of Gender When Reasoning about the Letter Versus Spirit of the Law' (Conference Paper, Law and Society Conference, Honolulu, June 2012).

- unconscious assumptions; [66]
- reliance on intuition;[67]
- the attractiveness of the individuals involved; and[68]
- emotion. [69]

As noted in past research, the extent to which these factors influence judges is unknown. However, it is likely that even if a judge becomes aware of these factors, they may underestimate their impact.[70] This is partly because as humans we tend to exaggerate information about our own personal qualities that we perceive as positive, and are less likely to accept information that raises any questions about our positive characteristics.[71] Such factors will influence not only the judging process and the outcomes achieved, but also the extent to which judges are prepared to use technology or to make decisions about whether technology can assist in 'correcting' judgments that might otherwise be contaminated by bias. There are also interlinked issues that arise in the context of an independent judiciary. Clearly, judges in some parts of the world might consider the 'nudging' or 'correction' envisaged in the Chinese courts to be appropriate and helpful. Yet judges in other jurisdictions might consider that such an approach negatively impacts on judicial independence and could constitute executive overreach, thereby threatening the democratic arrangements in some countries (see Chapter 7).

---

[66] Justice Keith Mason, 'Unconscious Judicial Prejudice' (2001) 75 *The Australian Law Journal* 676, 680.

[67] Justice Michael Kirby, 'Judging: Reflections on the Moment of Decision' (1999) 18 *Australian Bar Review* 4, 4.

[68] Maria Agthe, Matthias Spörrle and Jon Maner, 'Does Being Attractive Always Help? Positive and Negative Effects of Attractiveness on Social Decision Making' (2011) 37 *Personality and Social Psychology Bulletin* 1042. The researchers in this area suggest that there may be a bias away from attractive same-sex individuals and a bias towards attractive other-sex individuals.

[69] Hayley Bennett and GA (Tony) Broe, 'Judicial Neurobiology, Markarian Synthesis and Emotion: How Can the Human Brain Make Sentencing Decisions?' (2007) 31 *Criminal Law Journal* 75, 84–86.

[70] Timothy Wilson and Daniel Gilbert, 'Explaining Away: A Model of Affective Adaptation' (2008) 3(5) *Perspectives on Psychological Science* 370.

[71] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1130. For an interesting discussion of this phenomenon, see: D Brooks, *The Social Animal* (Random House, 2011) 220.

MULTI-TASKING

As noted earlier in this chapter, there are various ways in which judges multi-task.[72] The extent to which a judge multi-tasks on a daily level as well as more generally within an overall role will influence how and to what extent a judge is prepared to adopt technological change. For some, consideration of newer technologies may be viewed as an additional burden or distraction from core judicial functions. This is especially so where technologies have been designed to aid in case management by shifting responsibility for the entry of data to judges, rather than through the retention of supportive administrative staff.

In this sense, judges not only 'multi-task' in relation to the multi-faceted role that they play,[73] but also, because of a range in workload variations where they may be required to undertake a number of activities simultaneously and with little time reserved for decision making. Such shifts in the judicial role have occurred partly as a result of technological and societal innovations. For example, the 'trial by trolley' phenomenon that developed in the 1980s was in response to the availability of photocopiers and word processors. Similarly, complexity in litigation is due in part to the much more complex arrangements that mean that company structures are more likely to involve a number of entities with differing interests. Such shifts have added to the judicial workload, raising questions about stress and judicial well-being.[74]

The shift in the judicial role has also occurred as many judges – particularly those situated in common law jurisdictions – have become more managerial in the context of the cases that they hear. Arguably, this shift may be attributable to the growth in individual docket systems and the development of technological advances in terms of supportive case management systems.[75]

Many commentators have acknowledged this modern shift in the judicial role. For example, James Spigelman, former Chief Justice of New South Wales in Australia, has noted that in recent years there has been 'a significant mod-

---

[72] Tania Sourdin and Archie Zariski, *The Multi-Tasking Judge: Comparative Judicial Dispute Resolution* (Thomson Reuters, 2013).

[73] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 88. See also: Tania Sourdin and Archie Zariski, *The Multi-Tasking Judge: Comparative Judicial Dispute Resolution* (Thomson Reuters, 2013).

[74] See: Carly Schrever, Carol Hulbert and Tania Sourdin, 'The Psychological Impact of Judicial Work: Australia's First Empirical Research Measuring Judicial Stress and Wellbeing' (2019) 28 *Journal of Judicial Administration* 141.

[75] See, for example: 'About Us', *CaseLines* (Web Page) <https://caselines.com/about-us> accessed 13 August 2020.

ification of the adversarial system', with the way in which judges discharge their functions having radically changed.[76] With respect to civil proceedings, the most noteworthy change has been that matters previously managed by the parties and their legal representatives are now often under the control of judges and the courts. Sallman has noted that, in many common law jurisdictions, this has resulted in a significant shift 'in the culture and orientation of the courts'.[77]

Former Justice of the Federal Court of Australia, Ronald Sackville, has stated that '[t]he courts have responded to insistent demands for greater "access to justice" by accepting responsibility for tasks that would have seemed alien to the judicial role only two or three decades ago'.[78] With this shift to an increasingly interventionist role in the management of judicial workload, '[t]he courts have accepted new and expanded notions of accountability'.[79] Indeed, over two decades ago, the Australian Access to Justice Advisory Committee highlighted the 'quiet but enormously significant revolution' that has occurred.[80] The catalyst for these changes was the incessant problems of delay, expense and complexity associated with civil proceedings, especially towards the end of the 20th century. Today, case management is widely 'accepted as virtually an article of faith by all Australian courts' (and by other courts internationally – see also Chapter 4).[81]

One of the major strategies to support timely dispute resolution in the courts has related to changes in the way courts and judges manage litigation. Past international studies have showed that early and continuous control over case events is the factor most closely identified with faster case-processing times. As a result, innovation in this area has since included the acceptance of docket lists, combinations of docket lists, and call-over processes in 'wheel' systems

---

[76] Justice JJ Spigelman, 'Judicial Mediation in Australia' (Speech, National Judicial College, Beijing, 25–28 April 2011) 2.

[77] Peter A Sallmann, 'The Impact of Caseflow Management on the Judicial System' (1995) 18(1) *University of New South Wales Law Journal* 193, 206.

[78] Justice Ronald Sackville, 'From Access to Justice to Managing Justice: The Transformation of the Judicial Role' (Speech, Australian Institute of Judicial Administration Annual Conference, Brisbane, 12–14 July 2002).

[79] Justice Ronald Sackville, 'From Access to Justice to Managing Justice: the Transformation of the Judicial Role' (Speech, Australian Institute of Judicial Administration Annual Conference, Brisbane, 12–14 July 2002).

[80] Access to Justice Advisory Committee, *Access to Justice: An Action Plan* (Report, 1994) [17.5], citing Peter A Sallmann, 'Managing the Business of Australian Higher Courts' (1992) 2 *Journal of Judicial Administration* 80, 80.

[81] Justice Ronald Sackville, 'From Access to Justice to Managing Justice: The Transformation of the Judicial Role' (Speech, Australian Institute of Judicial Administration Annual Conference, Brisbane, 12–14 July 2002).

in various courts in order to support the timely resolution of disputes.[82] In addition, timeframes are now used in many jurisdictions as part of such case flow management to ensure the timeliness of judicial proceedings. These developments have, to some extent, been enabled by the development of technological tools that support case tracking and management. In some courts, these can be well developed, whereas in others the technology is often referred to as 'legacy' technology and involves outdated system technologies. That is, case management technologies have been adapted over time – often resulting in systems that may not be fit for purpose (see Chapter 4).

In enabling courts to have greater control in reducing delays, other research has identified the importance of engaging individuals who are responsible for scheduling. For example, in the English context, Raine and Willson found that the courts with shorter delays had employed an individual who was responsible for scheduling.[83] Commentators have noted these courts as 'having a visible, monitored and accountable culture', which they termed an 'accountability culture'.[84] Indeed, judges too may have a specific role to play in managing and expediting cases by, for example, limiting the time and scope of oral evidence and argument. In this sense, an 'accountability culture' is often led by judges who play a key role in civil procedure reforms.

For complex matters that are more fully case managed, one recent trend is for judges to require that project plans be used. A good example of this is the approach taken by the Supreme Court of Victoria in Australia in its Technology, Engineering and Construction (TEC) List.[85] The TEC List provides a platform for the resolution of highly technical disputes. Because of the complexities involved in the resolution of such disputes, the TEC List has been formulated to allow 'judges to adopt a more interventionist approach to the litigation process' and to control the conduct of legal representatives through

---

[82] See Perry S Millar and Carl Baar, *Judicial Administration in Canada* (McGill-Queens University Press, 1981).
[83] John W Raine and Michael J Willson, 'Organisational Culture and the Scheduling of Court Appearances' (1993) 20 *Journal of Law & Society* 237.
[84] John W Raine and Michael J Willson, 'Organisational Culture and the Scheduling of Court Appearances' (1993) 20 *Journal of Law & Society* 237.
[85] See 'Technology, Engineering and Construction (TEC) List', *Supreme Court of Victoria* (Web Page) <https://www.supremecourt.vic.gov.au/law-and-practice/specialist-areas-of-law/technology-engineering-and-construction-tec-list> accessed 13 August 2020.

a series of protocols.[86] These protocols are designed to ensure that parties take a more 'pro-active'[87] approach and 'focus on the real issues in the case'.[88]

The 'RedCrest' system that is used in the TEC list in the Supreme Court of Victoria, Australia, has been developed to support judicial case management and relies on new technologies to assist in this.[89] The technology is designed to ensure that case management requirements are met and that delays associated with the physical service of documents are reduced for firms that subscribe to the electronic service. The system requires the dedicated involvement of a judge as well as administrative staff to support the system. From a judicial perspective, such changes can have a number of impacts. Namely, they can reduce the time and cost of litigants, but they may also: increase the judicial workload; require judges to be familiar with newer technologies; and necessitate a budget that enables the judiciary to effectively introduce such innovations.

In the United States of America, Molot has noted that, traditionally, the judicial role was characterized by judges relying on the parties to frame disputes. However, in modern times, overcrowded dockets have seen judges shift from this passive role. It is noted that many judges now take 'take an active, largely discretionary approach to pretrial case management'.[90] In this sense, more disruptive technological changes – especially those founded on more sophisticated forms of AI – have the capacity to reshape such case management approaches and introduce greater consistency between judges, which, in turn, may assist in redesigning perceptions of procedural justice.[91] These issues are more fully explored in Chapter 4, where it is noted that one approach to extensive technology reforms in courts is through case management system changes that may be iterative.

---

[86] Paula Gerber and Diana Serra, 'Construction Litigation: *Are* We Doing It Better?' 947 (2011) 35 *Melbourne University Law Review* 947. See also: Lawyers Weekly, 'Victoria takes high-TEC approach to IT disputes', *Lawyers Weekly* (Blog Post, 3 March 2012) <https://www.lawyersweekly.com.au/partner-features/11-home-page/features/4659-victoria-takes-high-tec-approach-to-it-disputes> accessed 13 August 2020.

[87] Supreme Court of Victoria, *Commercial Court Practice Note* (Practice Note SC CC 1, 21 December 2017) [10.2].

[88] Supreme Court of Victoria, *Commercial Court Practice Note* (Practice Note SC CC 1, 21 December 2017) [8.1].

[89] See 'RedCrest Electronic Filing', *Supreme Court of Victoria* (Web Page) <https://www.redcrest.com.au/eservices/home.page.2> accessed 13 August 2020.

[90] Jonathan T Molot, 'An Old Judicial Role for a New Litigation Era' (2003) 113 *The Yale Law Journal* 29, 29.

[91] Shanee Benkin and Marco Fabri, Council of Europe European Commission for the Efficiency of Justice, 'Case Weighting in Judicial Systems' (CEPEJ Studies No 28, 2 July 2020).

In any event, the multi-tasking that many judges are now required to undertake can mean that there is little time to consider how technology can assist a judge with their workload. Whilst additional and well-functioning supportive, replacement and, to some extent, disruptive technologies may assist judges, many may remain 'too busy' or 'too underfunded' to engage with discourse about how such technologies can be utilized more effectively. Other judges, as noted previously, may simply be uninterested or perceive their role in a much narrower way.

CONCLUSIONS

Clearly, in addition to time spent managing cases, judicial workload also encompasses an increasing amount of non-case-related activity. Lienhard and Kettiger have identified four forms of non-case-related work typically undertaken by judges: (i) general (non-case-related) court administration, including routine office matters and meetings; (ii) judicial education and training; (iii) community activities and public outreach; and (iv) private matters including personal commitments or non-case-related travel time.[92]

In a study of everyday work in the magistrates' courts in Australia, Mack, Roach Anleu and Wallace outlined the various non-judicial functions which invariably reduce the time available to magistrates to adjudicate disputes. They noted that such functions typically included case management duties, committee work and general meetings.[93] In addition, magistrates also reported spending significant time engaging in general administration, including correspondence, keeping up with law, and travelling.[94] Thus it is important to consider the range of judicial work areas when determining how technological developments may impact on the judicial role.

Considering the non-case-work areas, both supportive and replacement technologies are likely to play an increasing role in terms of changing these aspects of judicial work. Certainly, supportive technologies that encompass videoconferencing technology can save judicial time and may also result in other benefits, such as increasing the capacity for judges to engage with broader communities via livestreaming, social media and even webinars that

---

[92]   Andreas Lienhard and Daniel Kettiger, 'Research on the Caseload Management of Courts: Methodological Questions' (2011) 7(1) *Utrecht Law Review* 70.

[93]   Kathy Mack, Sharyn Roach Anleu and Anne Wallace, 'Everyday Work in the Magistrates Courts: Time and Tasks' (2011) 21 *Journal of Judicial Administration* 34, 35.

[94]   Kathy Mack, Sharyn Roach Anleu and Anne Wallace, 'Everyday Work in the Magistrates Courts: Time and Tasks' (2011) 21 *Journal of Judicial Administration* 34, 49.

may appeal to both international and domestic audiences. Such activities have the potential to change the judicial role and enhance education activities by encouraging judges to be more involved in social debates and introduce more members of the public to court activities.[95]

Judicial non-case work may also be enhanced by the availability of virtual assistants. These assistants are able to work with judicial support staff and enable management and administrative-related work areas to function more smoothly. That is, while some judges may already use project planning software to assist them to manage complex cases, many do not. It is therefore probable that project planning arrangements together with virtual assistants are underutilized by judges who may remain somewhat dependent on paper-based approaches to manage their work. However, there are issues about what impacts any shift to virtual assistance may have on judges. Already, a lack of relatedness and connection to people has been associated with higher levels of stress and distress in judges in some courts.[96]

Clearly, there are some important aspects of the judicial role beyond decision making and adjudication that cannot be easily *displaced* by AI but which may nevertheless be *enhanced* by supportive and replacement technologies as such technologies may enable them to make more significant contributions to civic education and debate. It has been noted that:

> Apart from their critical adjudicative role, judges also play an educative role, informing litigants and lawyers about approaches to be taken and contributing to civic education at a broader level. While judges must be cautious as to how they express themselves (lest, if expressing themselves too forcefully they open themselves to apparent bias challenges) it is now accepted that they play an important role in public debates. Proponents of the view that judges could be replaced by AI fail to acknowledge the full range of what judges contribute to society beyond adjudication, including important and often unexamined issues relating to compliance and acceptance of the rule of law.[97]

In terms of AI developments and how these may reshape the judicial role, it is relevant that judges do much more than simply adjudicate. It has been said that those who take the view that judges can be replaced by AI 'are arguably missing the point in relation to what judges contribute to society which extends

---

[95] See, for example: Chief Justice James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 10.

[96] Carly Shrever, 'Judging Stress' (2015) 89(9) *Law Institute Journal* 29.

[97] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 97.

beyond adjudication and includes important and often unexamined functions that can support the rule of law' as well as the democratic ideals that underpin many judicial systems.[98]

Morison and Harkens have similarly noted that most AI researchers fail to recognize what courts and judges actually do.[99] Specifically, they note that judging 'is not a singular activity with a fundamental method that is unchanging across whatever context it is being employed in'.[100] Significantly, Morison and Harkens conclude that the 'social aspect' of the judicial role means that while new technologies may disrupt current working patterns, they cannot produce a new kind of justice system alone.[101] For a new type of justice system to develop, much more will be required. Changing judicial roles and functions will not, in isolation from other changes to courts and the attendant cultures of the legal profession, enhance access or support a more effective justice system. In addition, judicial cultures that are varied and often idiosyncratic will need to be considered in the context of which 'human' functions should be retained in the context of technological developments, particularly in the AI area.

In terms of the humanity of judges, what technology is currently so poor at replicating (empathy and social skills) is, despite some judges eschewing such behaviours, precisely what may support the retention of the human judge in the context of the development of more disruptive and replacement technologies that are often driven by AI. Such behaviours focus on the ability of human judges to more effectively enable litigants to determine outcomes through the judge demonstrating 'curiosity, emotional understanding of parties and their lawyers, their agile questioning and exploration of issues'.[102] Certainly, these behaviours are inherent in the broader activities involved in responsive judging. As AI develops to mimic some human empathic approaches, it is questionable whether over the coming decades such mimicry will enable AI

---

[98]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1124.

[99]   John Morison and Adam Harkens, 'Re-engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 629.

[100]   John Morison and Adam Harkens, 'Re-engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 629.

[101]   John Morison and Adam Harkens, 'Re-engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 631.

[102]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 97.

systems to completely replace more responsive judges. Chapter 8 explores this issue and the next chapter discusses general concerns relating to algorithmic bias rather than human bias, together with the notion of algorithmic justice.

3.   Exploring algorithmic justice

INTRODUCTION

Often discussions about judges and technology are linked to concerns about 'algorithmic justice', which is a concept that is poorly defined in the literature and by those working within the justice sector. On the one hand, it can refer to the potential for algorithms to enhance justice systems and processes. More commonly,[1] however, the term algorithmic justice is used to recognize potential concerns about the design of AI, including the potential for unintended negative impacts on human rights and activities and could perhaps be better described as algorithmic *injustice*.[2] In this regard, discussion about algorithmic justice is often more frequently linked to the disruptive introduction of AI. However, it can also be related to supportive and replacement technology use that is perceived to be problematic.[3]

It can be contrasted with 'algorithmic bias': a term which within the justice sector relates to the notion that technology use can result in justice outcomes that are unfair, discriminatory or otherwise unsound.[4] Essentially there is a concern that, as a result of the use of technologies that operate using algorithms, some outcomes and processes used in the justice sector will be inequi-

---

[1]   See, for example: 'Algorithmic Justice', *Algorithmic Justice* (Web Page) <https://algorithmicjustice.com/> accessed 11 September 2020. Algorithmic justice can also be linked to where law is written as code (for example with road rules being written in code).

[2]   Lisa Toohey, Monique Moore, Katelane Dart and Dan Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 134.

[3]   Milena Heinsch, Tania Sourdin, Caragh Brosnan and Hannah Cootes, 'Death Sentencing by Zoom: An Actor-Network Theory Analysis' (2020) *Alternative Law Journal* (forthcoming).

[4]   See, for example: Rebecca Heilweil, 'Why Algorithms Can Be Racist and Sexist', *Vox: Recode* (Blog Post, 18 February 2020) <https://www.vox.com/recode/2020/2/18/21121286/algorithms-bias-discrimination-facial-recognition-transparency> accessed 13 August 2020. Algorithmic inaccuracy may relate to algorithms that favour one party at one stage and another party at another.

table, procedurally unfair, and introduced without consideration of ethical and broader issues.[5]

Often, the terms algorithmic justice and algorithmic bias are each used to refer to broader justice system arrangements, rather than those specifically relating to judges or judging. For example, both algorithmic bias and algorithmic justice have been used to describe algorithms that can be regarded as unfair and which are used by police and others when making decisions about potential offenders or those being sentenced or seeking parole.[6] The terms have also been used in the context of administrative decision making which may be informed or even undertaken by forms of AI that rely on data matching or opaque decision-making structures.[7]

The concept of algorithmic justice is used less frequently in relation to judicial activities. This is partly because judicial decision making in most jurisdictions, which can at times be informed by algorithmic material, rarely involves the use of algorithmic prompts and because Judge AI is still in an early developmental stage (see further discussion below). As a result, in this chapter, algorithmic justice and bias are considered from two perspectives: the extent to which such factors might impact on individual judges who may be considering how technology shapes the evidence or the interactions of people in a court environment; and the potential risks that emerge where supportive Judge AI or Judge AI is introduced (see also Chapters 5 and 8).

Algorithmic justice, when framed in a positive manner, may refer to decision support systems that enable litigants to better understand the likely outcomes should they proceed to litigation. In addition, the term may also encompass systems or apps that promote or prompt referral to human experts such as mediators and lawyers who can play a role in resolving disputes where necessary.[8] In this context, algorithmic justice arises within and outside the judicial sphere – a placement which is in line with current justice mechanisms

---

5   See generally: Malwina Anna Wojcik, 'Machine-Learnt Bias? Algorithmic Decision Making and Access to Criminal Justice' (Winning Paper, Justis Writing Competition, 6 March 2020).

6   See generally: Malwina Anna Wojcik, 'Machine-Learnt Bias? Algorithmic Decision Making and Access to Criminal Justice' (Winning Paper, Justis Writing Competition, 6 March 2020).

7   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147.

8   Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming).

and the recent shift to a much broader view of justice (see previous discussion and Chapter 6).[9]

Machine learning approaches that are based on more developed forms of AI are also at times described as being part of the 'algorithmic justice' equation.[10] In a practical sense, Schatsky, Muraskin and Gurumurthy define AI as 'the theory and development of computer systems *able to perform tasks that normally require human intelligence*'.[11] However, in a technical sense, AI can be related to machine learning, natural language processing, expert systems, vision, speech, planning and robotics.[12] These approaches can be incorporated into many supportive and replacement technologies within the justice sector that may be regarded as supporting access to justice and may not raise the same algorithmic *injustice* or bias concerns as other AI use. In addition, it must be recognized that forms of AI underpin most operational work undertaken within courts. From printers to other devices, algorithms assist the work undertaken in the justice sector. However, ordinarily only more developed forms of AI are placed within the framework of algorithmic justice. For example, it may include a reference to sophisticated chatbots that provide advice to litigants and other parties about how to prepare and present information to a court.

As noted by Toohey et al., avoiding algorithmic *injustice* is challenging. In addition to issues of algorithmic bias, regard must also be had to the inaccessible nature of technology for most non-experts.[13] This challenge is discussed further below and in Chapter 5. Also, the reasons why algorithmic approaches may result in bias or injustice must be considered. Important factors are linked to the way in which such approaches are planned and introduced and the extent to which judges and other people are involved in the design of systems (see Chapter 10) and how ethical questions have been addressed (see Chapter

---

[9]   Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[10]   The author notes that there are broader questions relating to justice where the way in which decisions are written may impact on those decisions and shift the focus so that judicial decisions become more 'machine readable.' See Jameson Dempsey and Gabriel Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit.edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

[11]   David Schatsky, Craig Muraskin and Ragu Gurumurthy, *Demystifying Artificial Intelligence: What Business Leaders Need to Know about Cognitive Technologies* (Report, Deloitte University Press, 2014) 3 (emphasis in original).

[12]   Michael Mills, 'Artificial Intelligence in Law: The State of Play 2016 (Part 1)', *Thomson Reuters: Legal Executive Institute* (Blog Post, 23 February 2016) <http://legalexecutiveinstitute.com/artificial-intelligence-in-law-the-state-of-play-2016-part-1/> accessed 13 August 2020.

[13]   Lisa Toohey, Monique Moore, Katelane Dart and Dan Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 151.

9). There is a related concern that systems or algorithms can be designed by those who already have biases, which may cause these biases to be further propounded and extended.[14]

To understand the meaning of algorithmic justice, some understanding of how algorithms may be used in the justice sector is important. As Zeleznikow has noted, rules-based (prescriptive) reasoning is the application of a pre-defined set of rules (or patterns) to an algorithm.[15] Case-based reasoning requires an analysis of previous experiences to ascertain the solution to a new problem.[16] Machine learning involves algorithms that learn through experience/data collection, which in turn enables it to quickly and more accurately predict results.[17] To date, it is in the first category (rules-based reasoning) that many developments in the court sector have emerged, which are often focused on case management. The case-based reasoning that informs the development of some algorithms is often not utilized and machine-learning approaches, although developing quickly outside courts (for example in the travel, medical and other areas), are often not used by judges and courts. Others (for example litigants and lawyers) may use such approaches when involved in a court matter and such approaches can be supported and extended in the 'justice app' area (see discussion below).[18]

In considering the future use of machine learning, it is important to note that such processes are influenced by the data that is used to inform the underlying

---

[14] See, for example: Rebecca Heilweil, 'Why Algorithms Can Be Racist and Sexist', *Vox: Recode* (Blog Post, 18 February 2020) <https://www.vox.com/recode/2020/2/18/21121286/algorithms-bias-discrimination-facial-recognition-transparency> accessed 13 August 2020.

[15] John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency in Courts' (2017) 8(2) *International Journal for Court Administration* 30, 36; Abhishek Mishra, *Machine Learning in the AWS Cloud: Add Intelligence to Applications with Amazon SageMaker and Amazon Rekognition* (John Wiley & Sons, 2019) 4.

[16] John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency in Courts' (2017) 8(2) *International Journal for Court Administration* 30, 36.

[17] Harsha Vishnukumar, Bjorn Butting, Christian Muller and Ing Eric Sax, 'Machine Learning and Deep Neural Network – Artificial Intelligence Core for Lab and Real-World Test and Validation for ADAS and Autonomous Vehicles' (Conference Paper, Intelligent Systems Conference, 7–8 September 2017) 715; Abhishek Mishra, *Machine Learning in the AWS Cloud: Add Intelligence to Applications with Amazon SageMaker and Amazon Rekognition* (John Wiley & Sons, 2019) 3; John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency in Courts' (2017) 8(2) *International Journal for Court Administration* 30, 36.

[18] Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

algorithm. For example, if predictive systems only used data from decided civil cases, significant issues could arise regarding the accuracy of such predictions. This is partly because such data may be aberrant – that is, where civil cases progress to a full hearing before a judge, there may be many features that render the dispute not a 'normal' or 'typical' dispute (see Chapter 8).[19] Thus algorithmic injustice or bias can result simply because a machine-learning approach uses a narrow data range which does not incorporate normal realistic situations or outcomes. It is therefore clear that data sources need to be determined in a comprehensive manner. In a civil court environment, for example, this could include data about outcomes that are reached as a result of negotiation or withdrawal of a claim. In addition, data relating to matters that are resolved by alternative dispute resolution (ADR) or other process could also be included.

One concern about how developments will progress is linked to the issue of who has access to data where cases have been determined by judges. In some jurisdictions there is a lack of clarity about this and, in the USA, there have been arguments that relate to which corporations may control such data. Such an approach is more likely in countries where information about court decisions is not available on public or open databases. Indeed, issues relating to the ownership and copyright of court-decision data have already led to lawsuits in the USA.[20] Other data issues have been raised by judges themselves. For example, in 2019, judges in France who were concerned about the use of data analytics to explore court decisions lobbied successfully to introduce a law that intended to prevent anyone from analysing data that may be used to evaluate judicial decisions and behaviours (see also Chapter 10).[21] In this regard, judges in France may have been concerned that algorithmic *injustice* could arise from

---

[19]   Naomi Burstyner, Tania Sourdin, Chinthaka Liyanage, Bahadorreza Ofoghi and John Zeleznikow, 'Using Technology to Discover More About the Justice System' (2018) 44 *Rutgers Computer and Technology Law Journal* 1.

[20]   Bob Ambrogi, 'ROSS Comes Out Swinging, Vows to Fight Thomson Reuters' Lawsuit Alleging Data Theft', *LawSites* (Blog Post, 7 May 2020) <https://www .lawsitesblog.com/2020/05/ross-comes-out-swinging-vows-to-fight-thomson-reuters -lawsuit-alleging-data-theft.html> accessed 13 August 2020.

[21]   In 2019, the French Government enacted new legislation preventing the publication of statistical information about judges' behaviour in relation to court decisions. While the legislation is aimed at anyone who seeks to publish such information, it is noted that legal tech companies focused on litigation prediction and analytics are 'most likely to suffer'. In particular, the legislation provides that: 'the identity data of magistrates and members of the judiciary cannot be reused with the purpose or effect of evaluating, analysing, comparing or predicting their actual or alleged professional practices': see 'France Bans Judge Analytics, 5 Years in Prison for Rule Breakers', *Artificial Lawyer* (Blog Post, 4 June 2019) <https://www.artificiallawyer.com/2019/ 06/04/france-bans-judge-analytics-5-years-in-prison-for-rule-breakers/#:~:text=In

access to AI systems that were predictive and that might enable or encourage forum shopping. On the other hand, such moves could be regarded in terms of digital exclusion, which could raise algorithmic *justice* issues as well as digital divide issues (digital divide issues are explored in more detail in Chapter 6).

At present, most courts and litigants do not have the capacity to introduce more sophisticated machine learning systems that can inform court and judicial operations as there may only be a limited available data range (which might only include written judicial decisions).[22] Other court records are often not digitized and are also often incomplete in the sense that they may include little demographic information, particularly in relation to civil disputes, and there may be only limited access to any evidentiary material. Even where court records are digitized, there are many issues about whether a court record contains sufficient information to inform a comprehensive (rather than limited and potentially inaccurate) machine reading approach. The shift towards online courts is, however, making it more likely that machine learning approaches could be accommodated in the future. This, in turn, makes it more likely that concerns about algorithmic justice will become more relevant in respect of supportive Judge AI and Judge AI developments (see Chapters 5 and 8).

However, in Chapter 2 it was noted that the judicial role and function are not limited to decision making. The complex range of judicial functions must also be considered in terms of the potential impact of algorithmic justice. For example, whilst algorithmic advances may assist judges in regard to case management, there has been little exploration about how this may occur (see the discussion in Chapter 4).[23] More developed machine-learning approaches could assist in this task. It may also be the case that more developed bots informed by expert algorithmic systems could be used to encourage 'outward facing' case management. However, it is noted that such approaches that might remove human judges from case management functions may result in the 'responsive' judge activities discussed in Chapter 2 not taking place and algorithmic injustice may occur if the quality of justice is substantially reduced. Notably, the increasing use of AI to perform complex functions may include future developments in affective processing that could support more

---

%20a%20startling%20intervention%20that,who%20breaks%20the%20new%20law> accessed 13 August 2020.

[22] The author notes that court records may be sufficient to enable AI systems to operate, see: John Campbell, 'Ex Machina: Technological Disruption and the Future of Artificial Intelligence in Legal Writing' (Working Paper No 20-04, University of Denver Sturm College of Law, 25 February 2020).

[23] See Frederic Lederer, 'Here There Be Dragons: The Likely Interaction of Judges with the Artificial Intelligence Ecosystem' (2020) 59(1) *The Judge's Journal* 12.

responsive Judge AI (at least in a case management setting). However, such shifts may still lead to injustice (see also Chapter 5).

In terms of adjudicative functions, as noted, there are already some examples of AI informing human decision making in the justice sector. In the USA and other jurisdictions[24] AI is already changing judicial decision making,[25] and, in the legal sector, there are numerous predictive analytics developments that enable forecasts to be made regarding the outcome of litigation.[26] The impacts of these technologies are currently emerging in some civil dispute areas and are expected to have more significant future impacts, especially in the criminal law area.[27]

It is also likely that Judge AI will be extended to some categories of dispute in the future,[28] although the design and development of such systems will

---

[24] For example, in Mexico, the Expertius system is advising judges and clerks 'upon the determination of whether the plaintiff is or is not eligible for granting him/her a pension': see Davide Carneiro, Paulo Novais, Franciso Andrade, John Zeleznikow and Jose Neves, 'Online Dispute Resolution: An Artificial Intelligence Perspective' (2014) 41 *Artificial Intelligence Review* 211, 227–228.

[25] See Tim Wu, 'Will Artificial Intelligence Eat the Law? The Rise of Hybrid Social-Ordering Systems' (2019) 119 *Columbia Law Review* 2001, 2023.

[26] Cromwell Schubarth, 'Y Combinator Startup Uses Big Data to Invest in Civil Lawsuits', *Silicon Valley Business Journal* (Blog Post, 25 August 2016) <http://www.bizjournals.com/sanjose/blog/techflash/2016/08/y-combinator-startup-uses-big-data-to-invest-in.html> accessed 13 August 2020; 'California Legal AI Co. Gavelytics Aims to Be Case Prediction Local Hero', *Artificial Lawyer* (Blog Post, 14 November 2017) <https://www.artificiallawyer.com/2017/11/14/california-legal-ai-co-gavelytics-aims-to-be-case-prediction-local-hero/> accessed 13 August 2020; Deal Alderucci and Kevin Ashley, 'Using AI to Analyze Patent Claim Indefiniteness' (2020) 9(1) *IP Theory* 1. For an example of the tools that exist in this regard, see: 'CARA A.I., *Casetext* (Web Page, 2020) <https://casetext.com/cara-ai/> accessed 7 September 2020; 'Lex Machina', *LexMachina: A LexisNexis Company* (Web Page) <https://lexmachina.com/legal-analytics/> accessed 7 September 2020; 'Ross Intelligence', *ROSS* (Web Page) <https://www.rossintelligence.com/> accessed 7 September 2020; 'Ravel Law', *RAVEL: A LexisNexis Company* (Web Page) <https://home.ravellaw.com/> accessed 7 September 2020.

[27] David Harvey, 'From Susskind to Briggs: Online Court Approaches' (2016) 5 *Journal of Civil Litigation and Practice* 84, 93.

[28] See the approach undertaken in the United Kingdom: Ministry of Justice (UK), *Transforming Our Justice System: Assisted Digital Strategy, Automatic Online Conviction and Statutory Standard Penalty, and Panel Composition in Tribunals* (Cm 9391, 2017). The automatic online conviction process that was proposed in the UK has had some detractors, and legislation that would enable the creation of the automatic online conviction process and the development of the online court has stalled: see John Hyde, 'Prison and Courts Bill Scrapped', *The Law Society Gazette* (Online, 20 April 2017) <https://www.lawgazette.co.uk/news/breaking-prisons-and-courts-bill-scrapped/5060715.article> accessed 13 August 2020. See also Prisons and Courts

require additional safeguards to ensure that issues linked to algorithmic bias do not arise (see Chapter 9). There are many other issues that have been raised in this context. For example, apart from the primitive nature of many simpler (non-machine learning) algorithmic approaches, it has been suggested that the lack of human cognition raises special concerns about the use of machine learning in the administrative decision-making area:

> Fundamental public law doctrines assume that legal powers will be exercised by a particular kind of decision-making agent: one with sufficient cognitive capacities to understand the interpretative complexity of legal instruments and respond to highly dynamic environments.[29]

The quote above suggests that decision making and, by extension, judicial adjudication is an 'art' and cannot be simply reduced to a numeric, scientific equation.[30] This is partly because of the complexities evident in the legal area as well as the difficulties in mimicking judicial behaviour,[31] and also because there is said to be something distinctively human about judicial adjudication which even more sophisticated systems of Judge AI may not be able to replicate and that algorithmic *injustice* could result from such an attempt (see the more specific discussion relating to Judge AI in Chapter 5).

A related issue is linked to the application of AI to a particular situation. In order for this to occur, not only must the data used to inform the machine-learning approach be adequate, but the fact situation that it is applied to must be 'machine readable', that is in a form that can be understood and can be 'coded'. Whilst in the longer term, how material is presented to a form of Judge AI may be aided by voice-to-text conversion, enhanced chat and voice bots and 'justice apps' that assist litigants to present their 'case', at present, it seems to be assumed that an 'on the papers' approach (rather than an oral hearing) would be adopted. This is discussed further below as this assumption may lead to bias against some members of a society.

HC Bill (2016–17) [170] (UK) and relevant debate in the House of Commons: United Kingdom, *Parliamentary Debates*, House of Commons, 20 March 2017, vol 623, col 656.

[29] Will Bateman, 'Algorithmic Decision-Making and Legality: Public Law Dimensions' (2020) 94 *Australian Law Journal* 520.

[30] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87.

[31] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114.

ISSUES OF ALGORITHMIC BIAS

At the simplest level, 'algorithmic bias' refers to situations where one group or individual is unfairly favoured or discriminated against.[32] While it has been referred to most frequently in the criminal justice setting, issues of algorithmic bias can also arise in administrative, civil, commercial and family law settings. As noted in Chapter 2, such issues need to be considered in the context of judicial bias as well as the additional factors that can impact on judicial decision making and the reality that humans can also be biased. However, it should be also noted that there are concerns that are unique to the concept of algorithmic bias. Such concerns can include overarching issues linked to the separation of the judiciary and executive. For example, where the government plays a more substantive role in setting up AI systems that replace judges, it could be suggested that there is a bias towards the government (see Chapter 7). These issues can be linked to concerns relating to the transparency or opacity of algorithmic decision making (see Chapter 8). It is also notable that 'algorithmic bias' is a term that can be used to refer to a bias *against* algorithms. This is discussed at the end of this chapter.

Some authors[33] have highlighted the way in which often simplistic algorithms can replicate and/or exacerbate societal biases as a result of the data they are 'fed with'.[34] In contrast, Završnik has considered algorithmic justice in the context of criminal law proceedings, observing that human decision making is often flawed due to stereotypical arguments and prohibited criteria creeping into judgments.[35] It is noted that algorithms too can be 'fed' with data that is not 'clean' of 'social, cultural and economic circumstances'.[36] Crootof

---

[32]   Lisa Toohey, Monique Moore, Katelane Dart and Dan Toohey 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 148.

[33]   See, for example: Will Bateman, 'Algorithmic Decision-Making and Legality: Public Law Dimensions' (2020) 94 *Australian Law Journal* 520; Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147.

[34]   Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1833.

[35]   Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 11.

[36]   Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 11.

has similarly noted that AI 'incorporates human bias and adds other kinds'.[37] Specifically, Crootof argues that AI systems can produce biased results due to:

> (1) preexisting bias, which is present in the training data sets and encoded in the system design; (2) technical bias, which emerges from a system's limitations, such as loss of context and simplified formulations that accompany attempts to translate reality into code; and (3) emergent bias, which arises from user interaction with specific populations.[38]

There are also questions as to the accuracy and therefore usefulness of algorithmic tools that are linked to issues relating to algorithmic bias. Arguably, such questions have been exacerbated by the mixed results of studies relating to the accuracy of algorithmic tools currently used in the criminal law area. For example, Dresel and Farid investigated *COMPAS*: the well-used United States bail risk assessment system that was the subject of court action in the United States. Dressel and Farid found that the system (which is used to predict recidivism) was as accurate as an online poll of 400 random people with no criminal or legal training. That is, *COMPAS* predicted recidivism rates with an accuracy rate of 65 per cent, as compared to a rate of 67 per cent for lay people.[39]

However, such findings may be contrasted with the results of a later study by Lin et al. The subsequent study found that the *COMPAS* algorithm could actually perform better than a human under some circumstances. In particular, the study found that it was relevant whether or not feedback was given about whether the person had reoffended.[40] In replicating the study above, Lin et al. removed the feedback about whether the person had in fact reoffended as 'in real life, it can take months or even years before criminal justice professionals discover which people have reoffended'.[41] Where the feedback was retained, results were similar to those in the original Dresel and Farid study.[42] However,

---

[37] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 240.

[38] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 240.

[39] Julia Dressel and Hany Farid, 'The Accuracy, Fairness, and Limits of Predicting Recidivism' (2018) 4 *Science Advances* 1.

[40] Zhiyuan Lin, Jongbin Jung, Sharad Goel and Jennifer Skeem, 'The Limits of Human Predictions of Recidivism' (2020) 6 *Science Advances* 1.

[41] Zhiyuan Lin, Jongbin Jung, Sharad Goel and Jennifer Skeem, 'The Limits of Human Predictions of Recidivism' (2020) 6 *Science Advances* 1.

[42] Zhiyuan Lin, Jongbin Jung, Sharad Goel and Jennifer Skeem, 'In the US Criminal Justice System, Algorithms Help Officials Make Better Decisions, Our Research Finds', *Washington Post* (Online, 2 March 2020) <https://www.washingtonpost.com/politics/2020/03/02/us-criminal-justice-system-algorithms-do-help-officials-make-better-decisions-our-research-finds/> accessed 13 August 2020.

after removal of the feedback, it was found that the gap in accuracy significantly favoured the algorithm.

Other researchers have also suggested that criticisms relating to algorithmic bias are overstated and depend very much on the design of algorithms themselves. In particular, some have suggested that well-designed algorithms 'can mitigate pernicious problems with unaided human decisions'.[43] Clearly, the design and development of mechanisms to prevent algorithmic bias can be important, and the extent to which humans are involved in a review of algorithmic decisions by either using 'sampler' or more extensive supervision is relevant in terms of reducing algorithmic bias, as are questions relating to the original algorithmic design (see also Chapter 9 relating to ethical guidelines).

In this regard, Coglianese and Lehr suggest that algorithmic approaches can be useful in a judicial decision-making setting, provided that attention is paid to: due process considerations; evaluation of algorithms (including error rate testing and the extent to which those error rates are acceptable); and the right to retain cross-examination of adjudicative algorithms (often referred to as 'explainability' in the European context – see also Chapter 9).[44] This clearer framework might also include aspects of design and supervision, as noted above. However, to reduce bias, it is again emphasized that those involved in the design need to include a range of interest groups – not just lawyers and judges (see Chapter 10).

In the United Kingdom, the Law Society of England and Wales has established the Technology and the Law Policy Commission to examine the use of algorithms in the criminal justice system. The Commission has reported on a lack of explicit standards, best practice, and openness or transparency about the use of algorithmic systems.[45] In particular, they note that such systems 'encode assumptions and systematic patterns which can result in discriminatory outputs or downstream effects'.[46] In addition, they have stated that 'data used as input to systems is labelled, measured and classified and is therefore somewhat subjective and can be a source of bias'.[47]

---

[43]   Sam Corbett-Davies, Sharad Goel and Sandra Gonzålez-Bailón, 'Even Imperfect Algorithms Can Improve the Criminal Justice System', *New York Times* (Online, 20 December 2017) <https://www.nytimes.com/2017/12/20/upshot/algorithms-bail -criminal-justice-system.html> accessed 13 August 2020.

[44]   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147.

[45]   Law Society of England and Wales, *Algorithms in the Criminal Justice System* (Report, June 2019) 4.

[46]   Law Society of England and Wales, *Algorithms in the Criminal Justice System* (Report, June 2019) 18.

[47]   Law Society of England and Wales, *Algorithms in the Criminal Justice System* (Report, June 2019) 18.

However, it must also be said that algorithms have the capacity to expose bias. Better quality data that include reference to a range of factors and demographics can show, for example, who is not using the court system and also indicate where services are inadequate or require improvement. On a more individual basis, algorithms can highlight where judges may make decisions that are 'biased'. As noted in Chapter 2, this may also result in the somewhat controversial 'nudging' or 'correcting' of judges in jurisdictions such as China.[48]

In addition, algorithm use can be linked to significant issues relating to social surveillance and the types of data that may be used by judges and others when making decisions. The use of social credit data in China, for example, has been the subject of some commentary.[49] The social credit system introduced in China in 2019–2020 rates citizens according to a range of variables and has been described as a 'data driven rating system'.[50] The ways in which such systems can be relied upon by judges and courts reveal the significantly different approaches that judges and courts may have when deciding cases. For example, in jurisdictions such as China, a social credit score may be a relevant matter to consider before court processes commence, once they commence, and in determining outcomes.

It seems likely that social credit systems which involve the development of ratings and rankings for individuals will play a more significant role in the future and can demonstrate some issues that are discussed above (about who owns data, what data is used in creating an algorithm, and who or what entity creates the algorithm). Additionally, such systems can be relevant not only to issues relating to opacity but also to questions about the use of materials produced by algorithms by courts and judges. In this regard, Backer notes that the Chinese social credit system is founded on the following:

> Social credit initiatives focus on its application for governance through the development of a national reputation system, assigning a social credit number that reflect [sic] a qualitative judgment of relevant data gathered about the subject. Reputation here is understood in its economic, political and social dimensions – all managed through standards developed and overseen by the Party-State. Reputation, itself,

---

[48] Also see the discussion below relating to China's social credit system.

[49] Yongxi Chen and Anne Cheung, 'The Transparent Self Under Big Data Profiling: Privacy and Chinese Legislation on the Social Credit System' (2017) 12(2) *The Journal of Comparative Law* 356; Zin Dai, 'Enforcing Law and Norms for Good Citizens: One View of China's Social Credit System Project' (2020) 63 *Development* 38.

[50] Larry Backer, 'And an Algorithm to Entangle them All? Social Credit, Data Driven Governance, and Legal Entanglement in Post-Law Legal Orders' (Research Paper No 05, Penn State Law, 1 January 2020) 14.

embraces notions of sincerity, and of integrity and compliance, in accordance with the standards and objectives overseen by the state. Four areas are identified: 'sincerity in government affairs' (政务诚信), 'commercial sincerity' (务诚信), 'societal sincerity' (社会诚信), and 'judicial credibility' (司法公信).[51]

The inclusion of the judicial credibility component means that not only may judges and courts in such jurisdictions rely on these algorithms, but they may also be responsible for the curation of data and the formulation of (to a limited extent) the ranking itself.

Such systems also raise issues in relation to digital oppression and authoritarianism,[52] as well as concerns relating to ethnic bias.[53] The social credit system is also inextricably linked with the legal system, the court system and judges. As Backer has noted: 'law would become a framework within which a new method of social regulation could be developed ("in accordance with law")'.[54] In this regard, and in the context of algorithmic bias, it must be noted that such systems are not 'value' free. Indeed, they represent the inclusion of a clear value system and also enable discretion to operate in terms of how citizens are treated if values are not adopted. In this regard, Backer has further noted:

> Social credit thus involves data-driven analytics systems in which algorithms can determine the consequences of values-based ratings. For example, failure to pay a minimum amount of debt on time will immediately trigger the insertion of the debtor's name on a blacklist that produces consequences: interest rate hikes, travel prohibitions, and the like. Depending on the technology available, the possibilities for data-driven analytics with consequences are as broad as the imaginations of those producing the ratings.[55]

In many other countries, credit and social risk algorithms have been used for some years by private corporations.[56] However, the translation of those algorithms into the public and justice sectors has either not occurred or has not been

---

[51]   Larry Backer, 'And an Algorithm to Entangle Them All? Social Credit, Data Driven Governance, and Legal Entanglement in Post-Law Legal Orders' (Research Paper No 05, Penn State Law, 1 January 2020) 8.

[52]   Fu Hualing, Michael Palmer and Zhang Xianchu, 'Introduction: Selectively Seeking Transparency in China' (2018) 12(2) *The Journal of Comparative Law* 203.

[53]   James Leibold, 'Surveillance in China's Xinjiang Region: Ethnic Sorting, Coercion, and Inducement' (2020) 29(121) *Journal of Contemporary China* 46.

[54]   Larry Cata Backer, 'China's Social Credit System: Data-Driven Governance for a "New Era"' (2019) 118(809) *Current History* 209, 210.

[55]   Larry Cata Backer, 'China's Social Credit System: Data-Driven Governance for a "New Era"' (2019) 118(809) *Current History* 209, 211.

[56]   See for example algorithms used to determine tenancy arrangements: Lauren Kirchner, 'Can Algorithms Violate Fair Housing Laws?' (The Mark Up, 24 September

as visible. In the COVID-19 era it is possible that more social risk indicators will be used by public organizations and could conceivably be used by courts in terms of considering such indicators in the context of evidence when making decisions. For example, some social risk systems (reliant on underlying algorithms) have been extended partly through tracking and life logging apps,[57] as well as through the development of personal risk scores.[58] Indeed some courts have grappled with how and to what extent such data can be used in evidence in court cases.[59]

The role of judges and courts in considering such algorithms may be more extensive when they are related to state control. For example, courts (and, by extension, judges) may have responsibility for the integrity of such systems that will require judges and others to have developed understandings about both algorithmic bias, as well as some framework within which decisions can be made about how data can and should be used by courts and others. As Backer has noted, this approach will vary according to governance arrangements and, in non-liberal democracies, such developments must be understood in the context of views about social order:

> The objective of social credit is to track and grade everyone's actions. Such a system raises the question: What role remains for traditional law in a context in which all

---

2020) available at <https://themarkup.org/locked-out/2020/09/24/fair-housing-laws-algorithms-tenant-screenings> accessed 25 September 2020.

[57] 'The Government Covid-19 Contact Tracing Smartphone App', *Digital Rights Watch* (Blog Post 24 April 2020) <https://digitalrightswatch.org.au/2020/04/24/covid-19-trace-app/> accessed 13 August 2020; Zak Doffman, 'Coronavirus Phone Tracking Now Impacts Us All – And This Is Just the Start', *Forbes* (Online, 5 April 2020) <https://www.forbes.com/sites/zakdoffman/2020/04/05/coronavirus-phone-tracking-now-impacts-all-of-us-what-happens-next-is-critical/#621c28de333a> accessed 13 August 2020.

[58] For example, as a response to the pandemic the Chinese government began to track and trace citizens through software that analyses their personal data to 'sort individuals into colour-coded categories – red, yellow or green – corresponding to their health status and level of risk for COVID-19': Ali Dukakis, 'China Rolls Out Software Surveillance for the COVID-19 Pandemic, Alarming Human Rights Advocates', *ABC News* (Online, 14 April 2020) <https://abcnews.go.com/International/china-rolls-software-surveillance-covid-19-pandemic-alarming/story?id=70131355> accessed 13 August 2020.

[59] Jason Tashea, 'As Machines Play a Greater Role in Criminal Justice, Third Party Auditing and Oversight is Essential', *ABA Journal* (Blog Post, 22 October 2019) <https://www.abajournal.com/lawscribbler/article/scalable-tech-will-increase-mass-conviction-review-but-it-doesnt-have-to> accessed 13 August 2020.

actions produce near real-time consequences? It also suggests a different role for law – as a means by which the system's own integrity is monitored.[60]

There are other issues that arise where systems are not state controlled but privately controlled. At present, for example, AI systems designed by IBM Watson are already being used to make decisions about insurance claims.[61] Such developments in AI could raise issues in relation to justice and bias partly because much AI innovation is being led by corporate research and development processes.[62] In addition, developments in this sector may have little regard to societal good[63] or the deeper implications of AI innovation (see also Chapters 8 and 9). At this broad level, issues of bias could arise as the systems that are used are not oriented towards sustaining a justice system but may be more focused on case 'throughput' or some other measure (see Chapter 6 in relation to justice objectives).

ALGORITHMIC BIAS V HUMAN BIAS

The potential for algorithmic bias can be considered from the perspective of the impact on the judicial role (through supportive Judge AI or Judge AI), as well as the material that judges may be required to consider. Yet this potential for algorithmic bias needs to be weighed against the risk of bias and other flaws in human decision making. In the discussion below, there is a more specific focus on bias in the context of the judicial role and how supportive or Judge AI might, on the one hand, lead to algorithmic bias and on the other, reduce human bias.

Sage, Wright and Morris have noted that the different styles of individual judges can lead to the 'idiosyncratic treatment of cases'.[64] Butler has similarly

---

[60] Larry Cata Backer, 'China's Social Credit System: Data-Driven Governance for a "New Era"' (2019) 118(809) *Current History* 209, 213.

[61] IBM Watson, 'How Does IBM Watson Work?' (YouTube, 12 November 2018) <https://www.youtube.com/watch?v=r7E1TJ1HtM0> accessed 13 August 2020.

[62] Cary Coglianese and Lavi Ben Dor, 'AI in Adjudication and Administration: A Status Report on Governmental Use of Algorithmic Tools in the United States' (Research Paper No 19-41, University of Pennsylvania Law School, Public Law and Legal Theory, 2019) 19–41; Jordan Rodu and Michael Baiocchi, 'When Black Box Algorithms Are (Not) Appropriate' (2020) <https://arxiv.org/pdf/2001.07648.pdf > accessed 25 September 2020.

[63] See generally: Corinne Cath, Sandra Watcher, Brent Mittelstadt, Mriarosaria Taddeo and Luciano Floridi, 'Artificial Intelligence and the "Good Society": The US, EU, and UK Approach' (2017) 24 *Science Engineering and Ethics* 505.

[64] Caroline Sage, Ted Wright and Caroline Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, Law and Justice Foundation of New South Wales, June 2002) 23.

observed that judging is 'a very human endeavour, reflecting all the variation in experience, perspective, humanity, common sense, and understanding of the law of the judges themselves'.[65] Crootof has summarized these concerns:

> Certainly, there is much to critique about the justice of human judges. They are famously inconsistent, both as a group and as individuals. Not only will decisions vary from judge to judge, any one judge's sensitivity to context and penchant for leniency may vary dramatically with whether they are hungry, tired, bored, over-worked, overwhelmed, or otherwise distracted.[66]

The author has also noted that the neurobiology of the decision maker affects the decision-making process, and that there are key differences in the way decision makers 'sort, store, omit, rank and at times distort information'.[67] In a United States case which concerned the alleged bias of a judicial officer, Judge Jerome Frank said:

> Every judge … unavoidably has many idiosyncratic "leanings of the mind," uniquely personal prejudices, which may interfere with his fairness at trial. He may be stimulated by unconscious sympathies for, or antipathies to, some of the witnesses, lawyers or parties in a case before him.[68]

In Chapter 2, the range of impacts on human decision makers in terms of bias were discussed.[69] While it is clear that judges can be biased in their decision making, many judges will receive training that is focused on putting instinctive biases aside.[70] Bias may also not necessarily result in negative outcomes. According to Damasio, without an element of 'bias' (instinctive/gut reaction), people would not be able to make any decisions at all.[71] To reduce or eliminate bias in decision making, it must be acknowledged that there are various stages

---

[65] Petra Butler, 'The Assignment of Cases to Judges' (2003) 1 *New Zealand Journal of Public and International Law* 83, 83.

[66] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 236.

[67] Tania Sourdin, 'Decision Making in ADR: Science, Sense and Sensibility' (2012) 31(1) *Arbitrator Mediator* 1.

[68] *In Re JP Linaham*, 138 F2d 650, 652 (2d Cir 1943).

[69] See also: Tania Sourdin, *Alternative Dispute Resolution* (6th ed, Thomson Reuters, 2020) ch 6.

[70] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87.

[71] Hayley Bennett and Tony Broe, 'Judicial Neurobiology, Markarian Synthesis and Emotion: How Can the Human Brain Make Sentencing Decisions?' (2007) 31(2) *Criminal Law Journal* 75, 84–86 citing Antonio Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (Quill, New York, 1984).

in judicial decision making. These can range from information collection, sorting and analysing, to the making of the decision itself (see Chapter 5). In the information gathering stage, Feigenson and Park suggest a four-step process to reduce bias:[72]

1.   Be aware of the unwanted influence.
2.   Be motivated to correct the bias.
3.   Be aware of the magnitude and direction of the bias.
4.   Be able to adjust the response accordingly.

It is also suggested that simply being aware of a person's accountability for a decision 'will attenuate the effect of incidental emotional influence on decision-making'.[73] In most judicial decision making there may be additional factors that impact upon the selection and sorting of information. For example, the rules in relation to natural justice may impact on the way in which material can be presented to a decision maker and also on the nature and communication of decisions themselves.[74] Issues about neutrality and bias are also relevant to the analysis stage and the decision maker must be aware of tactics and factors that might limit or impact on their understanding of the issues (see Chapter 5).[75]

Most courts have extensive procedural rules and requirements that judges must adhere to in order to ensure that bias concerns do not impact on the decision that may ultimately be made. For example, in Australia, in court proceedings, judicial comments made before or during the trial about the demeanour and credibility of witnesses can often raise an inference of bias,[76] as will excessive intervention in the parties' conduct of the litigation.[77] However, this must

---

[72]   Neal Feigenson and Jaihyun Park, 'Emotions and Attributions of Legal Responsibility' (2006) 30 *Law and Human Behaviour* 143, cited in Hayley Bennett and Tony Broe, 'Judicial Neurobiology, Markarian Synthesis and Emotion: How Can the Human Brain Make Sentencing Decisions?' (2007) 31(2) *Criminal Law Journal* 75, 89.

[73]   Hayley Bennett and Tony Broe, 'Judicial Neurobiology, Markarian Synthesis and Emotion: How Can the Human Brain Make Sentencing Decisions?' (2007) 31(2) *Criminal Law Journal* 75, 89.

[74]   Tania Sourdin and Archie Zariski, 'What is Responsive Judging?' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge* (Springer, 2018) 1, 7.

[75]   Such tactics could include 'stealing sunshine' or 'stealing thunder'; that is, disclosing information that is advantageous to one's opponent, before it is elicited by the opponent themselves, can mitigate its impact upon decision makers: Ronen Perry and Dana Weimann-Saks, 'Stealing Sunshine' (2011) 73 *Law and Contemporary Problems* 33.

[76]   *R v Watson; Ex parte Armstrong* (1976) 136 CLR 248.

[77]   *Jones v National Coal Board* [1957] 2 QB 55; *Tousek v Bernat* (1959) SR (NSW) 203. See also: Andrew Rogers, 'The Managerial or Interventionist Judge' (1993) 3 *Journal of Judicial Administration* 96.

be weighed against precedent that supports some levels of 'appropriate' judicial intervention. For example, the High Court of Australia has made it clear that the bias rule should not prevent appropriate levels of intervention from occurring.[78] It has also been said that contemporary civil litigation requires greater judicial intervention and that this should not be seen as opening judges to accusations of bias.[79]

There are also issues about how judges engage in courtroom proceedings. For example, although 'brusqueness' or a terse manner may not constitute bias, there may be more extreme situations where rude and inappropriate behaviour may. Notably, Ashley JA, former Justice of the Supreme Court of Victoria, in Australia stated in *Young v Nixon*:[80]

> … in all the circumstances, I would have thought a brusqueness was warranted, but I do not think brusqueness has ever been said to be something which would be sufficient to demonstrate bias in any event, or a reasonable apprehension of the same.

Where supportive Judge AI is used (see Chapter 5) it is possible that if not well managed, a discussion about 'predicted' outcomes may open up a potential accusation of bias if the tone and context of the discussion is inappropriate. As algorithmic approaches could enable a judge to express a tentative view about the potential outcome of litigation that is based on an AI support tool, this might also be problematic and require reform measures to be taken. That is, although there have been some shifts in thinking relating to the formulation of 'tentative views' by a judge and whether this could constitute bias on the part of a decision maker, the situation remains fairly unclear and it is possible that an outcome developed by an algorithm, or used by a judge to suggest what an outcome might be, may be problematic.[81] In Australia, the High Court has noted that:

> Sometimes judicial interventions and observations can exceed what is a proper and reasonable expression of tentative views. Whether that has happened is a matter

---

78 *Vakauta v Kelly* (1989) 167 CLR 568, 571.
79 *Galea v Galea* (1990) 19 NSWLR 263, 281–282.
80 *Young v Nixon* [2008] VSCA 5, [10].
81 In Australia, a strong expression of a tentative opinion may not be enough to establish 'a reasonable apprehension of bias by way of prejudgment': *Minister for Immigration and Multicultural Affairs v Jia* (2001) 205 CLR 507. In addition, logic and necessity require a distinction to be made between a situation where the judge has preconceived views about the reliability of an expert medical witness, and the case where a judge has preconceived views about the character or trustworthiness of a lay witness whose 'evidence is of significance on … a question of fact which constitutes a live and significant issue': *Livesey v New South Wales Bar Association* (1983) 151 CLR 288, 300. Further, a series of decisions by the High Court of Australia have established that

of judgment taking into account all of the circumstances of the case. However, one thing that is clear is that the expression of tentative views during the course of argument as to matters on which the parties are permitted to make full submissions does not manifest partiality or bias.[82]

In contrast to the complex procedural requirements that are historically linked to human judicial decision making and judicial processes, AI has arrived without any clear or developed procedures in terms of bias. As noted above, there is little information about what data might be gathered, how data validity or credibility issues can be weighed and resolved, and also to what extent 'tentative' judicial views could be expressed or how final decisions that draw upon that material in some way could be made the subject of appeal.

There are, however, many benefits recognized in the literature relating to decision making by AI. For example, Ćapeta has noted that, in contrast to human decision makers, AI does not have a 'self' and its decisions 'are not influenced by such mundane influences as whether they woke up with a headache or whether they watched a sad movie the previous evening'.[83] In light of such factors, Završnik suggests that algorithms may help prevent 'embarrassingly disproportionate and often arbitrary courtroom decisions'.[84]

As also discussed briefly in Chapter 2, some algorithms are already in place in Chinese courts and are used to either 'nudge' or 'correct' judges in their decision making. Currently, there is a dearth of research examining the use of such systems. However, it is clear that such platforms can play an important role in regulating judicial bias, perhaps at the expense of judicial discretion and activism. In addition, such platforms may be much more relevant in systems where judges are not as involved in assisting to support the evolution of legal concepts through the development of precedent. In China, the system has been described as follows:

> For example, the Supreme People's Court announced in May 2019 that it is developing data platforms to help judges handle intellectual property cases. Such a system eventually could be used to evaluate individual judges by comparing their decisions

---

'the test to be applied in Australia in determining whether a judge is disqualified by reason of the appearance of bias … is whether a fair minded lay observer might reasonably apprehend that the judge might not bring an impartial and unprejudiced mind to the resolution of the question the judge is required to decide': *Johnson v Johnson* (2000) 201 CLR 488, [11].

[82] *Concrete Pty Ltd v Parramatta Design and Developments Pty Ltd* (2006) 231 ALR 663, [112].

[83] Tamara Ćapeta, 'Of Judges and Robots' in Marko Ilešič (ed), *Challenges of Law in Life Reality* (University of Ljubljana, 2017) 129, 132.

[84] Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 11.

against the average. One need only input the relevant data (this is a land in which data analysts and coders, not lawyers and policy experts, rule) from cases grouped into data sets. Predictive analytics could be used to determine the 'average' or plausible range of decisions (self-corrected by AI systems as new cases are added). Judges whose decisions deviate from the predicted or average outcome, given the relevant key facts, would have to justify the deviation. Or judges could be rated to evaluate their performance. In effect, these are compliance systems already quite familiar to Western enterprises – but not yet to the state.[85]

The issues that arise in terms of AI and judging and the potential for algorithmic bias are numerous. They include issues relating to how information is gathered, sorted and prioritized, as well as issues relating to the analysis of that material and the transparency of algorithms (see also Chapter 5).[86] To some extent, these issues also arise in human decision making. However, in the judicial decision-making area there are often clear and well-developed procedural rules to address such issues. For Judge AI to develop it is necessary for these matters to be considered and for a logical framework with oversight mechanisms to be developed (see Chapter 9). It seems likely, however, that some type of hybrid system will operate and extend so that judicial decision making is supported by AI in terms of the formulation of tentative views or, the establishment of some 'corrective' mechanism (see Chapters 5 and 9).

Apart from the matters noted above, and despite the wide range of factors which can influence human decision makers, decisions made by human judges currently may enjoy a higher perception of legitimacy than those made by algorithmic decision makers. One empirical study found that the more involved AI is in a legal decision, the lower its perceived legitimacy.[87] This is significant because it means that, at present, a decision by a human decision maker may be more likely to enjoy a higher compliance rate (see however the discussion in Chapter 4),[88] and perhaps will be perceived as more 'just'.

---

[85]   Larry Cata Backer, 'China's Social Credit System: Data-Driven Governance for a "New Era"' (2019) 118(809) *Current History* 209, 211.

[86]   See generally: Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147.

[87]   Kirsten Martin and Ari Ezra Waldman, 'Privacy and the Legitimacy of Automated Decision-Making' (unpublished manuscript) 23, cited in Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 235.

[88]   Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 238–239.

ADMINISTRATIVE DECISION MAKING

Some authors consider that algorithmic approaches have significant potential in the administrative area and approach developments in this realm with some optimism. In this regard, Coglianese and Lehr have noted the way in which machine-learning algorithms have transformed almost every aspect of society:

> Algorithms are not new. For decades, they have served as integral components of every computer program. But today, advanced machine-learning algorithms are creating a vastly automated society, transforming many facets of life. Many products and services, including email spam filters, medical diagnoses, product marketing, and self-driving cars, now depend on machine-learning algorithms and their ability to deliver astonishing forecasting power and speed. Today's algorithms are digital 'robots' that possess effectively autonomous abilities to adapt and learn.[89]

Notably, the authors go on to explain how such developments can be of especial benefit to the administrative area:

> Many aspects of public administration could undoubtedly benefit from the application of machine-learning algorithms, both today and in years to come. The vast work of administrative agencies, with their many routine regulatory responsibilities and adjudicatory processes, would seem ripe to benefit from such automation.[90]

However, while the administrative area is arguably 'ripe' for automation, concerns arise about the extent to which algorithmic justice via automation is possible or desirable in terms of administrative courts or tribunals that provide for a review or 'check' on administrative decision making. On the one hand, automated decision making in the administrative court or tribunal area could be possible because budgets may exist to facilitate this.[91] There is

---

[89] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1149, citing Thiago Guzella and Walmir Caminhas, 'A Review of Machine Learning Approaches to Spam Filtering' (2009) 36(7) *Expert Systems with Applications* 10206; Nicholson Price, 'Black-Box Medicine' (2015) 28 *Harvard Journal of Law and Technology* 419, 432–434; Alexis Madrigal, 'The Trick that Makes Google's Self-Driving Cars Work', *The Atlantic* (Blog Post, 15 May 2014) <https://www.theatlantic.com/technology/archive/2014/05/all-the-world-a-track-the-trick-that-makes-googles-self-driving-cars-work/370871/> accessed 13 August 2020.

[90] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1152.

[91] For example, James Allsop, Chief Justice of the Federal Court of Australia, has noted that it is easier for self-administering courts, which have greater control over the allocation of their budget, to implement technological change: James Allsop,

also evidence that in some jurisdictions, government services are increasingly accessed through digital means. This perhaps suggests that people would prefer that a review of government decision making also take place via digital mechanisms.[92]

Also, the author together with Cornes has predicted that AI will play a more prominent role in administrative decision making before being used more broadly by administrative courts and tribunals.[93] Indeed, administrative decision making has already been automated to a larger extent than other areas. Zalnieriute et al. have identified a number of examples of automated decision making in the administrative law context. These include Sweden's automated student welfare system, China's social credit system, and Australia's controversial 'robodebt' scheme, the latter of which was intended to calculate and collect debts owed because of welfare overpayment.[94] Within Australia, new legislation has been proposed in the social security area that is intended to support automated decision making.[95]

However, despite an increase in the use of automated decision making in the administrative area, there are challenges as well as potential opportunities in relation to extensions to the administrative court and tribunal area that are summarized below.

Opportunities

In general, automation in administrative decision making, and by extension in administrative courts and tribunals, can have a number of important benefits.

'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 13.

[92]   In 2013, Australia's Department of Broadband, Communications and the Digital Economy estimated that by 2020, digital channels would be used by people in 80 per cent of transactions to access government services: Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 30, citing Department of Broadband, Communications and the Digital Economy, *Advancing Australia as a Digital Economy: An Update to the National Digital Economy Strategy* (Report, 2013) 46.

[93]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 113.

[94]   Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425.

[95]   See Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020, available at <https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2021a/21bd003> accessed 18 September 2020.

Most significantly, automation has the potential to make government decision making more accurate, efficient and fair.[96] Zalnieriute et al. note that automation has the ability to improve transparency and accountability in governmental decision making:

> Whereas a human may come up with justifications for a decision *ex post* that do not accurately represent why a decision was made, a rules-based system can explain precisely how every variable was set and why each conclusion was reached.[97]

In this regard, the importance of a system providing a clear explanation of how its decisions were reached is essential. The robodebt scheme in Australia is identified as an example of a system where there was a failure to provide clear information as to how debts were calculated. By contrast, Sweden's automated student welfare system is highlighted as a system where decisions are based on clear, public rules and a human confirms and takes responsibility for each decision.[98]

Beyond transparency and accountability, automation can also improve efficiency in administrative decision making. In its 2007 report, the Australian Government included as a case study the automated compensation claims processing system established by the Department of Veteran's Affairs. It reported that the system, which guided decision makers in applying over 2,000 pages of legislation, had resulted in productivity gains of 80 per cent, with the Department determining 30 per cent more claims annually; using 30 per cent fewer human resources; and experiencing a 60 per cent reduction in the time taken to process claims.[99] Efficiency benefits such as this can also be linked to enhanced predictability and consistency. Indeed, as Zalnieriute et al. note, predictability is a widely accepted aspect of the rule of law. Similarly, improvements in certainty and efficiency can allow individuals to manage

---

[96] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 425.

[97] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 440.

[98] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 440–441.

[99] Australian Government, *Automated Assistance in Administrative Decision-Making: Better Practice Guide* (Guide, February 2007) 68–69.

their affairs more effectively and can have 'a moral significance in that like cases ought to be treated equally'.[100]

Finally, Zalnieriute et al. note that automation can enhance equality before the law by reducing arbitrariness, removing bias and eliminating corruption in the application of the law.[101] Coglianese and Lehr concur, stating the use of machine-learning analysis in the regulatory state will assist governments to make decisions that meet official specifications.[102]

Challenges

There are also various challenges associated with automated decision making in the administrative law context. First, Zalnieriute et al. note that whilst automation can improve predictability and consistency, it also poses challenges for these same principles, including when the application of a rule in the automated decision-making context does not comply with statutory or common law requirements. Here, Zalnieriute et al. refer to Australia's robodebt scheme, noting that the formula used by the system failed to produce the legally correct result in a significant percentage of cases.[103]

A second challenge identified by Zalnieriute et al. relates to the transparency barriers of automation in government decision making. Issues can arise when data contains personal information that cannot be released due to privacy or data protection law, or when 'technical illiteracy' prevents humans from interpreting the data and algorithms.[104] This is of particular concern as principles of transparency and openness can be embedded in the practice of administrative law. Along these same lines, Coglianese and Lehr have discussed the 'black box' problem of machine learning.[105] This refers to the nature of machine

---

[100] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 430.

[101] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 448.

[102] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1214–1215.

[103] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 446.

[104] Monika Zalnieriute, Lyria Bennett Moses, and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 441.

[105] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1167.

learning results which are not intuitively explainable[106] and 'cannot support causal explanations of the kind that underlie the reasons traditionally offered to justify governmental action'.[107] This is discussed in greater detail below.

Associated with this challenge is the need for administrative decision makers to give reasons for their decisions. As noted by Coglianese and Lehr, some uncertainty may always exist over whether a court will ultimately find an agency's explanations satisfactory in situations where the decision maker needs to disclose algorithmic specifications.[108] According to Zalnieriute et al., ensuring human involvement (both in terms of independently justifying the decision and facilitating appeal processes) is one way in which accountability can be preserved, as occurs in Sweden's automated student welfare system.[109] In this regard, Zalnieriute et al. conclude that:

> The alignment of automated government decision-making with rule of law values hinges on the appropriateness of design choices. The most significant factor is whether the automated system uses explicit rules written by humans (generally to align with legal requirements for the relevant decision) or rules derived empirically from historic data to make inferences relevant to decisions or to predict (and thus mimic) decisions. The latter raise greater issues for transparency and accountability, particularly as newer techniques are often more complex and therefore less susceptible to human explanation. Further, such systems are less likely to be consistent with the law and more likely to fall foul of the principle of equality before the law.[110]

---

[106]   It has been suggested that explainability levels can vary and that this can impact on the extent to which outcomes are considered to be fair. Jonathan Dodge, Vera Liao, Yunfeng Zhang, Rachel Bellamy and Casey Dugan, 'Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment' (2019) *Paper*, IUI '19: Proceedings of the 24th International Conference on Intelligent User Interfaces, 275–285, available at <https://dl.acm.org/doi/10.1145/3301275.3302310> accessed 24 September 2020.

[107]   Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1167.

[108]   In this sense, Coglianese and Lehr argue that 'agencies will need to disclose algorithmic specifications, including the objective function being optimised, the method used for that optimisation, and the algorithm's input variables': Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1208.

[109]   Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 445.

[110]   Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 428.

A further challenge which arises relates to the legality of AI decisions. As machine-learning algorithms proliferate in the administrative law space, 'public officials, lawyers, and scholars will confront choices about whether to encourage or constrain this technology'.[111] Indeed, in the Australian context, the Australian Administrative Review Council has noted the importance of ensuring the legality of purported actions by public bodies.[112] Writing extra-curially, Melissa Perry, Judge of the Federal Court of Australia, has warned that:

> It cannot be assumed that a statutory authority vested in a senior public servant which extends by implication to a properly authorised officer, will also extend to an automated system; nor that authority to delegate to a human decision-maker will permit 'delegation' to an automated system.[113]

There may be a lack of clarity surrounding *who* makes the decision in the context of automated decision making, as well as *who* possesses the legal authority to do so.[114] Possible options include the human decision maker, the policymaker, the computer programmer, or the automated system itself. In particular, questions arise in the American context as to whether the granting of authority to an agency to use machine-learning algorithms to make administrative decisions would offend the principle of nondelegation.[115]

Justice Melissa Perry from Australia has identified a further challenge with automated decision making in the context of administrative decisions: the fact many administrative decisions require the exercise of discretion or the making of an evaluative judgment, following the weighing and balancing of various factors. This is contrasted with automated decisions that are grounded in logic and rules, apply rigid criteria, and make decisions in accordance with predeter-

---

[111] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1176.

[112] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 31, citing Administrative Review Council, *Automated Assistance in Administrative Decision-Making* (Report, 2004).

[113] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 31.

[114] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1126.

[115] For an in-depth analysis of this issue see: Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1177–1181. Notably, in Australia draft legislation has been proposed: see Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020 available at <https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2021a/21bd003> accessed 18 September 2020.

mined outcomes.[116] Additionally, by extension, this point articulated by Justice Perry also raises questions relating to the coding and quantification of such judgments that are normally made in an evaluative or qualitative manner.[117]

According to Zalnieriute and Bell, automation also has the potential to undermine the independence of the judiciary even where it is intended to assist or support a judge. Judicial independence is defined as encompassing: (i) the independence of the individual judge or decisional independence; (ii) independence of the judiciary as an institution from interference or usurpation by the other branches of government; and (iii) independence afforded by administrative and fiscal self-management (see discussion in Chapter 7). Zalnieriute and Bell argue that judicial independence could be undermined where the automated tool that is relied upon to assist judges uses proprietary software developed by a private company that is protected by intellectual property laws, making it impossible to understand how its outputs have been generated (see also Chapter 7).[118]

Finally, it has been noted that not all administrative decisions are of such a nature that they can be appropriately or fairly made by automated systems.[119] Coglianese and Lehr have noted that citizens tend to view governmental institutions as more legitimate when they operate with understanding and empathy. They argue that the idea of the government 'reducing individuals to data points that are then fed into an algorithm will seem disconcertingly impersonal – even if ultimately more accurate and efficient'.[120] Here, issues of algorithmic bias are particularly relevant as often administrative decision making can impact on the most vulnerable members of society. Many administrative decisions in modern countries relate to social security benefits, citizenship matters and other entitlements. By streaming such matters into an automated system, there is arguably a bias against the more vulnerable members of society (see also the digital divide discussion in Chapter 6).

---

[116]　Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 33–34.

[117]　See Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1218.

[118]　Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[119]　Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 30.

[120]　Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1219.

Considering the various challenges that arise, Zalnieriute et al. have ultimately suggested that we may need to modify our understanding of the rule of law so as to ensure its compatibility with the automation of government decision making:

> The rule of law is not a static concept. It evolves in response to changing societal values and the operation of government. As technology reshapes society, and government interacts with the community, it can be expected in turn that our understanding of the rule of law will shift. Values such as transparency and accountability, predictability and consistency, and equality before the law may remain central to conceptions of the rule of law, but their interpretation and application may change. The benefits offered by such technologies, such as their capacity to reduce government spending, may be so significant as to demand greater accommodation within the rule of law framework.[121]

CONCLUSIONS

Concerns about algorithmic bias and algorithmic injustice have not surprisingly arisen in two areas where algorithms have been used more extensively in the justice sector – in the criminal law area and in automated administrative decision making. The experiences in each area could be described as 'mixed' with a number of examples of negative outcomes and some positive benefits. These experiences suggest that judges might be cautious about the potential issues that could arise as algorithmic approaches are extended in each area and applied to more areas of human decision making. In addition, the extension of algorithmic decision making to the judicial arena, either through supportive Judge AI or Judge AI (see Chapters 5 and 8) will raise additional concerns.

However, systems that are said to result in algorithmic bias can be the result of either biased data that is drawn from a human system, or the introduction of a system with little focus on design or ethical requirements, or with no human 'in the loop' capacity (see Chapters 8 and 9). It is inevitable that more sophisticated AI systems will evolve in the coming years and judges will need to be able to consider not only the impacts of such systems on individual cases, but also the extent to which such systems can be extended, where appropriate, to the judicial decision-making arena.

There are many barriers to the acceptance of algorithmic decision making that will hinder or prevent the integration of such arrangements within the judi-

---

[121] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 455.

cial sphere. As previously noted, one major factor hindering such integration[122] is a bias against algorithmic decision making or what has been described as 'algorithmic aversion'.[123] The term 'algorithmic aversion' refers to a positive bias towards human-based decision making, even where an algorithm has proven more competent than its human counterpart.[124] Similarly, Burton, Stein and Jensen have described the phenomenon as 'the rejection versus acceptance of algorithmically generated insights'.[125] In this area, there can also be an expectation that while people can make mistakes, algorithms must always produce a perfect result. However, many people might consider this to be an unrealistic expectation.[126]

Other factors that are relevant to the integration of algorithmic approaches relate to court readiness in terms of data sets and technological availability. In some countries, as noted in Chapter 2, it is likely that some courts and judges will be ready to support some level of algorithmic decision making. In addition to individual court or judicial readiness, it is also likely that the approaches currently used in administrative decision making, as well as experiences in jurisdictions that have already implemented some level of algorithmic judicial guidance, will be relevant.

At present, it is also noted that most automated AI approaches rely on written rather than oral material. Whilst voice to text systems are constantly improving, the fact that AI systems currently support 'on the papers' determinations rather than oral hearings raises a number of issues that can be linked to the digital divide as well as the potential for algorithmic bias to arise if a person is not able to produce material that is 'machine readable'. The loss of an oral tradition, which is more relevant in some jurisdictions than others, raises issues about algorithmic justice, as the outcomes that are arrived at may not be 'just'

---

[122] It is also noted that this factor can be related to issues surrounding innovation readiness, as discussed in Chapter 1.

[123] Berkeley Dietvorst, Joseph Simmons and Cade Massey, 'Overcoming Algorithm Aversion: People will Use Imperfect Algorithms If They Can (Even Slightly) Modify Them' (2016) 64(3) *Management Science* 1155.

[124] Berkeley Dietvorst, Joseph Simmons and Cade Massey, 'Overcoming Algorithm Aversion: People will Use Imperfect Algorithms If They Can (Even Slightly) Modify Them' (2016) 64(3) *Management Science* 1155.

[125] Jason Burton, Maria-Klara Stein and Tina Jensen, 'A Systematic Review of Algorithm Aversion in Augmented Decision Making' (2019) 33(2) *Journal of Behavioral Decision Making* 220.

[126] Andrew Prahl and Lyn Van Swol, 'Understanding Algorithm Aversion: When is Advice from Automation Discounted?' (2017) 36(6) *Journal of Forecasting* 691; Paul Goodwin, Sinan Gonul and Dilek Onkal, 'Antecedents and Effects of Trust in Forecasting Advice' (2013) 29(2) *International Journal of Forecasting* 354.

since issues may not be adequately explored or reflected in an 'on the papers' outcome.

In many jurisdictions there are internal factors that could lead to algorithmic *injustice*. Some of these issues include the impact on people who may speak and write in different languages, as well as those who may be vulnerable because of some other factor (see Chapter 6). Other issues relate to budgets and court structures, as well as critical issues of judicial independence that are linked to the political arrangements that exist within jurisdictions (see Chapter 7). Ultimately, without clear justice frameworks that incorporate value-related material (such as those linked to requirements of human dignity and well-being), such developments are likely to result in arrangements that do not support justice objectives (see further the discussion in Chapters 6 and 9).[127]

---

[127] Definitions and perspectives relating to the notion of 'justice' vary extensively. For a detailed discussion, see: Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

4.   Courts and technology

INTRODUCTION

Courts and judges can use technology to support the judicial role, to engage with the public and users and to support triage, dispute resolution, self-help and case management functions. In addition, courts can use the opportunities provided by technology to reform the way in which courts function.[1] To date, however, most courts have used technology to replicate existing systems and processes rather than focusing on more extensive reform of court structures and processes. As a result, many courts continue to closely resemble the courts of the past century (and sometimes even the century before that). As one eminent former High Court of Australia Judge noted at the turn of the last century:

> A lawyer from Dickens' time, walking out of Bleak House into a modern Australian court on an ordinary day, would see relatively few changes. Same wigs and robes. Same elevated Bench and sitting times. Very similar basic procedures of calling evidence and presenting argument. Longer judgments: but still the same structure of facts, law and conclusion. Contrast, if you will, the astonishment of a physician from Guy's Hospital in London, from the middle of the last century, wandering into the electronic world of bleepers and monitors, of CAT scans, genomic tests and automated diagnosis of a modern Australian hospital. We have made progress in the law and in the courts, including the past twenty-five years. But not as much as other professions. Will it stay this way?'[2]

Whilst the COVID-19 pandemic has resulted in many changes in terms of how courts operate (see Chapter 2), Kirby's comments still resonate in terms of the way in which many courts operate around the world. That is, the processes that are in place are very similar to processes that have operated for decades (or even centuries). At times, it has been noted that both judges and courts are

---

[1]   See generally, for example: Natalie Byrom, The Legal Education Foundation, *Digital Justice: HMCTS Data Strategy and Delivering Access to Justice* (Report, October 2019).
[2]   Michael Kirby, 'The Future of Courts – Do They Have One?' (1998) 9(2) *Journal of Law, Information and Science* 141, 143–144.

reluctant to innovate and may be inherently conservative.[3] However, as noted in Chapter 2, there are considerable differences between judges and courts in terms of judicial approaches to technology. In addition, where there is a reluctance to innovate, this may be a reflection of the attitude of the legal profession to change. As Donoghue has noted:

> Although it is sine qua non that courts ought to reflect advances in society, historically in the United Kingdom and elsewhere, the courts and to a lesser extent, the legal profession, have been amongst the most conservative professional domains in terms of technology adoption and in harnessing advances in technology to improve practice.[4]

However, a reluctance to innovate can also be linked to inadequate infrastructure, with outdated court technology often used for limited case management purposes. As noted in Chapter 2, the COVID-19 pandemic has highlighted variations in courts' capacity to innovate and use technology. In many instances, courts have rapidly adopted supportive technologies that have enabled videoconferencing and, at times, the exchange of documentation using web-based platforms such as Teams, Skype, Zoom, Google Hangouts and WebEx.[5] Some courts already had existing online filing systems and were therefore more prepared for remote working arrangements.[6] However, many court case management systems are not able to integrate or operate with 'add on' technologies partly because of the limits of the technology that is already in place.

In addition, many court case management systems are designed so that they essentially replicate the processes that have been in place for many decades. Such systems can be important in reducing reliance on administrative staff within courts in that they automate some listing functions and support the provision of information and court orders. However, most case management systems are designed to help a court manage cases and are not ordinarily responsive to user input from outside the court, nor focused on supporting engagement with those outside the courts. In addition, case management

---

[3] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17.

[4] Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' (2017) 80(6) *The Modern Law Review* 995, 997.

[5] See generally, for example: Federal Court of Australia, *National Practitioners/ Litigants Guide to Virtual Hearings and Microsoft Teams* (Guide, 2 April 2020).

[6] A good example is the use of Case Lines in the UK, see for example: Courts and Tribunals Judiciary, *The Remote Access Family Court* (Version 3, 3 April 2020) [5.7]. See also the discussion in: Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

systems that are built using legacy technology systems, may simply not be fit for purpose in the context of a modern digitized court environment.[7]

Different countries have recognized these issues and responded in various ways. At times, to avoid issues of replicating what might already exist, a new court or tribunal is established. For example, in British Columbia, Canada, a new Tribunal that has adopted a different approach is the Civil Resolution Tribunal (CRT).[8] Established in 2012, the CRT is now regarded as a progressive and more technologically mature tribunal. The CRT deals with small claims and condominium disputes, as well as motor vehicle accident and injury claims.[9] The CRT provides tailored legal information, tools and resources to help parties resolve their dispute. If parties are unable to resolve their dispute, the dispute is referred to a facilitator and, if an agreement is not reached, the dispute proceeds to adjudication by a tribunal member.[10] As of August 2020, the CRT reported a total of 16,609 completed disputes, with only 3,020 of these disputes progressing to adjudication.[11]

Unlike many other courts, the CRT is focused on user experience. The system is designed to support people who have a dispute to navigate the system and complete user-friendly forms, while also enabling sophisticated triage to take place so that disputes can be resolved at the lowest possible level. High levels of satisfaction have been recorded, with 74 per cent of people using the CRT reporting they were likely to recommend it to others.[12] The case management system is integrated with a system that is outwardly focused and performs a range of functions. In this regard, it is notable that most courts are yet to consider how chatbots and apps might change the way that users are informed about and engage with a court.

In China, a 'smart courts' project led to the creation of a new online 'mini court' that is discussed in detail below. In the United Kingdom an extensive project commenced in 2016 that is directed at the modernization of courts by

---

[7]   Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[8]   *Civil Resolution Tribunal Act*, BC (2012) c 25.

[9]   See Peter Kenneth Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39, 44.

[10]   Michael Legg, 'The Future of Dispute Resolution: Online ADR and Online Courts' (2016) 27(4) *Australasian Dispute Resolution Journal* 227, 230.

[11]   Civil Resolution Tribunal, *CRT Statistics Snapshot – August 2020* (Web Page, 2 September 2020) <https://civilresolutionbc.ca/crt-statistics-snapshot-august-2020/> accessed 7 September 2020.

[12]   Civil Resolution Tribunal, *Participant Satisfaction Survey – July 2020* (Web Page, July 2020) <https://civilresolutionbc.ca/participant-satisfaction-survey-july-2020/> accessed 13 August 2020.

creating and trailing different pathways and processes (see also the discussion below).

In the United States, the approach has been somewhat different again. In essence, a range of reforms have been suggested to develop 'next generation' courts. A recent report by the Institute for the Advancement of the American Legal System (IAALS),[13] suggested that 18 component areas needed to be developed to support next-generation courts in the USA in terms of technology standards. The IAALS suggests that this approach is premised on a 'component-based' technology model and:

> Instead of the traditional 'unitary' court case management system – a massive single set of software code – the component model consists of a set of standalone coded modules that communicate with each other using a standard interface. This component model allows the vendor community to develop and market 'best of class' components, without having to develop a complete case management application in order to enter the court IT market.[14]

The various components are based on what the IAALS describes as essential capabilities for next generation courts and are 'externally focussed' (in comparison to many courts case management systems that have in the past been internally focused). The capabilities are:

1. Enabling customers to obtain information and court services using their smartphone;
2. Enabling customers to present photos, videos, and other information from their smartphones in the courtroom;
3. Enabling customers to appear in court by telephone or videoconference;
4. Enabling parties to schedule hearings at their convenience;
5. Enabling parties to pay fees, fines, and other financial obligations online;
6. Enabling wayfinding;
7. Enabling customers to obtain information and forms remotely;
8. Simplifying the process of forms completion;
9. Enabling self-represented litigants to file documents electronically;
10. Enabling the creation of an order or judgment at the close of a hearing or trial;
11. Creating an online triaging portal for every jurisdiction;

---

[13] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18).

[14] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18) 2.

12. Enabling online dispute resolution;
13. Enabling automated court messaging to customers;
14. Using messaging to guide customers through their court case;
15. Using technology to simplify the service of process;
16. Eliminating notarization requirements for court filing;
17. Maintaining a list of each customer's personal needs; and
18. Implementation of a component model case management system.[15]

In Europe, the European Commission for the Efficiency of Justice has also prepared material in relation to 'cyberjustice' that details how technology can be used and developed by courts with a particular focus on enhancing case management approaches (see also Chapter 9).[16] The European approach includes a system design strategy that is aligned to the various jurisdictional needs within Europe and includes three options according to whether the systems are decentralized (in terms of a relationship with the executive arm of government), partly centralized or centralized.[17]

In this chapter, the way in which courts have adopted newer technologies is explored, together with a consideration of possible options for the future. Initially, the development of online courts is considered before exploring the way in which courts have re-engineered case management systems. As noted above, case management systems which operate on legacy systems may provide insufficient flexibility and functionality for modern requirements.[18] In addition, developments in online dispute resolution (ODR) that can exist within and outside courts are also explored, with a focus on how such developments will reshape the courts of the future.

ONLINE COURTS

In recent years, there has been a growing focus on online courts. Yet while there are currently few operating examples of a fully online court, the COVID-19 pandemic has resulted in many courts exploring whether some or

---

[15]   John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18) 2.
[16]   Council of Europe European Commission for the Efficiency of Justice, 'Toolkit for supporting the implementation of the Guidelines on how to drive change towards Cyberjustice' (Plenary Meeting Paper, Strasbourg, 14 June 2019).
[17]   Council of Europe European Commission for the Efficiency of Justice, 'Toolkit for supporting the implementation of the Guidelines on how to drive change towards Cyberjustice' (Plenary Meeting Paper, Strasbourg, 14 June 2019).
[18]   Jeff Leeuwenburg and Anne Wallace, *Technology for Justice 2000 Report* (Report, Australian Institute of Judicial Administration, 2001) 13.

all of their functions could move online.[19] Whilst some courts have become 'online courts' at least for the duration of applicable COVID-19 social distancing requirements, others have indicated that it is possible that the arrangements introduced as a result of the pandemic will be retained. Indeed, some judges have been excited by what has been implemented as a result of the pandemic in terms of the capacity to introduce remote court processes. As one US Judge has noted:

> Most [courts] are learning months' worth of lessons in days. They are learning new skills because they had to. Once you have to … you keep the parts that are helpful. This was not the disruption we wanted, but it was the disruption we needed.[20]

By way of definition, online courts essentially involve the replacement of a physical court and litigation process with an online alternative.[21] According to Susskind, online courts produce a 'social renegotiation' as to whether a court should be defined more broadly as a service, rather than a place.[22] Other authors have suggested that online courts erode the 'symbolic function of the courthouse as the home of justice'[23] and raise concerns that are often linked to access to justice issues that may, in turn, be linked to the digital divide.[24]

Susskind distinguishes between two aspects of online courts: (i) online judging; and (ii) the 'extended court'. The former involves 'the determination of cases by judges but the parties do not gather together in a bricks-and-mortar courtroom'. The latter involves the use of technology to 'provide a service with much wider remit than the traditional court'.[25] More recently, Susskind has noted that some courts may be partially online at least in so far as a court hearing is concerned. That is, some participants in a court hearing may be

---

[19]   Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[20]   PL Embley, *Judicial Perspectives on ODR and Other Virtual Court Processes* (Bulletin, Joint Technology Committee, 18 May 2020) 2, citing Bridget Mary McCormack, 'Coronavirus and the Courts' (Webinar, National Center for State Courts, 7 April 2020).

[21]   David Harvey, 'From Susskind to Briggs: Online Court Approaches' (2016) 5(2) *Journal of Civil Litigation and Practice* 84.

[22]   Richard Susskind, *Tomorrow's Lawyers: An Introduction to Your Future* (2nd ed, Oxford University Press, 2017) 109.

[23]   Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' (2017) 80(6) *The Modern Law Review* 995.

[24]   This is explored in more detail in Chapter 6.

[25]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 60–61.

online and others may attend the court in person. Susskind has noted that such arrangements may raise particular concerns relating to fairness.[26]

Susskind has proposed a three-tier online court:

- Tier 1 is at the 'dispute avoidance' layer of the framework. It provides an online assessment which helps users categorize and classify their problems and understand the applicable law and the options and remedies available;
- Tier 2 is at the 'dispute containment' level and involves 'case officers' who play a central role by negotiating or mediating across the online platform; and
- Tier 3 provides for the determination of authoritative decisions of judges. Whilst the first generation of services at this level involves human judges (but not in a traditional, physical courtroom), Susskind envisages a second generation where determinations are made by some form of AI.[27]

Susskind notes that while first-wave legal AI systems sit in Tier 1 and can advise users on their options and specific legal rights and duties, the greatest potential for AI lies in the second generation of online courts, when the systems themselves can make authoritative determinations.[28] In terms of both Tier 1 and Tier 2 arrangements, many ODR arrangements that may exist within or outside courts are relevant (see the discussion relating to ODR below and also the discussion linked to the Susskind model in Chapter 7).

In some jurisdictions examples of online courts already exist, and in others their development has been seriously considered. In addition to the CRT in Canada discussed above, some countries have enthusiastically considered and set up online courts. For example, the Supreme People's Court (SPC) in China has taken steps to roll out a 'smart court' system across the country by embedding a range of technologies that rely on the use of big data and AI.[29] However, academics have already identified several risks, including data safety, litigant privacy,[30] and uneven abilities when it comes to adopting technologies, par-

---

[26] Constitution Committee, House of Lords, *Constitutional Implications of COVID-19* (Constitutional Committee Meeting, 3 June 2020).

[27] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 116–118.

[28] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019).

[29] See, for example: Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019).

[30] Jiao Feng and Ming Hu, 'Smart Justice: A New Pathway to Justice and Its Limits' (2018) 6 *Zhejiang Social Sciences* 67, 72–73.

ticularly among courts in regions enjoying different levels of financial and other resources (see also Chapter 6).[31]

In general, there appears to be a stronger appetite in China for online courts and more specific supportive technologies have now been adopted that can assist with both case management and also digitization (which, in turn, can support both AI and the development of online courts).[32] Writing in relation to his visit to a local court in China's Zhejiang Province in 2017, Susskind reported being 'impressed' with what he saw, including 'a static robot in the reception area that offered online legal help for court users; on-site facilities for the e-filing of documents; dedicated virtual courtrooms; [and] speaker-independent voice recognition'.[33]

Indeed, many courts in China which are not fully online have a range of supportive technologies that are directed at the public and other court users.[34] Such supportive technologies may: offer general legal information on a specific subject; enable users to create legal documents; streamline conventional legal processes; and help individuals with legal research.[35] This approach has been

[31] Tao Wu and Man Chen, 'The Construction of Smart Courts: Values and Framework Design' (2019) 5 *Social Sciences* 106–107; Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[32] Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 79–83; Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[33] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 170–71; Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 2.

[34] See Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) in ch 3 where the authors note that 'some justice apps that are oriented towards access to justice are supportive in that their focus is on alerting people to developments in the legal sector and enabling a greater general understanding of the legal sector at low or even no cost. For example, in 2015, China's SPC launched the free of charge C*hina Court Mobile TV* (*Zhong Guo Fa Yuan Shou Ji Dian Shi*) app, with the aim of promoting open justice and disseminating useful information to the public.' See also: Yang Qing, 'Promoting Justice Openness: China Court Mobile Phone and TV App Launched' (Web Page, 27 February 2015) <https://www.chinacourt.org/article/detail/2015/02/id/1558524.shtml> accessed 13 August 2020. This app has five areas of focus: legal news, hot topics, live trials, press conferences and judge talks. 'Legal News' reports on laws and the important work of courts across the country, while 'Hot Topics' provides in-depth follow-up and analysis on high-profile cases in China. 'Live Trials' and 'Press Conferences' enable app users to access certain open court trials, and SPC and local court briefings respectively. In 'Judge Talks', an online classroom model is adopted where selected judges across the country educate the general public through the discussion of legal issues.

[35] See the taxonomy noted by Jena McGill, Suzanne Bouclin and Amy Salyzyn, 'Mobile and Web-based Legal Apps: Opportunities, Risks and Information Gaps' (2017) 15 *Canadian Journal of Law and Technology* 229, 239.

taken partly because, as noted above, the SPC has led a 'smart courts' initiative throughout China by introducing newer technologies into the justice sector since 2016.[36] Local courts at various levels have been required to develop their own online platforms and apps with a focus on enabling judges, the general public and lawyers to engage with each other.[37] For public users, some apps are for educational purposes and provide information about legislation through the *China Court Mobile TV* app,[38] while others, such as *Compilation of Chinese Laws* (*Zhong Guo Fa Lv Hui Bian*), 'offers users more than 1,000 Chinese laws that are of relevance to daily life, including the Constitution of China, contract law, and marriage law'.[39]

Online court developments in China assume that many can access a mobile court through a smart phone or other device. For example, an app called *Ning Bo Mobile Mini Court* (*Ning Bo Yi Dong Wei Fa Yuan*) was officially launched by Ning Bo Intermediate People's Court in Zhejiang Province in January 2018.[40] The app enables litigants to complete the whole litigation process digitally, including case filing, serving legal documents, mediation,[41] evidence exchange, court hearings and any follow up enforcement. Running on social platform *WeChat*, the micro-court allows users to use their smartphone to go through the entire litigation procedure. The court has also launched a virtual judge using AI technology to provide legal consultancy services online.[42] As noted by the author together with Meredith and Li:

> As of August 2018, approximately 70,000 cases had been filed using this app and it was reported that this tool had saved judicial costs and enhanced litigant satisfac-

---

[36]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[37]   'Smart court' is a terminology officially raised by the SPC in 2016 with a view to turning China's court system into a highly intelligent one by rolling out the use of technology. This initiative was integrated into China's *National Strategy for Informatization Development*, see: 'Outline of the National Informatization Development Strategy', *China Copyright and Media* (Web Page, 30 July 2016) <https://chinacopyrightandmedia.wordpress.com/2016/07/27/outline-of-the-national-informatization-development-strategy>.

[38]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 3.

[39]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 3.

[40]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 3.

[41]   In China, mediation is usually part of the litigation process and is conducted by judges.

[42]   Frederick Wilmot-Smith, 'Justice eBay Style' (2019) 41(18) *London Review of Books*.

tion. Because of the success of this app in Ning Bo region, the SPC continued to develop a national version of *Mobile Mini Court* (as opposed to the regional version in Ning Bo) and promoted the new version to other parts of the country from August 2018. In January 2020, Chief Justice Zhanguo Li, President of Zhejiang High People's Court, observed that *Mobile Mini Court* in Zhejiang Province had already dealt with over 1.36 million cases involving around 470,000 litigants and about 90,000 lawyers.[43]

In the United Kingdom, the Civil Justice Council recommended the introduction of 'Her Majesty's Online Court' for civil disputes under the value of £25,000.[44] Lord Justice Briggs has also suggested a similar model be introduced.[45] In 2016, Her Majesty's Courts and Tribunals Service ('HMCTS') established a programme of reform that was intended to introduce new technology, modernize the justice system and reduce costs. Cost reductions were to be realized through a combination of reducing staff, the number of cases held in physical court rooms, a reduction in the size of the court estate, as well as generating efficiency savings through reforming administrative processes.

The HMCTS reform programme aims to reduce demand on courts by expanding the use of video technology, introducing online end-to-end processes, and promoting the use of online negotiation, mediation and settlement as well as new asynchronous processes. In this sense, the programme aims to capitalize on technological advancements and develop a court system that is 'just, proportionate and accessible to everyone'.[46] Notably, in more recent years the CEO of HMCTS has commented publicly on how these reformed processes 'future-proof' court systems:

> This shift to readily-available, real-time information about how things are working – coupled with the way we are designing our systems, which incorporates an

---

[43] Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 3, citing 'Move your Finger to Fight the Lawsuit', *China Court* (Blog Post, 26 August 2018) <https://www.chinacourt.org/article/detail/2018/08/id/3471944.shtml>.

[44] United Kingdom Civil Justice Council Online Dispute Resolution Advisory Group, *Online Dispute Resolution for Low Value Civil Claims* (Report, February 2015) 6–7.

[45] Lord Justice Briggs, *Civil Courts Structure Review: Interim Report* (Report, Judiciary of England and Wales, December 2015) 76; Lord Justice Briggs, *Civil Courts Structure Review: Final Report* (Report, Judiciary of England and Wales, July 2016) 58.

[46] Natalie Byrom, The Legal Education Foundation, *Digital Justice: HMCTS Data Strategy and Delivering Access to Justice* (Report, October 2019) 2.

assumption that we will want to change and improve them regularly in future – helps to make our changes future-proof by designing for further improvement.[47]

Opportunities

Online courts can offer a number of important benefits to users and the wider justice system. According to Susskind, 'online courts offer the most promising way of radically increasing access to justice around the world'.[48] Here, Susskind makes a moral case for online courts, arguing that 'all human beings – whatever their capabilities, status, wealth, and wherever they live and work – deserve and should be accorded equal respect and dignity'.[49] In addition to enhanced and more affordable access to justice, Lord Sales of the Supreme Court of the United Kingdom has highlighted the potential for online courts to offer enhanced efficiency in the justice system and an enhanced understanding of rights for individuals.[50] Indeed it is in this context in which the HMCTS has promised the delivery of reformed processes to 'maintain or improve access to justice'.[51]

The ability for online courts to enhance the rule of law has also been identified. As noted by Susskind:

> A court system that is antiquated, detached, unaffordable, slow, or unintelligible, can weaken confidence in the judicial process. In turn, the rule of law can be relegated to a nebulous and unrealised aspiration.[52]

---

[47] HM Courts & Tribunals Service, *Reform Update* (Report, May 2018) 20 cited in Natalie Byrom, The Legal Education Foundation, *Digital Justice: HMCTS Data Strategy and Delivering Access to Justice* (Report, October 2019) 11.

[48] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 8.

[49] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 8.

[50] Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 19–20.

[51] Natalie Byrom, The Legal Education Foundation, *Digital Justice: HMCTS Data Strategy and Delivering Access to Justice* (Report, October 2019) 2. It is further noteworthy that the Legal Education Foundation has developed a number of minimum standards of access to justice under which reformed services can be evaluated. The minimum standard consists of four 'interrelated, mutually supportive and non-divisible' principal components, namely: access to the formal legal system; access to a fair and effective hearing; access to a decision in accordance with substantive law; and access to remedy: 4, 19–21.

[52] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 21.

Susskind concludes:

> When only a minority enjoys access to an outstanding court service, the credibility of the entire institution is at risk and so, in turn, is the rule of law.[53]

A further benefit of online courts is their ability to provide the machinery or platform upon which an AI judge could operate.[54] As noted by the author, AI programmes that are integrated into an online court structure which can forecast the likely range of outcomes in a case can also be used to support settlement activities and therefore reduce the amount of judicial time required.[55]

Challenges

Online courts also pose various challenges for users in terms of the traditional conceptions of justice. For example, Margaret Beazley, a former President of the New South Wales Court of Appeal in Australia, has argued that 'the commoditisation of the judicial system is not consistent with the rule of law'. As such, it is suggested that any move to understanding the court as a service rather than a place should be resisted.[56] Specifically, Beazley notes that in the absence of direct human contact in an online court, there is a perception that 'the worth of what is being undertaken is lessened'.[57]

It has been suggested that this has potentially negative consequences when it comes to respect for the rule of law in the community. Beazley also notes that online courts will come at the cost of allowing a litigant to feel as if they have had their 'day in court', suggesting that the element of public vindication that accompanies a courtroom hearing may not be felt in the online space.[58] Anna

---

[53] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 30.

[54] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1121.

[55] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114.

[56] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [38].

[57] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [34].

[58] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [35].

Katzmann, Judge of the Federal Court of Australia, has similarly argued that any move to eliminate the 'real courtroom' should be resisted. This is because:

> The more informal the communication becomes, the more ordinary it is, the less powerful its impact, and the greater the reduction in the authority of the court and the respect for its decisions.[59]

Similar observations have been made by judges writing curially. Justice Robert Buchanan of the Federal Court of Australia has identified three benefits of requiring witnesses to give evidence in the atmosphere of a (physical) court-room: (i) it enhances the 'prospect that the witness will remain conscious of the nature and solemnity of the occasion and of his or her obligations'; (ii) it affords the cross-examiner reassurance that the witness appreciates the gravity and immediacy of the situation; and (iii) it better allows the court to assess the nature, quality and reliability of witnesses.[60] In relation to this latter point, Margaret Beazley has similarly observed that the online court is problematic where issues regarding the credibility of witnesses are involved.[61]

It is not only judicial officers who have identified the challenges and lim-itations raised by online courts. Size has argued that there is a public interest in forcing participants to interact with each other face-to-face. According to Size, the answer to Susskind's question about whether the court is best con-ceptualized as a place or a service is: a 'court is a service but the service that it provides often depends upon it being a place'.[62] It is noted that the arguments made in relation to witnesses apply equally to lawyers:

> Appearing in the atmosphere of a courtroom, in the presence of a judge and the very people involved in a case, enhances the prospect that an advocate will remain conscious of the nature and solemnity of her or his duties to the court. This is why the personal interaction between human beings that takes place during a hearing is indispensable to the rule of law. Over the coming years, as more and more human interactions start taking place online, this personal interaction will become even more significant. The physicality of a hearing, when compared to the impersonal online experience that will increasingly dominate so much of day-to-day life, will

---

59   Justice Anna Katzmann, 'The Future Role of the Judge – Umpire, Manager, Mediator or Service Provider?' (Speech, UNSW Faculty of Law 40th Anniversary Lecture, 1 December 2012).
60   *Campaign Master (UK) Ltd v Forty Two International Pty Ltd [No 3]* (2009) 181 FCR 152 [78].
61   Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [33].
62   Robert Size, 'Taking Advantage of Advances in Technology to Enhance the Rule of Law' (2017) 91 *Australian Law Journal* 575, 586.

enhance the authority of the courts. Unless technology advances to the point that the physicality and interpersonal interactions of a hearing can be *replicated* – not just imitated or simulated – courts should resist receding into cyberspace.[63]

Against arguments such as the above, Susskind contends that the idea of the administration of justice as 'an intrinsically human business' is 'an emotional and psychological claim, conditioned largely by past experience' rather than a claim founded on any principle of justice, or empirically or legally supported argument.[64]

In light of the changes that have occurred as a result of the COVID-19 pandemic, it appears that many of the issues with online courts have been dismissed by judges and those within courts (at least temporarily) to ensure that courts around the world can continue to operate throughout a pandemic.[65] Whilst there is some evidence that remote technology can be useful in a number of different court settings (see the discussion in Chapter 6),[66] it remains unclear how and to what extent remote technology use will be retained.[67] Whilst some courts have had significant issues in adopting remote technologies (particularly in so far as jury trials are concerned),[68] others are yet to consider to what extent online changes will continue, with some commentators suggesting that such arrangements are only suitable for the 'simplest' cases.[69]

Clearly, there are significant issues that have arisen throughout the COVID-19 pandemic which have impacted on court users. Many of these issues can be linked to the digital divide, a topic which is discussed in more detail in Chapter 6. In respect of the impact and the fact that some popula-

---

[63] Robert Size, 'Taking Advantage of Advances in Technology to Enhance the Rule of Law' (2017) 91 *Australian Law Journal* 575, 586.

[64] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 206–207.

[65] See generally, for example: Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[66] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 5.

[67] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020).

[68] See the discussion in Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[69] Joshua Rozenberg, 'Can Remote Courts Truly Deliver Justice?', *The Law Society Gazette* (Online, 18 May 2020) <https://www.lawgazette.co.uk/commentary-and-opinion/can-remote-courts-truly-deliver-justice/5104279.article> accessed 13 August 2020.

tions may be more vulnerable than others, in 2019 the UK Parliament Justice Committee stated that it:

> [r]ecognises the great potential that electronic systems have to deliver more efficient and effective outcomes for those that can access them, and that modernisation is desperately needed. But it cannot be at the expense of shutting off justice for those who might be left behind. The cross-party Committee says instead it is time for remaining court buildings to be improved and repaired, particularly for disabled court users, and notes that even for those able to use it, video equipment and WiFi cannot be relied upon to the end of serving justice.[70]

ODR AND ONLINE COURTS

Online Dispute Resolution or ODR is often perceived to be a feature of online courts. As noted previously in Chapter 1, ODR can however exist separately from courts and is most often utilized outside of courts in relation to consumer disputes and, increasingly, in the family law area where ADR processes are supported or undertaken through online technologies.[71] Where an online court is developed, it is possible that ODR components may exist both within and outside the framework of the online court and that referral to external alternative dispute resolution (ADR) processes may be undertaken by the technology with little human input. Internationally, by 2020 there were significant developments in the ODR area that occurred outside courts. Some developments were applied to complaint handling and dispute resolution systems that exist outside of courts and deal with a significant number of disputes.[72] Other developments are linked to the growth in 'justice apps' that can encourage and support ODR.[73]

---

[70]   'Modernisation Programme Risks Excluding the Most Vulnerable from Justice', *Parliament UK* (Web Page, 31 October 2019) <https://www.parliament.uk/business/committees/committees-a-z/commons-select/justice-committee/news-parliament-2017/courts-tribunals-reform-report-published-19-20/> accessed 13 August 2020. See also: Justice Committee, *Court and Tribunal Reforms* (House of Commons Paper No 190, Second Report of Session 2019).

[71]   Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming).

[72]   This is discussed in more detail in Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[73]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

As noted in Chapter 1, by way of definition, ODR involves the use of digital technology by parties to a dispute and/or a third party to resolve the dispute.[74] As outlined by Legg, it is a broad term encompassing both ADR which is conducted online, and systems of online courts.[75] More specifically, the author with Liyanage has noted that ODR can include facilitative processes such as online mediation, advisory processes such as online case appraisal, and determinative processes such as online arbitration or adjudication.[76] The author has also observed that, in terms of the levels of impact technology has on dispute resolution, it is probably appropriate to further delineate ODR using the three levels of technologies embedded in this system, including supportive, replacement and disruptive technologies.[77] Much ODR development to date has taken place at the first two levels.

However, some ODR can be more disruptive and this is particularly the case where more sophisticated AI is used. For example, ODR can also include processes conducted through a computer program or other AI that does not involve a 'human' practitioner.[78] Such automated processes use coded logic or algorithms to make a decision, part of a decision, or recommendations.[79] As outlined by Parasuraman and Riley, the process of automation is 'characterised by a continuum of levels rather than as an all-or-none concept'.[80] This means decisions can be either wholly or partially automated, with some requiring

---

[74]   Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 167.

[75]   Michael Legg, 'The Future of Dispute Resolution: Online ADR and Online Courts' (2016) 27(4) *Australasian Dispute Resolution Journal* 227, 227.

[76]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[77]   Tania Sourdin, *Alternative Dispute Resolution* (6th ed, Thomson Reuters, 2020) 402.

[78]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[79]   Australian Government, *Automated Assistance in Administrative Decision Making: Better Practice Guide* (Guide, February 2007) 4.

[80]   Raja Parasuraman and Victor Riley, 'Humans and Automation: Use, Misuse, Disuse, Abuse' (1997) 39(2) *Human Factors* 230, 232. The author notes that some discussion of ODR assumes that litigants will benefit most from advisory and determinative processes. This assumption is not based on any research and indeed there is some research that suggests that many people would rather have someone who 'can help them sort out their problems' rather than 'tell them what to do.' This suggests that facilitative processes that may include an AI-generated range of possible outcomes can be more effective under some circumstances than advisory and determinative processes.

human involvement at the decision-making stage, and others operating autono-mously in lieu of a human decision maker.[81] Automation can also be integrated at different stages of a decision-making process and involve differing degrees of human oversight and verification.[82]

Where ODR is used by courts, a number of commentators have discussed potential benefits and some courts and tribunals have adopted ODR systems to support court-based dispute management and resolution.[83] Often such developments are linked to automated systems that use basic AI approaches. However, some AI developments are not considered in terms of court-based ODR reforms. For example, Justice Perry of the Federal Court of Australia has identified the 'great benefit' of automated mechanisms as their ability to 'process large amounts of data more quickly, more reliably and less expen-sively than their human counterparts'[84] rather than a capacity to support or extend ODR options.

The literature reveals that there can be a stark contrast between the way courts have embraced legal technology and ODR. For example, some courts are seen as open to technology but may not incorporate ODR options.[85] For instance, Australian Federal Courts, including the Family Court, have set up a Commonwealth Courts Portal ('CCP') which allows lawyers to organize and e-file documents, in addition to viewing files and court decisions.[86] However, these developments have not necessarily supported ODR, although it is con-

---

[81] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 29.

[82] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 29–30.

[83] Erika Rickard, 'Technology Solutions Can Help Modernize U.S. Civil Courts: Resources for Policymakers, Court Officials who are Considering Adopting Online Dispute Resolution', *PEW* (Online, 14 April 2020) <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/04/14/technology-solutions-can-help-modernize-us-civil-courts> accessed 2 September 2020.

[84] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 30. See also John Zeleznikow, 'Methods for Incorporating Fairness into the Development of an Online Family Dispute Resolution Environment' (2011) 22(1) *Australasian Journal of Dispute Resolution* 16, 16.

[85] Frederika De Wilde, 'Courtroom Technology in Australian Courts: An Exploration into its Availability, Use and Acceptance' (2006) 26 *Queensland Lawyer* 303, 304.

[86] Family Court of Australia, *Commonwealth Courts Portal* (Web Page, 2019) <http://www.familycourt.gov.au/wps/wcm/connect/fcoaweb/how-do-i/ccp/register-for-ccp/> accessed 13 August 2020.

ceivable that they could do so.[87] The author notes that, while the Australian Federal Courts were some of the first courts to offer this type of e-filing service,[88] issues can exist because of different approaches taken by legal practitioners, and such issues may also lead to a reluctance to accept ODR in court.

There are a number of examples of court-based systems that have integrated ODR components. Notably, Utah's Small Claims Court adopted an ODR system in September 2018 that is capable of handling an entire dispute online. According to Utah Supreme Court Justice Deno Himonas, the introduction of the system is grounded in the Court's commitment to access to justice.[89] However the most striking examples of ODR reform in courts exist in China (see previous discussion).

There are many examples of ODR advisory and determinative processes which go beyond providing information, instead taking a proactive role in finalizing the resolution of disputes outside of courts.[90] For example, in the energy sector, survey results indicate a 'surprising' support by international energy firms for ODR where advisory and bidding technologies have been used.[91] As previously noted, PayPal and eBay's ODR systems[92] consider roughly 60 million matters per year.[93, 94]

---

[87]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 498.

[88]   Philippa Ryan and Maxine Evers, 'Exploring eCourt Innovations in New South Wales Civil Courts' (2016) 5 *Journal of Civil Litigation and Practice* 65, 66.

[89]   See Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 881.

[90]   Ayelet Sela, 'Can Computers Be Fair? How Automated and Human-Powered Online Dispute Resolution Affect Procedural Justice in Mediation and Arbitration' (2018) 33 *Ohio State Journal on Dispute Resolution* 91, 100.

[91]   See 'Survey of International Energy Firms Reveals "surprising" Support for Online Dispute Resolution, Says Expert', *Pinsent Masons* (Blog Post, 20 May 2015) <https://www.pinsentmasons.com/out-law/news/survey-of-international-energy-firms-reveals-surprising-support-for-online-dispute-resolution-says-expert> accessed 13 August 2020.

[92]   'Modria: Increase Access to Justice with Online Dispute Resolution', *Tyler Technologies* (Web Page) <https://www.tylertech.com/products/Modria> accessed 13 August 2020. Notably, a Client Case Study conducted in the Travis County Small Claims Court further revealed that '60% of cases that utilised ODR were resolved directly by the parties involved without intervention from a mediator or the court': Modria: A Total Tyler Solution, *Client Case Study: Travis County Small Claims Court* (Report) 2.

[93]   Tania Sourdin, *Alternative Dispute Resolution* (5th ed, Lawbook Co, 2016) 393.

[94]   'Modria: Increase Access to Justice with Online Dispute Resolution', *Tyler Technologies* (Web Page) <https://www.tylertech.com/products/Modria> accessed 13

ODR has also been embraced on a much larger scale by the European Union ('EU'). EU Regulation 524/2013 led to the creation of an ODR tool to assist consumers and retailers with consumer disputes that exists outside the court system.[95] A close examination of the ODR tool in 2017 revealed that 40 per cent of consumers who filed a claim were contacted directly by the retailer to resolve the dispute without further advancement of the complaint on the platform.[96] Thus even where ODR tools are not used as a mechanism to progress the dispute to resolution, they may nevertheless have a 'preventative effect' and promote earlier settlement.[97]

As early as 1999, legal commentators and practitioners considered that legal technology could be used to facilitate an accessible, inexpensive, and efficient legal system.[98] Despite this, Bell has observed that ODR has not 'taken off' to the degree which might be expected considering the pervasive issues of cost and delay, especially in the context of family law litigation.[99] The author together with Liyanage has similarly noted that ODR initiatives in the family dispute resolution system remain 'patchy' and are often conducted on a pilot basis.[100]

August 2020. Notably, a Client Case Study conducted in the Travis County Small Claims Court further revealed that '60% of cases that utilised ODR were resolved directly by the parties involved without intervention from a mediator or the court': Modria: A Total Tyler Solution, *Client Case Study: Travis County Small Claims Court* (Report) 2.

[95]   European Commission, *Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the application of Directive 2013/11/EU of the European Parliament and of the Council on alternative dispute resolution for consumer disputes and Regulation (EU) No 524/2013 of the European Parliament and of the Council on online dispute resolution for consumer disputes* (Report No 425, 25 September 2019) 6, 14. See also discussion in Tania Sourdin, *Alternative Dispute Resolution* (6th ed, Thomson Reuters, 2020) Ch 10.

[96]   European Commission, *Report from the Commission to the European Parliament and the Council on the Functioning of the European Online Dispute Resolution Platform Established under Regulation (EU) No 524/2013 on Online Dispute Resolution for Consumer Disputes* (Report, 2017) 6.

[97]   European Commission, *Report from the Commission to the European Parliament and the Council on the Functioning of the European Online Dispute Resolution Platform Established under Regulation (EU) No 524/2013 on Online Dispute Resolution for Consumer Disputes* (Report, 2017) 6.

[98]   Law Reform Committee, Parliament of Victoria, *Technology and the Law* (Report, May 1999) [3.1].

[99]   Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 120.

[100]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and

This patchy nature of ODR development may be due in part to the unresolved questions as to how and to what extent courts should implement and be involved in ODR processes. That is, there are issues about whether ODR should be part of a court (existing as part of a multi door system), or whether it should exist separately (as a part of a multi-option system sometimes referred to as an 'e justice' system) thereby supporting people to resolve disputes before considering litigation as well as after litigation has commenced.[101] To some extent, these issues arise in the context of pre-action requirements (which may, for example, require that disputants negotiate or use some form of ADR before commencing proceedings) and can be linked to perceived technological deficiencies in courts as well as differing cultural approaches to litigation and dispute resolution (see also the discussion in Chapter 6 regarding centralist views of a court).

One ODR system that existed outside the courts and which was well regarded by users was the *Rechtwijzer system* – a former ODR tool for separating couples in the Netherlands. According to The Hague Institute for Innovation of Law, one reason for the discontinuation of *Rechtwijzer* was a lack of readiness in the legal profession. In addition, reaching 'a mutually reinforcing partnership with the traditional justice institutions to scale up a platform like *Rechtwijzer*' was described as 'difficult'.[102] Dijksterhuis has suggested that legal practitioners were concerned about 'the threat of competition, fear of losing work, loss of their familiar way of working and of their autonomy, being replaced by computers in at least part of their work'.[103]

At first glance this reluctance is surprising, with research showing that technological innovation can provide a range of benefits for lawyers, including improving work efficiency.[104] However, a closer analysis indicates that significant disparities exist in terms of the legal profession's ability to embrace

Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 499.

[101] Tania Sourdin, *Alternative Dispute Resolution* (6th ed, Thomson Reuters, 2020).

[102] Bregje Dijksterhuis, 'The Online Divorce Resolution Tool Rechtwijzer uit Elkaar Examined' in Mavis Maclean and Bregje Dijksterhuis (eds), *Digital Family Justice: From Alternative Dispute Resolution to Online Dispute Resolution?* (Hart Publishing, 2019).

[103] Bregje Dijksterhuis, 'The Online Divorce Resolution Tool Rechtwijzer uit Elkaar Examined' in Mavis Maclean and Bregje Dijksterhuis (eds), *Digital Family Justice: From Alternative Dispute Resolution to Online Dispute Resolution?* (Hart Publishing, 2019).

[104] See, for example: John Zeleznikow, 'Don't Fear Robo-Justice. Algorithms Could Help More People Access Legal Advice', *The Conversation* (Online, 23 October 2017) <http://theconversation.com/dont-fear-robo-justice-algorithms-could-help-more-peopleaccess-legal-advice-85395> accessed 13 August 2020.

technological change.[105] The author, together with Li and Burke, for example, has highlighted a 'digital divide' or 'unevenness' in the legal profession in relation to technological innovation.[106] Whilst top tier and large firms with significant budgetary resources are able to invest in incorporating and developing the latest technologies, smaller firms may have more difficulty in doing so.

Greater use of ODR in the family law context can have a number of important benefits. As outlined by Bell, these include time and cost savings, control and ownership of the outcome, and the preservation of relationships.[107] In the Netherlands, an evaluation of the family dispute oriented ODR platform *Rechtwijzer* found that 82 per cent of surveyed users felt 'respected' or 'very respected' by lawyers and/or mediators on the platform, which sought to 'maximize lawyers' interventions in such a way as to aid users but not supersede their judgement'.[108] In respect of cost savings, Tyler and McPherson have noted that processes surrounding separation and divorce, especially in relation to parties that are geographically remote, can involve expensive correspondence and litigation, and greater than normal costs in time, travel and accommodation.[109] Given that in countries such as Australia the financial settlement in a divorce comes out of the one pool of assets, any process that reduces costs is likely to be of benefit.[110]

According to Bell, arguments against the sophisticated ODR options now available are essentially the same as those raised about the proliferation of online self-help information.[111] Nevertheless, despite the volume of information available, non-lawyers seeking family law information in the online environment reportedly find it difficult to traverse its complexities and evaluate the credibility of different sources.[112] As noted by Bell, 'the potential benefit, then,

---

[105]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[106]   Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 32.

[107]   Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 129.

[108]   Maurits Barendrecht, 'Rechtwijzer: Why Online Supported Dispute Resolution is Hard to Implement', *Law Technology and Access to Justice* (Blog Post, 20 June 2017) <https://law-tech-a2j.org/odr/rechtwijzer-why-online-supported-dispute-resolution-is-hard-to-implement/> accessed 13 August 2020.

[109]   Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 170.

[110]   Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 170.

[111]   Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 109.

[112]   Jonathan Crowe, Rachael M Field, Lisa Toohey, Helen Partridge and Lynn McAllister 'Understanding the Legal Information Experience of Non-Lawyers: Lessons

of using automated tools is to more precisely direct non-lawyers to relevant information'.[113]

As Zeleznikow has noted, a truly helpful ODR system should provide the following six facilities:[114] case management; triaging; advisory tools for reality testing;[115] communication tools;[116] decision support tools;[117] and drafting software.[118] However, as the author and Zeleznikow have highlighted, an analysis of currently available ODR services reveals that many are unable to meet these requirements:

> With citizens of many (if not all) communities forced into isolation due to COVID-19 restrictions, litigants are no longer meeting face-to-face. The justice system needs to operate in these circumstances – especially so in cases of family disputes and bail applications. However, the authors note that the systems currently in use, such as Immediation, MODRON and Our Family Wizard only offer two out of the six essential facilities of Zeleznikow's ODR model, viz. case management and communication.[119]

---

from the Family Law Context' (2018) 27(4) *Journal of Judicial Administration* 137, 141.

[113] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 115.

[114] John Zeleznikow, 'Using Artificial Intelligence to Provide User Centric Intelligent Negotiation Support' (2020) 29 *Group Decision and Negotiation* (submitted).

[115] John Zeleznikow, 'Using Artificial Intelligence to Provide User Centric Intelligent Negotiation Support' (2020) 29 *Group Decision and Negotiation* (submitted). Zeleznikow has noted that such advisory tools may include books, articles, cases, legislation and videos; there would also be calculators.

[116] John Zeleznikow, 'Using Artificial Intelligence to Provide User Centric Intelligent Negotiation Support' (2020) 29 *Group Decision and Negotiation* (submitted). Zeleznikow explains that such tools are to enable negotiation, mediation, conciliation or the facilitation of matters.

[117] John Zeleznikow, 'Using Artificial Intelligence to Provide User Centric Intelligent Negotiation Support' (2020) 29 *Group Decision and Negotiation* (submitted). Zeleznikow submits that if the disputants cannot resolve their conflict, software using game theory or artificial intelligence can be used to facilitate trade-offs.

[118] John Zeleznikow, 'Using Artificial Intelligence to Provide User Centric Intelligent Negotiation Support' (2020) 29 *Group Decision and Negotiation* (submitted). Zeleznikow explains that if and when a negotiation settlement is reached, software can be used to draft suitable agreements.

[119] Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138, citing 'What is Immediation?', *Immediation* (Web Page) <https://www.immediation.com/>; 'Resolve the World's Disputes. Whenever. Wherever', *MODRON* (Web Page) <https://www.modron.com/>. MODRON is the provider favoured by the Australian Resolution Institute: 'Resolution Institute and MODRON have partnered to bring our members Spaces', *Resolution Institute* (Web Page) <https://www.resolution.institute/resources/online-dispute -resolution-platforms/modron>; 'Better Co-Parenting, Happier Kids' *Our Family*

There is some criticism of ODR systems. In particular, Condlin has questioned whether 'the cheap and efficient processing of disputes is a capitulation to the conditions of modern society more than a superior system for administering justice'.[120] Further, it is noted that ODR systems may restrict the ability of parties to argue the substantive merits of their claims:[121]

> Uncoupling disputes from their substantive merits can undermine the fairness of individual outcomes and, if widespread, threaten the legitimacy of dispute resolution systems themselves.[122]

REFORM OF CASE MANAGEMENT SYSTEMS

As discussed above, differing case management systems sit 'behind' court judicial activity. That is, case management technologies at their simplest enable a record to be kept relating to all court and filing events. In addition, scheduling is often undertaken automatically when time limits (according to pre-defined rules) are imposed. Listings and court events as well as some outcomes may be recorded through a case management system, and more evolved systems also incorporate e-filing, recording and extensive reporting. Case management systems can also highlight delays and support the disposition of civil and criminal cases within timeframes and pre-assigned timelines (so that, for example, automated correspondence can be sent if a document is not received by a court). As noted in the introduction to this chapter, the IAALS has suggested that case management systems can do far more than this and that a 'module' approach can support the creation and development of online courts.[123]

As technology has improved and become cheaper, the reform of case management systems has become a focus for many courts. However, decisions

---

Wizard (Web Page) <https://www.ourfamilywizard.com.au/>; Allan Barsky, 'The Ethics of App-Assisted Family Mediation' (2016) 34(1) *Conflict Resolution Quarterly* 31.

[120] Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 721.

[121] The author notes that Dame Hazel Genn has indicated that this issue arises with some forms of ADR see: Hazel Genn, 'What Is Civil Justice For? Reform, ADR, and Access to Justice' (Winter 2012) 24 *Yale Journal of Law & the Humanities* 397 cited in Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[122] Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 722.

[123] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18) 31.

about the adoption of newer systems are often costly and difficult as a significant number of software providers are now creating differing case management systems.[124] In addition, while most systems are oriented towards the regulation of case flow, and many may also be relevant in terms of judicial case assignment, few are developed or adopted with a focus on litigants ('externally focused'). That is, their primary purpose is directed at managing court load as opposed to improving the way that those who are external to a court may interact with a court or a judge. This may mean that reforms that take place as a result of newer technologies (for example, developing chatbots that support litigants or enable filing or other activities to be undertaken) cannot be integrated and linked to existing case management systems. In essence, there are significant ongoing issues in terms of interoperability.

In assessing justice apps, the author has previously developed a framework to consider and evaluate how apps could be assessed and evaluated.[125] Notably, there appears to be little guidance in terms of the evaluation of case management systems. However, the author suggests that existing frameworks could be used when making decisions about case management system redesign so that this is undertaken with a view to developing more technologically externally focused case management systems. For example, the justice apps framework is set out in Table 4.1 and has been adapted on the following page for case management system assessment purposes.

Using such a framework when developing or revising a case management approach aligns with recent guidance from both the IAALS and the Council of Europe European Commission for the Efficiency of Justice (CEPEJ).[126] Ethical approaches (see Chapter 9) can also support risk analysis and decision making about case management initiatives. These approaches may enable the more gradual development of an online court approach that is responsive to local conditions (see Chapter 10 and the discussion relating to 'radical' or 'incrementalist' approaches to court reform).

Notably, some of the issues that arise in relation to the development, modification and extension of case management systems occur partly because the

---

[124]   See, for example, the vast number of software providers at: 'Court Management Software', *Capterra* (Web Page) <https://www.capterra.com/court-management-software> accessed 13 August 2020.

[125]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 3.

[126]   Council of Europe European Commission for the Efficiency of Justice, 'Toolkit for Supporting the Implementation of the Guidelines on how to Drive Change Towards Cyberjustice' (Plenary Meeting Paper, Strasbourg, 14 June 2019).

Table 4.1   *Evaluating externally focused case management approaches*

	Evaluation Components	
Evaluation Criteria for Externally Focused Systems	**Ease of use**	To what extent are users involved in the design of the system and to what extent does the system support access to justice (see the discussion in Chapter 10)? Ease of use incorporates the criteria relating to: (i) engagement (including customizability, interactivity and suitability for the target audience); (ii) functionality (including performance, ease of use and navigation); and (iii) aesthetics.
	Effectiveness	In the justice sector, effectiveness can vary according to the nature of the system being evaluated. For example, a system that is focused on providing supportive technologies via information pathways may be evaluated quite differently from a system that has objectives more specifically focused on the triage of disputes, the gathering of statistics or the provision of expert advice. In general, however, effectiveness includes a number of elements which may be relevant and can include the extent to which the system resolved or limited the dispute; was perceived to be fair; and achieved outcomes that are broadly consistent with public and party interests. Effectiveness in the justice area also incorporates the notion that the system promotes justice. That is, that the system supports the dignified treatment of people engaged in justice processes and ensures that human review is available and supported so that substantive justice needs may be met (see the discussion in Chapter 6 relating to the meaning of 'justice').
	Privacy and security considerations	Privacy can relate to how data is stored as well as other factors that are linked to security, including, for example, permissions and third party data sharing. Again, the extent to which the factors are relevant may vary according to the system focus, the developer interests and the domestic jurisdictional factors that may impact on system arrangements. In basic terms, however, such considerations include ensuring that information is kept secure and confidential, that personal data protections are in place and that authentication arrangements support system use.
	Interoperability	This consideration is linked not only to ensuring that the system may work well and on a range of devices with various software supports, but also incorporates the notion that the system functions holistically and can be linked effectively to other systems. This includes, for example, supporting online conferencing or hearing systems where appropriate, or supporting the lodgment of material where an outcome has been reached.

Source: Adapted from Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020) ch 3.

management of a court system 'is a complex and multifaceted activity'.[127] This complexity stems from the nature of judicial work, as well as the institutional court environment, and the requirement for judicial officers to remain independent in most jurisdictions.[128]

In addition, where such approaches are partly determined by perceptions about judicial attitudes towards case management, the processes that are subsequently implemented may reflect a limited understanding of the potential for case management systems to support those who are external to the court. In some respects, this may also be linked to a consideration of how judges are engaged in case management redesign and to what extent judges are responsive to cultural and societal changes.

Case management approaches are also dependent on judicial cultures. In this regard, as discussed in Chapter 2, a distinction can be drawn between passive and active judicial management.[129] The latter is seen by some commentators as threatening the traditional adversarial model, which is grounded in judicial independence and impartiality.[130] Resnik has argued that 'the restraints that formerly circumscribed judicial authority are conspicuously absent' when judges actively manage cases.[131] The author together with Burstyner has also noted that more modern systems of case management could be perceived as constituting an 'intrusion into the right of a litigant to pursue their own case as they [see] fit'.[132] Despite these concerns, and because of issues relating to unreasonable delay and cost, case management systems have been widely adopted around the world. However, judicial attitudes about the appropriate role of a judge in terms of managing cases may also impact on perceptions of the role of a judge in designing and improving case management systems in terms of technological change. That is, some judges may consider that their role is more appropriately limited to a more passive adjudicatory role.

---

[127] Anne Wallace, Kathy Mack and Sharyn Roach Anleu, 'Work Allocation in Australian Courts: Court Staff and the Judiciary' (2014) 36 *Sydney Law Review* 669, 669.

[128] Anne Wallace, Kathy Mack and Sharyn Roach Anleu, 'Work Allocation in Australian Courts: Court Staff and the Judiciary' (2014) 36 *Sydney Law Review* 669, 669.

[129] See Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 17.

[130] See for example: Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 17.

[131] Judith Resnik, 'Managerial Judges' (1982) 96 *Harvard Law Review* 376, 378.

[132] Tania Sourdin and Naomi Burstyner, 'Justice Delayed is Justice Denied' (2014) 4(1) *Victoria University Law and Justice Journal* 46, 54.

JUDICIAL WORK ALLOCATION AND CASE MANAGEMENT

Importantly, case management systems can also play a critical role in the allocation of work to judicial officers. For example, Fabri and Langbroek have observed that workload allocation impacts 'essential aspects of rendering justice: judicial independence and impartiality, court flexibility and efficiency'.[133] Zalnieriute and Bell have similarly noted that technologies which randomly assign cases and ensure that judges are not 'cherry-picked' can have the capacity to support judicial independence.[134] Notably, at times, the development of a case management system may take place with limited judicial input or, alternatively, with little engagement or consideration of external stakeholders.

Various factors impact on the workload of judicial officers that can be linked to the operation of case management systems. First, the number and complexity of the underlying legal issues in a dispute can influence the time it takes for a court to dispose of the case. For example, a small number of lengthier and more complex cases can occupy a disproportionate part of a court's workload.[135] As such, raw counts of cases are insufficient when it comes to determining the ideal distribution of cases among judges.[136] By contrast, a weighted caseload approach – which involves categorizing cases into different types and making an assessment of the typical resource cost or actual judicial time spent completing each case – can be more informative. A 'time studies' approach – which involves collecting data from judicial officers who document the actual time taken for each action or event they are involved with – has been adopted in the United States.[137]

---

[133] Marco Fabri and Philip M Langbroek, 'Is There a Right Judge for Each Case? A Comparative Study of Case Assignment in Six European Countries' (2007) 1(2) *European Journal of Legal Studies* 292, 292.

[134] Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[135] Satyam Mukherjee and Ryan Whalen, 'Priority Queuing on the Docket: Universality of Judicial Dispute Resolution Timing' (University of Hong Kong Faculty of Law, Research Paper No 11, 2018).

[136] Matthew Kleiman, Cynthia G Lee and Brian J Ostrom, 'Workload Assessment: A Data-Driven Management Tool for the Judicial Branch' in Council of State Governments, *The Book of the States* (National Centre for State Courts, Virginia, 2013) 243.

[137] Anne Wallace, Kathy Mack and Sharyn Roach Anleu, 'Work Allocation in Australian Courts: Court Staff and the Judiciary' (2014) 36 *Sydney Law Review* 669, 687.

Disagreement amongst judges in courts that hear cases as a panel can also influence the time taken to dispose of the case.[138] Various innate factors as well as decisiveness and reasoning capacity – which are the products of both learned and other experiences – can also impact on the time taken to analyse material and ultimately reach a decision.[139]

A considered allocation of cases supported by a 'smart' case management system can have a number of important benefits. First, it can contribute to the quality of judicial decisions and outcomes by sharing the burden of challenging cases and accommodating judicial interests and specialist knowledge.

Second, when judicial work is allocated inefficiently, delay and costs increase, and the system is accused of failing litigants. Kleiman, Lee and Ostrom note that the financial and resource accountability of the courts as publicly funded institutions creates a strong incentive for the development of a robust and systematic method of allocating judicial work.[140]

Third, large workloads can exacerbate pressures on decision making and increase judicial stress. Judges also need to perceive their workloads to be fair, not only in terms of the number of cases, but also in light of various other factors, including case complexity, type, duration and emotional toll.[141] Wallace, Roach Anleu and Mack note that the perceived fairness of case distribution can be influenced by the demands of out-of-court work.[142]

Finally, it has been observed that the random and automatic assignment of cases to judicial officers can form part of the rule of law,[143] and serves as a means of 'reinforcing public confidence in the impartiality of judicial

---

[138] Satyam Mukherjee and Ryan Whalen, 'Priority Queuing on the Docket: Universality of Judicial Dispute Resolution Timing' (University of Hong Kong Faculty of Law, Research Paper No 11, 2018) 2.

[139] Tania Sourdin, 'Decision Making in ADR: Science, Sense and Sensibility' (2012) 31(1) *Arbitrat Mediat* 1.

[140] Matthew Kleiman, Cynthia G Lee and Brian J Ostrom, 'Workload Assessment: A Data-Driven Management Tool for the Judicial Branch' in Council of State Governments, *The Book of the States* (National Centre for State Courts, Virginia, 2013) 246.

[141] Anne Wallace, Sharyn Roach Anleu and Kathy Mack, 'Evaluating Judicial Performance for Caseload Allocation' (2015) 41(2) *Monash University Law Review* 446, 462.

[142] Anne Wallace, Sharyn Roach Anleu and Kathy Mack, 'Evaluating Judicial Performance for Caseload Allocation' (2015) 41(2) *Monash University Law Review* 446, 462.

[143] Petra Butler, 'The Assignment of Cases to Judges' (2003) 1 *New Zealand Journal of Public and International Law* 83, 86.

decisions by ensuring that the outcome of cases cannot be manipulated by assigning a case to a particular judge'.[144]

There are currently few reporting or performance standards which provide information about judicial workloads, with existing statistics primarily focused on the number of judgments delivered within specific timeframes or dealing with general timeframes in relation to the 'disposal' of cases.[145] There is also a dearth of research examining the processes by which cases are allocated to judicial decision makers.[146] Arguably more sophisticated technologically-driven case management systems that incorporate various weightings and also respond to individual judicial preferences in terms of case allocation might assist to improve the way in which both courts and judges operate. For example, whilst one judge may be content and productive when dealing with cases that involve one particular area of law, another judge might prefer more variety. Similarly, to support the health and well-being of judges, it may be appropriate to modify workloads to enable judges to engage with a variety of cases. Currently, in many instances, workloads can be the result of either random or human allocation, which may not enable such factors to be considered.

Notably, in Europe there have been some significant developments that could support the future use of AI to support judicial workload allocation. In 2020, the CEPEJ published a report which considered the weighting systems used by six European countries and included algorithmic calculation tools where available.[147] The report noted that Case Weighting Systems (CWS) represented an area where additional data collection could enable more sophisticated systems to be developed. [148]

Additional developments in AI will continue to assist in managing judicial workload and may predict with greater certainty the amount of time that

---

[144] Anne Wallace, Kathy Mack and Sharyn Roach Anleu, 'Work Allocation in Australian Courts: Court Staff and the Judiciary' (2014) 36 *Sydney Law Review* 669, 687.

[145] Satyam Mukherjee and Ryan Whalen, 'Priority Queuing on the Docket: Universality of Judicial Dispute Resolution Timing' (University of Hong Kong Faculty of Law, Research Paper No 11, 2018) 1.

[146] Anne Wallace, Kathy Mack and Sharyn Roach Anleu, 'Work Allocation in Australian Courts: Court Staff and the Judiciary' (2014) 36 *Sydney Law Review* 669, 675–676.

[147] Shanee Benkin and Marco Fabri, Council of Europe European Commission for the Efficiency of Justice, 'Case Weighting in Judicial Systems' (CEPEJ Studies No 28, 2 July 2020).

[148] Shanee Benkin and Marco Fabri, Council of Europe European Commission for the Efficiency of Justice, 'Case Weighting in Judicial Systems' (CEPEJ Studies No 28, 2 July 2020).

judges will be required to spend on a particular dispute. Already, there are some promising developments. For example, in Europe and the United States it has been reported that case allocation algorithms can improve productivity and also enable judicial micro specialization in administrative courts.[149] In the United States it has been noted that:

> The Appeals Council hence developed a clustering algorithm to enable individuals to process cases by substantive similarity, enabling adjudicators to develop familiarity with the same part of the decision tree. The latent class model used hearing level information (e.g., age of claimant, functional impairments, and state of origin) to create clusters of comparable cases. Due to labor-management concerns, clustering only re-ordered how cases were processed within an adjudicator's docket, and did not change the composition of cases across adjudicators. In that sense, clustering facilitated 'micro-specialization,' not macro-specialization across adjudicators. Through an early pilot, where branch chiefs could elect to use the clustering results, the Appeals Council reported a 7% gain in productivity and a 12.5% reduction in errors.[150]

At present, in many courts the inability to predict the length of time that a case may take can result in delay and listing issues across a court. In terms of how such predictive approaches can be developed, the author notes that some past studies have attempted to determine the range of relevant factors that could be used and that expert-informed AI systems could be of utility.[151]

Docket Systems and Judicial Work

The design of technologically enhanced case management systems to support more effective case management is ordinarily informed by the existing approaches that are used to allocate cases to judges. These systems, as noted above, can vary extensively. For example, the majority of State and Territory courts in Australia use a master calendar system where cases are assigned to a general pool once filed, before being allocated to a list depending on the type of case and stage of proceedings. Judicial officers are then separately allocated to these lists.[152] When a case is 'ready to proceed', it is assigned to any judge

---

[149] Shanee Benkin and Marco Fabri, Council of Europe European Commission for the Efficiency of Justice, 'Case Weighting in Judicial Systems' (CEPEJ Studies No 28, 2 July 2020).

[150] David Freeman Engstrom and Daniel E Ho, 'Algorithmic Accountability in the Administrative State' (2020) 37 *Yale Journal on Regulation* 800.

[151] Michael Hall, Freya Marsden and Karen Gelb, *A Model for Optimal Efficient Caseloads* (Report, April 2016).

[152] Anne Wallace, Kathy Mack and Sharyn Roach Anleu, 'Work Allocation in Australian Courts: Court Staff and the Judiciary' (2014) 36 *Sydney Law Review* 669,

who is available on the day, either as part of a random process, or according to certain specializations. Between court events, cases are returned to the general pool. This approach to case allocation 'is designed to maximize the utilization of judge hearing time and case through-put'.[153] It aims to ensure that all cases scheduled for hearing will in fact be heard on the scheduled date. The Family Court is the only court in Australia which has adopted a sophisticated method for determining caseloads in a master calendar system. Although the Family Court does not refer to its approach as a weighted caseload model, its 'Resource Planning Model' follows the key components of weighted caseload modelling.

However, the master calendar system does have a number of drawbacks.[154] It has been argued that this approach to case allocation discourages a sense of responsibility or ownership by judges for individual cases, providing little incentive for judges to progress matters expeditiously.[155] The time spent reviewing cases is also likely increased as interlocutory matters in the same case are dealt with by different judges.

An alternative approach to case allocation is an individual docket system whereby each new matter is automatically allocated to the next available judicial officer, who then manages the case from commencement to disposition.[156] Cases are allocated to the judicial officer as soon as the originating process has been filed.[157] The Federal Court of Australia has described this approach as emphasizing 'active judicial management, including monitoring of parties' compliance with directions and maintaining regular contact with parties regarding the progress of a case'.[158] This individual model of case allocation may be seen as having a number of advantages over a master calendar system. In particular, it arguably 'allow[s] the court to better understand and control its whole workload by having all files managed from the moment they are first

---

670; Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 69.

[153] Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 21.

[154] For a more comprehensive discussion of these drawbacks see: Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 21.

[155] Caroline Sage, Ted Wright, and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 22.

[156] Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 21.

[157] Anna Katzmann, 'Pleadings and Case Management in Civil Proceedings in the Federal Court of Australia' (Working Paper, the College of Law Judges Series, 5 November 2015).

[158] Federal Court of Australia, *Annual Report 1997/1998* (Report, 1998) 36–37.

listed'.[159] Increased familiarity with individual cases can result in time and cost savings, enhance consistency in the handling of individual matters, and support the identification of cases that may be suitable for ADR.[160]

However, the individual docket system also has its disadvantages. It may be less flexible than other approaches to case allocation, given that once a judge has been allocated to a particular case, he or she may not be available to hear another urgent matter. It may also lead to the 'idiosyncratic treatment of cases depending on the management styles of individual judges', potentially creating inconsistency across a court.[161] In addition, the individual docket system depends on a fairly low level of cases being allocated to each judge to manage. The high caseloads and comparatively low judicial numbers in many courts can render such an approach ineffective.

It is probable that, in some courts, more sophisticated case management approaches which support both individual docket arrangements and master calendar approaches could be developed with the assistance of fairly basic forms of AI that operate using algorithmic weightings. More advanced machine-learning approaches could also ensure that cases are referred to judges in a way that enables judicial well-being to be supported (to the extent that it might be linked to excessive workload).[162]

CONCLUSIONS

It is not surprising that research reveals that court users expect that courts will employ a range of technologies to help them with a dispute.[163] As articulated by Greacen: 'in all other aspects of daily life customers are used to – and demand – services that are available to them through the internet'.[164] The difficulties in accessing courts and the inconvenience and delay in progressing a court

---

[159] Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 22.

[160] Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 22.

[161] Caroline Sage, Ted Wright and Carolyn Morris, *Case Management Reform: A Study of the Federal Court's Individual Docket System* (Report, June 2002) 23.

[162] Shanee Benkin and Marco Fabri, Council of Europe European Commission for the Efficiency of Justice, 'Case Weighting in Judicial Systems' (CEPEJ Studies No 28, 2 July 2020).

[163] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18) 1.

[164] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18) 1.

matter have been highlighted in research as the key factors which determine whether litigants are satisfied with the court system and whether they perceive the system to be fair and just.[165] This is undoubtedly one of the reasons why both online courts and increased ODR have become areas of focus in many jurisdictions over the past decade. However, the extent to which ODR is integrated within an online court varies and depends in part on views about the role of a court within the justice system (see the discussion in Chapters 5 and 10).

The IAALS's 18 essential 'capabilities' for next-generation courts provide a helpful starting point to consider how existing (or adapted) technologies may be employed to alleviate sluggish court processes and satiate user demands.[166] Notably, such improvements may effectively lead to the development of an online court through extensive case management revisions. However the approach that is taken to online court development, whether via case management reforms or more extensive reform processes can be driven by courts or the executive arm of government, and in many instances the development of online courts has been prompted by government initiatives. For example, the extensive changes in China and the UK have been prompted by shifts in government policy.

In terms of self-represented litigants, there are also opportunities that can be extended through the operation of both online courts and ODR (and indeed the IAALS's proposals would be of particular benefit to such parties).[167] Whilst self-represented litigants are very common in some courts, there can be a perception that they pose a problem for others.[168] However the author notes that there is limited information about these litigants and their interaction with the court system in Australia and overseas.[169] It has been observed that self-representation has the potential to increase time and costs 'due to a need

---

[165] See, for example: Victorian Law Reform Commission, *Civil Justice Review: Report* (Report, 2008) 10; Tania Sourdin and Naomi Burstyner, 'Justice Delayed is Justice Denied' (2014) 4(1) *Victoria University Law and Justice Journal* 46, 46.

[166] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18).

[167] John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18) 1–3, 7, 9, 12, 14–15, 27–28.

[168] Tania Sourdin and Nerida Wallace, 'The Dilemmas Posed by Self-Represented Litigants: The Dark Side' (2014) 24(1) *Journal of Judicial Administration* 1, 4–5.

[169] Naomi Burstyner, Tania Sourdin, Chinthaka Liyanage and Bahadorreza Ofoghi, 'Why Do Some Civil Cases End Up in a Full Hearing? Formulating Litigation and Process Referral Indicia through Text Analysis' (2016) 25(4) *Journal of Judicial Administration* 257, 259; Tania Sourdin and Nerida Wallace, 'The Dilemmas Posed by Self-Represented Litigants: The Dark Side' (2014) 24(1) *Journal of Judicial Administration* 1, 1.

for more pre-trial proceedings, poor issue identification, greater time responding to unclear and irrelevant evidence and more time spent in hearings'.[170] In this regard, the greater use of apps and chatbots could support such litigants.[171] Data that is produced by exploring the characteristics of cases that are within a court ('smart data') can also provide useful information about who is accessing the courts. This information can be used to assist in managing judicial workload, including by identifying high-conflict litigants and considering how to better support such parties.

In addition, unbundled legal advice,[172] pathways and triage processes can support both self-represented litigants, legal practitioners and judges. Certainly each of these processes can be incorporated into online courts, either through clever outward focused case management redesign or through the development of completely new processes. In this regard, Susskind has attempted to refute another argument frequently made by opponents of online courts: that they will result in digital exclusion. According to Susskind, any claim that some people will be unable to access the technology needed for online courts ignores the greater number of people who are excluded from traditional courtrooms due to physical or other disabilities.[173] The digital divide and its impact is discussed further in Chapter 6.

In general, discussion about online courts and whether they can be developed through case management or more extensive reform is at the heart of court reform conversations that are occurring globally, with efforts directed at either 'incremental' or 'radical' reform measures[174] (see Chapter 10). The extent to which either approach is adopted is very much dependent on how judges perceive their role and the extent to which they consider they should be involved in these broader reform conversations, with a tension existing between judges who adopt a formalist approach and those who have a more responsive style (see Chapter 10).

---

[170] Tania Sourdin and Nerida Wallace, 'The Dilemmas Posed by Self-Represented Litigants: The Dark Side' (2014) 24(1) *Journal of Judicial Administration* 1, 5.

[171] Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[172] Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[173] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 221.

[174] Notably, Richard Susskind describes himself as a 'radical' rather than an incrementalist: See Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019).

5.   Judge v robot or judge and cobot?

INTRODUCTION

The development of online courts, the digitization of all court records and the increasing use of artificial intelligence (AI) to make, or assist in making, decisions outside the court room makes it more likely that forms of AI will also be used to support and possibly supplant some judicial decision making in the future.[1] The increased use of AI outside courts is partly the result of evolving forms of AI that are linked to machine-learning developments that use algorithms which improve automatically through experience.[2] Essentially algorithms are developed that can then 'learn' and develop using past and new data. In this chapter these developments are considered in relation to the judicial role. In particular, there is a focus on 'supportive Judge AI' and the extent to which this may lead to the evolution of Judge AI (the more specific issues that arise with Judge AI are discussed in detail in Chapter 8).

The digitization of court records provides a rich database that can be used in a machine learning environment, and it is for this reason that court-related AI developments are closely linked to the digitization of court materials. It is predicted that developments in this AI area will be even more extensive in the coming years partly because of developments in the deep learning area which enable high-level data features to be analysed using artificial neural networks.[3] Such developments mean that AI can more effectively mimic human intelligence and may even perform more effectively than a human when making a decision as the data that can be considered and 'learned from' is vast and can include past judicial decisions as well as other court file material.[4]

---

[1]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1117.

[2]   See for example: NB Chaphalkar, KC Iyer and SK Patil, 'Prediction of Outcome of Construction Dispute Claims Using Multilayer Perceptron Neural Network Model' (2015) 33(8) *International Journal of Project Management* 1827. Increased computing power that is available at a lower cost also contributes to this trend.

[3]   See Kevin D Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge University Press, 2017) for a more complete description of these processes and systems.

[4]   See Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87.

The type of support that forms of AI may provide to judges varies considerably ('supportive Judge AI').[5] For example, forms of AI that produce template decisions that can then be adapted and varied by judges and used as a base for the expression of an opinion or reasons for judgment are already in place. Some very rudimentary forms of AI are already being used in this way. In addition, as discussed in Chapter 4, some more sophisticated forms of AI are also being used to 'nudge' or 'correct' judicial decision making in countries such as China.[6] In the administrative decision-making area, AI is already being used to make some decisions (see Chapter 9). At the lower levels of some courts, traffic violation issues as well as other 'small' disputes are already being case managed and, in some instances, determined via forms of AI.[7] In the USA and other jurisdictions,[8] AI is already changing judicial decision making in that forms of AI are relied upon by litigants (see Chapter 3). Additionally, in the legal sector, there are well-developed predictive analytics tools that might also be used by judges that enable predictions to be made regarding the

---

[5]   See Tania Sourdin, 'Justice and Technological Innovation' (2015) 25 *Journal of Judicial Administration* 96, 105.

[6]   Huw Roberts, Josh Cowls, Jessica Morley, Mariarosaria Taddeo, Vincent Wang and Luciano Floridi, 'The Chinese Approach to Artificial Intelligence: An Analysis of Policy, Ethics, and Regulation' (2020) *AI & Society* 1–19.

[7]   See Peter Suciu, 'AI in the Courts: The Jury is Out', *Tech News World* (Online, 20 February 2020) <https://www.technewsworld.com/story/86521.html> accessed 13 August 2020, where it was noted that 'AI already has been employed at a lower level in the Los Angeles Superior Court to handle seemingly mundane traffic citations. Visitors to the court's website can interact with Gina, an AI-powered online avatar, to pay a traffic ticket, register for traffic school, or schedule a court date. Since being installed in 2016, Gina – which is part of an effort by the LA Superior Court to reduce the backlog of cases – has had more than 200,000 interactions a year, and has reduced traffic court wait times dramatically'.

[8]   For example, in Mexico, the Expertius system is advising judges and clerks 'upon the determination of whether the plaintiff is or is not eligible for granting him/her a pension': see Davide Carneiro, Paulo Novais, Francisco Andrade, John Zeleznikow and José Neves, 'Online Dispute Resolution: An Artificial Intelligence Perspective' (2014) 41 *Artificial Intelligence Review* 211, 227–228. See also Kevin D Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge University Press, 2017).

outcome of litigation.[9] As a result of these developments[10] there are questions about the extent to which forms of AI might replace lower tier judicial decision making (see the discussion in Chapters 8 and 9).[11]

The take up of newer technologies by the legal profession, including the increasing use of AI in the form of predictive coding, predictive analytics,[12] and the greater use of machine learning,[13] illustrates the potential for additional technological advances in courts (see also Chapter 4). Other developments outside courts also suggest that AI could reshape and alter the way that ODR and even jury trials are conducted, with the latter potentially involving the adoption of blockchain technologies that not only assist with evidence verification and capture but also enable remote participation (and possibly even broader jury participation).[14]

---

[9]   Cromwell Schubarth, 'Y Combinator Startup Uses Big Data to Invest in Civil Lawsuits', *Silicon Valley Business Journal* (Online, 24 August 2016) <http://www.bizjournals.com/sanjose/blog/techflash/2016/08/y-combinator-startup-uses-big-data-to-invest-in.html> accessed 13 August 2020; 'California Legal AI Co. Gavelytics Aims to Be Case Prediction Local Hero', *Artificial Lawyer* (Blog Post, 14 November 2017) <https://www.artificiallawyer.com/2017/11/14/california-legal-ai-co-gavelytics-aims-to-be-case-prediction-local-hero/> accessed 13 August 2020; Deal Alderucci and Kevin Ashley, 'Using AI to Analyze Patent Claim Indefiniteness' (2020) 9(1) *IP Theory* 1. For an example of the various tools that exist in this regard, see: 'CARA A.I.', *Casetext* (Web Page, 2020) <https://casetext.com/cara-ai/> accessed 7 September 2020; 'Lex Machina', *LexMachina: A LexisNexis Company* (Web Page) <https://lexmachina.com/legal-analytics/> accessed 7 September 2020; 'Ross Intelligence', *ROSS* (Web Page) <https://www.rossintelligence.com/> accessed 7 September 2020; 'Ravel Law', *RAVEL: A LexisNexis Company* (Web Page) <https://home.ravellaw.com/> accessed 7 September 2020

[10]   See the approach undertaken in the United Kingdom ('UK'): Ministry of Justice (UK), *Transforming Our Justice System: Assisted Digital Strategy, Automatic Online Conviction and Statutory Standard Penalty, and Panel Composition in Tribunals* (Cm 9391, February 2017). The automatic online conviction process initially proposed in the UK has had a number of detractors, and legislation that would enable the creation of the automatic online conviction process and the development of the online court have stalled: see John Hyde, 'Prison and Courts Bill Scrapped', *The Law Society Gazette* (Online, 20 April 2017) <https://www.lawgazette.co.uk/news/breaking-prisons-and-courts-bill-scrapped/5060715.article> accessed 13 August 2020. See also Prisons and Courts HC Bill (2016–17) [170] (UK); United Kingdom, *Parliamentary Debates*, House of Commons, 20 March 2017, vol 623, col 656.

[11]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1117.

[12]   Predictive analytics are more focused on predicting outcomes.

[13]   See Kevin D Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge University Press, 2017).

[14]   See Christina Combe, 'China Combines AI and Blockchain to be Judge and Jury', *Coin Rivet* (Blog Post, 16 December 2019) <https://coinrivet.com/china-combines-ai-and-blockchain-to-be-judge-and-jur> accessed 13 August 2020.

However, some critical issues emerge about how such technologies can apply to judicial decision making. Judicial decision making can be described as a four-step process. It involves information gathering, analysis, the making of a decision and then the communication of that decision. Varying AI approaches might assist a judge at each stage of the process and supportive Judge AI is more likely to be adopted in the 'information gathering' stage of judicial decision making and then only to a limited extent. This is because, at present there are significant issues unless the information gathering is relatively simplistic and involves digitized material only (for example, in an 'on the papers' determination). There is, however, potential for significant future change in the information gathering stage as AI incorporates more sophisticated machine learning coupled with developments in natural language processing, expert systems, vision, speech, planning and even robotics that may enable additional interactive human material to be considered.

Developments in machine learning can mean that AI can replicate or even perform more effectively than a judge in terms of analytical functions – at least where no novel or unusual situation is presented (see below and Chapter 8). Such developments are more relevant where court precedent is not being developed. In addition, advances in predictive analytics can mean that the actual decision-making process undertaken by a judge might be undertaken by a form of AI.

With regard to communicating and writing reasons for a decision, more recent technological advances include the development of AI journalists that assist with the production of news stories[15] as well as synthesized media figures.[16] Yet despite such developments, the actual composition of coherent and sophisticated written material by forms of AI remains elusive.[17] Indeed the production of more sophisticated written Judge AI reasons for judgment or a Judge AI opinion is likely to be some years away (see Chapter 10 and the Preface to this book).

In this chapter, supportive Judge AI developments are a primary focus in the context of specifically focused judicial tasks, such as adjudication. However,

---

[15] See 'Microsoft News Replacing Journalists with Algorithms', *Journalism AI* (Blog Post, 30 May 2020) <https://journalismai.com/2020/05/30/microsoft-news-replacing-journalists-with-algorithms/> accessed 13 August 2020.

[16] 'Reuters Puts a Digital Twin Onscreen, Driven by AI System', *Journalism AI* (Blog Post, 12 February 2020) <https://journalismai.com/2020/02/12/reuters-puts-an-ai-presenter-onscreen/> accessed 13 August 2020.

[17] It has been suggested that one initial approach that would facilitate both machine learning and also the development of AI decisions is to alter the way that judges currently write decisions so that they are more 'machine readable'. See Jameson Dempsey and Gabriel Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit.edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

as noted previously, judges do much more than simply adjudicate (see Chapter 2). To a limited extent, this chapter also considers the increasing use of AI to perform more complex judicial functions. For example, emerging developments in affective processing may change the way that judges and forms of AI relate to litigants, lawyers, experts, witnesses and others in court. In addition, this chapter explores how such changes may lead to Judge AI that might replace judges (see also Chapter 8 in respect of Judge AI and Chapter 9 where the application of Judge AI to specific types of disputes is explored).

SUPPORTIVE JUDGE AI V JUDGE AI

A number of commentators have argued that supportive Judge AI will play a more important role in the future than fully automated Judge AI (forms of AI that may mimic and completely replace human judges). This view is partly linked to the current limited capacity of AI to undertake human judging activities (see above) as well as the perceived need to maintain a human judge presence to review, question and determine how humans and AI should operate in a changing world. On one view, the retention of human decision making ensures that important ethical and other issues are determined by humans rather than forms of AI. From this perspective, human judicial decision making should be both preserved and protected as judges act as the 'guardians' of a just human society in a society that is increasingly ordered and regulated by forms of AI (see also Chapter 9).

In terms of the capacity for supportive AI approaches, Surden has argued that the issues associated with the total replacement of human judges mean the focus should be on using technology to support human judges and complement human work.[18] In this context, supportive Judge AI systems could, for example, be used to produce a draft judgment that is then checked over by a human judge, thereby 'enabling discretionary or social considerations to be made that may be beyond the capacity of the computer program'.[19]

Similarly, in the criminal law context, it has been suggested that an AI program could generate a sentence as a reference point, much like a guideline judgment, which a human judge could then finalize.[20] It has also been suggested that supportive Judge AI could be used to review individual judicial decisions

---

[18]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87.

[19]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1130–1131.

[20]   Justice GC Martin, 'How Far has Technology Invaded the Criminal Justice System?' (Speech, Australia and New Zealand Education Law Association, Legal Studies Teachers' Conference, Brisbane, 11 May 2018).

or to exercise a quality control function by identifying inappropriate biases in decision making.[21] For example, in the UK, the Law Society of England and Wales has reported that appropriate algorithmic decision support can ensure a minimal level of consistency and counteract the biases of individual decision makers.[22] In the US, there are already examples of AI being used to 'nudge' administrative judges so that errors can be avoided.[23]

As discussed in Chapter 3, this approach has been adopted and extended in China.[24] The information and data drawn from the judgments on the online platform have been used in some court systems incorporating AI technology developed by local courts.[25] For example, Beijing High People's Court has developed and deployed a 'Wise Judge' ('*Rui Fa Guan*' in Chinese) system. The system relies on nationwide judgment data drawn from China Judgments Online, which can apply to judges in the Beijing region involved in drafting judgments to ensure that 'cases with similar facts received similar judgments'.[26] Similarly, in the criminal area, Shanghai High People's Court has developed the 'Intelligent Auxiliary System of Criminal Case Handling' where mass judicial data (including that from China Judgments Online) is collected and used by Shanghai judges to ensure that judgments in 'like' cases are in line with those delivered in the rest of the country.[27] In promoting this

---

[21]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87.

[22]   Law Society of England and Wales, *Algorithms in the Criminal Justice System* (Report, June 2019) 16.

[23]   David Engstrom and Daniel Ho, 'Algorithmic Accountability in the Administrative State' (2020) *Yale Journal on Regulation* (forthcoming).

[24]   The development of AI systems in China is well advanced in the criminal area, with fairly sophisticated Judge AI modelling in place. See Shang Li, Hongli Zhang, Lin Ye, Xiaoding Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for Legal Judgment Prediction' (2019) *IEEE Access*, vol. 7, 151144–151155, available at <https://ieeexplore.ieee.org/document/8861054> accessed 23 September 2020.

[25]   Changqing Shi, Tania Sourdin and Bin Li, 'The Smart Court – A New Pathway to Justice in China?' (forthcoming).

[26]   Changqing Shi, Tania Sourdin and Bin Li, 'The Smart Court – A New Pathway to Justice in China?' (forthcoming).

[27]   Yadong Cui, '"Artificial Intelligence" Makes the Court System More Just, Efficient and Authoritative' (Blog Post, October 2017) <https://law.stanford.edu/china-law-and-policy-association-clpa/articles/> accessed 13 August 2020.

system, former President of Shanghai High People's Court, Justice Yadong Cui, commented that:

> Because the judicial personnel are different individuals with subjective initiative, there will inevitably be some differences in enforcing uniform standard of law, which will result in inconsistent law enforcement and different judgment of the same case. Application of artificial intelligence can provide relatively unified judicial reasoning and evaluation standard, provide the judge with all similar cases, laws, regulations and judicial interpretations and so on, so the judge can strictly follow the rule of evidence and procedure, which will reduce judicial arbitrariness and effectively guard against unjust, false and erroneous cases, promoting the judicial justice.[28]

There are various concerns with this approach that can be considered in the context of judicial independence. Certainly the approach used in China could raise issues about the relationship between the executive and judicial arms of government, particularly where the executive plays a role in developing AI systems. Some commentators have identified the risk of supportive Judge AI compromising judicial independence if it is to direct or 'correct' a judicial decision (see Chapter 7).[29] In addition, there are other issues that are discussed later in this chapter which are linked to the quality and quantity of data that can be used to determine how and on what basis judicial nudging and correction takes place (see also Chapter 3 in respect of algorithmic and human bias).[30]

In relation to how AI and technology more generally can work 'with' judges, Levmore and Fagan have argued that 'teamwork by a skilled human and a machine is often superior to what even the best equipped machine can do on its own'.[31] According to Levmore and Fagan, two important roles will remain for humans in a world of Judge AI. First, and perhaps somewhat idealistically, humans will decide the goals (for example, efficiency and wealth distribution) and program machines accordingly. Second, humans will have

---

[28]   Yadong Cui, '"Artificial Intelligence" Makes the Court System More Just, Efficient and Authoritative' (Blog Post, October 2017) [as translated] <https://law.stanford.edu/china-law-and-policy-association-clpa/articles/> accessed 13 August 2020.

[29]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[30]   Also see the discussion in Chapter 3 and below relating to China's social credit system.

[31]   Saul Levmore and Frank Fagan, 'The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion' (2019) 93(1) *Southern California Law Review* 1.

the ability to overrule machines in law.[32] Notably, Levmore and Fagan suggest that this kind of teamwork between human and machine is not that different to the processes that judges currently engage in:

> It makes little difference whether a modern judge uses insights offered by a modern machine, a standard constructed by an earlier lawmaker, or indeed an earlier precedent that can now be overruled. In all these cases, the teammate might or might not reveal the 'reasons' for its suggestion, and the current judge is empowered to use his or her thinking to decide how much to rely on the teammate.[33]

ISSUES WITH SUPPORTIVE JUDGE AI

Some writers have argued that supportive Judge AI systems will raise many more problems than they will solve. Wu, for instance, has argued that it may be incorrect to think there is anything appealing about a hybrid human–machine system, noting the worst version of such a hybrid 'would pair the unthinking brutality of software-based justice with a token human presence designed to appease the humans subject to it'.[34] Crootof has also argued that the benefits of hybrid human–AI judicial systems should not be overstated. She notes that while such systems might maximize the strengths of human and machine intelligence, they can also magnify the drawbacks of both.[35]

Further, Crootof notes that such hybrid systems raise 'teaming' risks. First, there is a risk of 'automation bias' if the human being 'overtrusts' the system and endorses the algorithm's conclusion despite contradictory evidence or a clearly unfair result.[36] Further, there is a risk that if human judges face more scrutiny or criticism should they decide against an algorithm's recommendation, they will be consciously or unconsciously incentivized against it.[37] Related to this concern is the possibility that busy judges may be inclined to simply accept the supportive Judge AI material and that such an approach

---

[32] Saul Levmore and Frank Fagan, 'The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion' (2019) 93(1) *Southern California Law Review* 1.

[33] Saul Levmore and Frank Fagan, 'The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion' (2019) 93(1) *Southern California Law Review* 1.

[34] Tim Wu, 'Will Artificial Intelligence Eat the Law? The Rise of Hybrid Social-Ordering Systems' (2019) 119 *Columbia Law Review* 2001, 2027.

[35] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 243.

[36] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 243–244.

[37] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 245.

could result in 'anchoring bias'.[38] Second, the opposite risk – 'undertrust' – can also eventuate if the human decision maker is unwilling to accept the algorithm's recommendations, in which case society would have overinvested in useless infrastructure.[39] The end result could introduce more unpredictability into the decision-making process than a human judge acting alone.[40]

In addition, the author notes that in terms of supportive Judge AI, promoting and developing 'trust' between AI systems and humans is said to be essential in terms of improving AI accuracy.[41] In this regard, there may be ways in which 'trust' can be developed between judges and forms of AI. An AI judicial assistant, chat bot or reliable system that does more than create template decisions and can, for example, engage in 'conversation' or ask questions, may assist judges by supporting the analytical stage of decision making.[42] In addition, a supportive Judge AI chatbot might also provide support to those outside the court through scheduling and simpler interlocutory decision making. This has some clear advantages, including that a chatbot might be available at any time and through a range of devices so that information can be gathered and shared with greater ease. However, such 'trust' is unlikely to be present if a judge is uninterested in the technology, unwilling to use it or unskilled in the use of other basic technologies.

In relation to decision making, developments in supportive Judge AI that assist in judicial adjudication are likely to continue apace over the next decade and will include the creation of draft decisions that can then be amended, altered and varied by human judges. However, as noted by Levmore and Fagan, these finds of developments have considerable risk.[43] While such arrangements may not be all that dissimilar from those in the past, the risk arises from situations where reliance on automation becomes the norm and

---

[38]   See generally Birte Englich and Thomas Mussweiler, 'Sentencing Under Uncertainty: Anchoring Effects in the Courtroom' (2001) 31(7) *Journal of Applied Social Psychology* 1535.

[39]   Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 245.

[40]   Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 244.

[41]   Yunfeng Zhang, Q Vera Liao and Rachel Bellamy, 'Effect of Confidence and Explanation on Accuracy and Trust Calibration in AI-Assisted Decision Making' (Conference Paper, Conference on Fairness, Accountability, and Transparency, Barcelona, Spain, January 2020).

[42]   For further discussion, see Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[43]   Saul Levmore and Frank Fagan, 'The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion' (2019) 93(1) *Southern California Law Review* 1.

where there is little focus on independent judicial action. This seems much more likely in underfunded busy courts.

In terms of more complex decision making, other risks relate to what evidence may be considered in a supportive Judge AI system. At its simplest, a form of AI could produce a template decision based on legal issues so that a judge might simply strike out non-applicable sections. However, supportive Judge AI could also consider evidence provided, both written and oral (converted to text) to produce a draft decision. In considering the evidence, it is likely that the AI, as a result of machine learning, will have skimmed material relating to decisions in similar cases. It is the nature and extent of that data that is relied on (see Chapter 3) as well as the emphasis placed on some material to the exclusion of others that might be problematic, particularly if human supervision is reduced.

There are also other ways that supportive Judge AI could assist judges which are not related to the development of final court judgments or decisions. For example, forms of AI already exist that enable financial information to be mapped, synthesized and interpreted.[44] From a judicial perspective, this might mean that supportive Judge AI could assist a judge to better understand what might be appropriate in terms of a financial award for compensation or enable a judge to better understand the financial contributions in a company dispute. In addition, 'expert' systems may also assist a judge to better understand potential arrangements that might impact on care orders that affect children or even the prognosis of a person who has suffered injury and is seeking compensation. In essence, such supportive Judge AI developments (or even apps)[45] that may be used by both judges and disputants could transform some aspects of judicial activity and also impact on court users.

THE EVOLUTION OF THE ROBOT JUDGE

Regardless of whether supportive Judge AI or indeed an AI Judge is regarded as ideal, the author has previously argued that the larger question is not *if* AI will reshape the judicial function but *when*.[46] In considering the developments in the administrative decision-making area, it seems likely that some forms of

---

[44]   See, for example: '1-Click Disclosure', *Adieu* (Web Page, 2020) <https://www .adieu.ai/1-click-disclosure/> accessed 13 August 2020. See also: Tania Sourdin, *Adieu Intelligent Divorce App and Family Dispute Resolution Project* (Report, University of Newcastle, 2020).

[45]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[46]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1131.

Judge AI will initially be used in respect of lower tier judicial decision making (see Chapters 8 and 9).

As with autonomous vehicles, the extent to which humans will be involved in that decision making will vary. In relation to autonomous vehicles, currently five levels of automation are tracked. The author notes that similar automation levels could apply to Judge AI. The first level involves no significant assistance by AI; the second involves the operator retaining full control but having some assistance; the third involves partial automation, however the operator is still required to monitor the environment and supervise when required; the fourth level includes high levels of automation where the operator essentially becomes a passenger, although there are circumstances where an operator can intervene; and the fifth level is where no interaction is required by a human.[47]

In relation to Judge AI and using the same 'level' approach, it is suggested that lower tier judicial decision making is likely to be initially adopted using levels one, two and three noted above. That is, more supportive Judge AI models that require human judge supervision and monitoring are more likely in most countries in the short term.

The extent to which level four and five systems of automation are developed will be dependent on 'in country' cultural, judicial and political factors, as well as technological readiness. Such readiness may take some time given the legacy systems that operate in many courts (see Chapter 4). However, it is notable that some court systems are already being readied for such shifts which are supported by influential commentators. For example, as noted in Chapter 4, Susskind has discussed the third tier of online courts:

> Tier 3 provides determination of authoritative decisions by judges. Whilst the first generation of services at this level involves human judges (but not in a traditional, physical courtroom), Susskind envisages a second generation where determinations are made by some form of AI.[48]

With both supportive Judge AI and Judge AI there are factors that will influence take up that cannot be overlooked and that are related to the extent to which judges and others might 'trust' developing AI systems. This is particularly problematic as AI can be expected, at least initially, to make mistakes and may have low accuracy levels.[49] In addition, and as discussed further

---

47   Lilla Thiele-Evans, Blake Pepper, John Zeleznikow, Neil Foster and Tania Sourdin, 'Navigating a New Terrain: Autonomous Vehicle Regulation in Australia, with Cross-Border Complications' (forthcoming).
48   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 116–118.
49   Jonathan Martinez, Kobi Gal, Ece Kamar, Levi Lelis 'Personalization in Human-AI Teams: Improving the Compatibility-Accuracy Tradeoff' (2020) *Paper*, available at <https://arxiv.org/pdf/2004.02289v1.pdf> accessed 24 September 2020.

below, there are more specific questions relating to how humans might trust an AI judge. Supportive Judge AI might enable a human judge to correct AI outcomes and processes so that mistakes are reduced and trust increases.

Harvey has outlined the processes that might be used by an AI Judge using the examples of current predictive AI systems, and each could be regarded as a separate stage in the development of supportive Judge AI. A supportive AI Judge could, for example, consider legal databases and other data while employing natural language processing to source relevant material based on search terms. In addition, a supportive AI Judge could reduce potentially relevant materials to a manageable and relevant sample, before applying these materials to a new case in order to reach an outcome. Harvey explains that this final step requires 'the development of the necessary algorithms that could undertake the comparative and predictive analysis, together with a form of probability analysis to generate an outcome that would be useful and informative'.[50] It is at this stage that supportive Judge AI can become standalone Judge AI, potentially with no human oversight (as with the fifth level of self-driving cars).

The primary concerns with AI use at this level (Judge AI) are explored in some detail in Chapter 8 of this book. However, at the point where a human judge becomes less relevant, and where AI begins to 'take over' there is some commentary that is relevant. For example, Volokh has given detailed consideration to the factors that should guide thinking on the topic of Judge AI, identifying four key principles. Again, as discussed in Chapter 2, there are issues regarding the extent to which such principles recognize the work that judges do in terms of non-adjudicative work, as well as the work undertaken when presiding in a hearing to test and assemble evidence. In addition, in countries where judges play a more active role in the creation and interpretation of the rule of law, there are important issues that can be linked to the capacity of Judge AI to act in a 'human' way while judging and to be creative in so far as novel situations are concerned (see the discussion in Chapters 1 and 8).

To some extent, Volokh's approach is guided by a view that judicial decision making is a science and involves rational components rather than intuition or possibly compassion. In this regard, Volokh's first principle relates not to whether the *method* used by the AI Judge is intelligent, but whether its *output* is intelligent.[51] The author would add that such decisions must also meet basic

---

[50]   David Harvey, 'From Susskind to Briggs: Online Court Approaches' (2016) 5(2) *Journal of Civil Litigation and Practice* 84, 93–94.

[51]   Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1137–1138.

ethical requirements (see Chapter 9) and therefore such decisions must also be 'acceptable'.

This approach to judicial decision making runs counter to some jurisdictional understandings about how judges make decisions. The way in which judges do make decisions has been the subject of some academic and judicial attention in the past. For example, in Australia, there was some discussion in *R v Markarian* about the 'instinctive synthesis' undertaken by judges that meant that judges do not have to always give transparent reasons for decisions.[52] Some commentators have suggested that the High Court decision in *R v Markarian* means that:

> … from a neurobiological perspective, the court's preferred consciously considered and articulated methods of sentencing decision-making are those most likely to result in rational and well-reasoned, yet humane, sentences. All information is initially sorted and prioritised at an unconscious level, a process of sorting reliant upon attaching emotional significance to information on the basis of the previous experience of the judge. Without this ranking system, the brain would become overloaded with indistinguishable information.
>
> Once this prioritising has taken place, however, the judge is able to consider the individual case in the context of all relevant legal, social, and personal considerations. Irrelevancies may be excluded and feelings and emotional reactions scrutinised for appropriateness.[53]

Weighed against the concern that AI is unable to do such intuitive work is the potential for more sophisticated systems to develop that can assist in doing so. Such systems could be developed acknowledging the value (and cost) that human judges can 'add' in retaining the humanity in decision making and preserving the dignity of humans, whilst recognizing that science and AI are fallible. To some extent these are philosophical questions. However, on the whole, such questions are also very much critical, pragmatic questions that involve weighing costs and benefits within a value-driven decision-making framework (see Chapter 9) that supports the effective design and development of courts and judicial processes into the future.

Second, Volokh suggests that the results reached by an AI Judge should be compared to the results reached by human decision makers. The computer need not match 'the best of the best'; it simply needs to match the performance of the average human decision maker. Here, Volokh argues that in order to

---

[52] Tania Sourdin, *Alternative Dispute Resolution* (6th ed, Thomson Reuters, 2020) ch 6.

[53] Hayley Bennett and Tony Broe, 'Judicial Neurobiology, Markarian Synthesis and Emotion: How Can the Human Brain Make Sentencing Decisions?' (2007) 31(2) *Criminal Law Journal* 75, 90.

prove that a robot is an adequate substitute for a human decision maker, it will need to pass an opinion-writing competition wherein it must perform as well as the average performer, as determined by a panel of human judges who must evaluate performances without knowing which participants are computers and which are humans.[54] This element is relevant in part because some commentators have suggested that AI systems can be held to an impossible and unmeetable standard of accuracy. That is, they are often expected to do a great deal better than humans.

Third, Volokh suggests that the criterion of comparison for the performance of human and AI judges should be persuasion. The AI Judge should be able to (i) 'construct persuasive arguments that support the various possible results in the case'; and (ii) 'choose from all those arguments the one that is most persuasive, and thus the result that can be most persuasively supported'.[55] Volokh argues that a decision which persuades is more important than a decision that is fair, wise or correct. This is because there will always be disagreement as to what is fair, wise or correct and, in ordinary litigation, 'the winning side is the side that persuades the judge, even if there is no logical way to prove that the winning answer is correct'.[56] This aspect of Volokh's argument has attracted criticism, including from Michaels, who argues that Volokh ignores the fact that 'what is persuasive at one point in time is not necessarily persuasive later on, as the factual realities and moral values of society shift'.[57]

Finally, Volokh argues that AI first-draft writers should be promoted to AI decision makers. Essentially, Volokh argues that if AI draft writers consistently produce opinions that judges adopt, then it makes sense to let the AI make the decision itself. In doing so, he suggests that problems associated with human bias and prejudice can be avoided.[58] This rather controversial view perhaps highlights what might be in store for some judicial decision makers in the two areas where Judge AI is more likely to be established, at least initially: simple criminal matters[59] (or portions of decision making in respect of sen-

---

[54] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1138–1139.

[55] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1140–1142.

[56] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1152–1153.

[57] Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

[58] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1141–1142.

[59] The author notes that the AI that has been developed in China can apply to a broader range of criminal cases – see Shang Li, Hongli Zhang, Lin Ye, Xiaoding Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for

tencing decisions) and simple civil claims (see Chapters 8 and 9). Importantly, this view suggests that some commentators consider that supportive Judge AI evolution will lead to the development of Judge AI that will exist with little continuing human supervision.

In some parts of the world, steps have already been taken to remove judges from the determination of some disputes. In Estonia, the Ministry of Justice has announced plans for a robot judge for small claims.[60] In the UK, there have been plans for an 'automatic online conviction' process since 2017.[61] Zalnieriute and Bell argue, however, that such steps have focused on offences or disputes where judges have little judicial discretion.[62] For instance, it is noted that the past UK proposal applies to strict liability and summary offences such as fare evasion.[63]

Whether or not the move towards Judge AI is beneficial is itself a controversial issue. On the one hand, Crootof observes that 'human judges are an inherently expensive and limited resource: They must prepare for years, they take time to decide cases, and they retire. As a result, over and over again, justice delayed becomes justice denied'.[64] On the other hand, other commentators have argued that the idea that judicial reasoning 'could or should be com-

---

Legal Judgment Prediction' (2019) *IEEE Access*, vol. 7, 151144–151155, available at <https://ieeexplore.ieee.org/document/8861054> accessed 23 September 2020.

[60]   See Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1115; Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[61]   United Kingdom Ministry of Justice, *Transforming Our Justice System: Assisted Digital Strategy, Automatic Online Conviction and Statutory Standard Penalty, and Panel Composition in Tribunals* (Government Response, February 2017).

[62]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role', in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020). Indeed in this regard Taruffo has distinguished between 'strong' and 'weak' discretion, see: Michele Taruffo, 'Judicial Decisions and Artificial Intelligence' (1998) 6 *Artificial Intelligence and Law* 311, 319–320. This is also discussed further in Chapters 8 and 9 of this book.

[63]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role', in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[64]   Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 236–237.

pletely reduced to simple logical models, or to a narrow group of computerized calculi, is clearly untenable'.[65]

Some significant issues with Judge AI can, however, be linked to a number of concerns, including: the transparency of the decision-making process; the capacity of AI to understand and factor in the social impact of decision making; the extent to which Judge AI can exercise legal authority; the acceptance of Judge AI decisions; the capacity to translate law into code; the ability to make discretionary judgments (see also Chapters 2 and 9 relating to 'weak' and 'strong' discretion); and the capacity to reflect more nuanced understandings of syntax and semantics (see Chapter 8).[66]

In the context of transparency in terms of decision making, many authors consider that Judge AI is problematic partly because the decisions made cannot be explained (see also Chapter 3 in relation to the cross-examination of algorithms). In short, it is considered that the lack of 'explainability' or the opacity of AI outcomes, can impact on the quality of the decision, its reviewability as well as the extent to which it might be accepted. The notion of explainability in the context of AI and machine learning is an inherently nebulous concept. On the one hand, recent literature from Bhatt et al. indicates that the term 'refers to tools that empower a stakeholder to understand and, when necessary, contest the reasoning of model outcomes'.[67] On the other hand, Engstrom and Ho emphasize the elements of transparency and user understanding:

> … what level of transparency into an algorithmic system's workings is necessary to gauge the system's fidelity to law. It starts from a well-established pair of ideas. One is that advanced machine learning outputs are *inscrutable* in the sense that even their own engineers cannot necessarily understand how the most advanced models arrived at a given result.[68]

However, where an AI Judge produces a decision that refers to the relevant legal factors, the factual matrix, and is based and relies on past judicial decisions, arguably such a decision is explainable. Nevertheless, opacity and trans-

---

[65]   Michele Taruffo, 'Judicial Decisions and Artificial Intelligence' (1998) 6 *Artificial Intelligence and Law* 311, 317.

[66]   See Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1115.

[67]   Umang Bhatt, McKane Andrus, Adrian Weller and Alice Xiang, 'Machine Learning Explainability for External Stakeholders' (Workshop Paper, ICML Workshop on Extending Explainable AI, 2020) 2.

[68]   David Engstrom and Daniel Ho, 'Algorithmic Accountability in the Administrative State' (2020) 37 *Yale Journal on Regulation* 800, citing Andrew Selbst and Solon Barocas, 'The Intuitive Appeal of Explainable Machines' (2018) 87 *Fordham Law Review* 1085. See also: Judea Pearl and Dana McKenzie, *The Book of Why: The New Science of Cause and Effect* (Basic Books, 2018).

parency remain Judge AI issues, particularly in more complex cases where the factors that are considered and the interpretation of evidence requires more careful analysis. There are also considerable and related issues in terms of the delivery of a judicial AI decision and how it can be shown that precedent has been followed and that the legislative nuances have been considered in the context of social impact. Engstrom and Ho note that:

> Machine learning outputs are also often *non-intuitive* in that the rules they derive to make predictions are so complex and multi-faceted that they defy practical inspection or do not comport with any practical human belief about how the world works.[69]

In a supportive Judge AI situation, such issues might be avoided (see however anchoring bias concerns that were previously discussed) as a human judge will determine whether or not they will accept, amend or reject the AI Judge decision. There is also the likelihood that supportive Judge AI, rather than standalone Judge AI will raise fewer issues about who has the authority to make a decision. For example, in terms of legal authority and an automated system delivering administrative decisions, Justice Perry of the Federal Court of Australia has raised questions such as *who* makes the decision and who possesses the legal authority to make such a decision (see also Chapters 3 and 8).[70] Is it the computer programmer, the policymaker, the human decision maker or the computer or automated system itself?[71] Courts are currently grappling

---

[69] David Engstrom and Daniel Ho, 'Algorithmic Accountability in the Administrative State' (2020) *Yale Journal on Regulation*, citing Andrew Selbst and Solon Barocas, 'The Intuitive Appeal of Explainable Machines' (2018) 87 *Fordham Law Review* 1085. See also: Judea Pearl and Dana McKenzie, *The Book of Why: The New Science of Cause and Effect* (Basic Books, 2018).

[70] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 31. These issues have also been raised in the American context, see: Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147.

[71] The contention that exists here is illustrated by *Pintarich v Commissioner of Taxation* [2018] FCAFC 79. In this case, a letter was generated by the Australian Taxation Office (ATO) using an 'automated system designed to produce, print and send letters to taxpayers': [62]. The letter sent to the taxpayer purported to remit a portion of his liability. The taxpayer paid the amount as stipulated. However, the ATO continued to send the taxpayer further statements of account with increased liability. The Full Federal Court of Australia held (2:1) that the computer-generated letter remitting a portion of the taxpayer's liability could not be relied on by the appellant because there had been no 'decision' by the ATO to remit the liability. The Court held that a 'decision' involved a 'mental process of reaching a conclusion' and an 'objective manifestation of that conclusion': [140]. The computer-generated letter did not meet this standard.

with such issues as they consider automated administrative decision making. At times, it can be suggested that a decision is not 'authorized' or lacks the requisite authority while, at other times, AI decision making is perceived to be appropriate[72] and undertaken with the requisite authority.[73]

The acceptance of AI decision making may be problematic particularly where there are concerns about realistic levels of judicial oversight. As noted in Chapter 2 and earlier in this chapter, in busy lower tier courts it may be unrealistic to expect that there will be sufficient judicial oversight. In addition, many people may simply not feel comfortable accepting a decision that has been produced by a form of AI, even where it has been 'checked' by a human judge. On the other hand, using a medical analogy, it would appear that acceptance and trust in terms of medical diagnostic outcomes has grown over time and that a staged and evolutionary approach to Judge AI (which seems more likely in any event) will support the acceptance of Judge AI decision making. Appellate mechanisms will also be relevant as well as general social acceptance of the use of AI in government decision making. If there are well-publicized failures in terms of AI use elsewhere in society, such as the robodebt scheme in Australia (see Chapter 3),[74] there may be lingering public doubts about both the efficacy and accuracy of AI systems that will in turn impact on the acceptance of Judge AI.

---

[72] In 2020, legislation was introduced in Australia to address automated decision making in social security matters. It is noted in the explanatory material that 'However, decisions are now frequently made through an automated process. It is not certain that a court would regard a reference to an officer as including an automated process. Accordingly, an amendment to the legislation is to be made to clarify the situation in respect of online claims'. See *Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020* available at <https://www.aph.gov.au/Parliamentary _Business/Bills_Legislation/bd/bd2021a/21bd003> accessed 18 September 2020.

[73] See for example: *Pintarich v Commissioner of Taxation* [2018] FCAFC 79 [140]. It is also interesting to consider the *Pintarich* decision in the context of existing practices guiding the design of automated administrative decisions in Australia. In 2007 the Commonwealth Ombudsman's Office issued a *Better Practice Guide to Automated Decision Making* (Guide). The Guide recognizes the utility of automated decision making in the administrative context, while at the same time developing principles to ensure 'automation is used only where appropriate'. In particular, the Guide provides that: 'automated systems must comply with administrative law principles of legality, fairness, rationality and transparency': *Commonwealth Ombudsman* (Web Page) <https://www.ombudsman.gov.au/better-practice-guides/automated-decision-guide #sec-23> accessed 13 August 2020.

[74] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425.

In terms of the capacity to translate law into code, a distinction must be made between more recent developments in sophisticated machine-learning approaches and past algorithmic conversion processes where essentially the algorithms are created based on decision-tree approaches (often with expert input). With the latter approach, there are issues that have previously been described by the author as follows:

> Commentators have raised the issue of how to accurately translate the law into codes, commands and functions that a computer program can understand. Legal language is nuanced and often requires contextual understandings … Computer programmers and IT professionals rarely have legal qualifications or experience, nor are they policy or administrative experts. However, it is these professionals who are tasked with translating legislation and case law into computer codes and commands to allow an autonomous process to make decisions. These sources of law – whilst complex on their own – also operate within the context of statutory presumptions and discretionary judgments. Ensuring these intricacies are properly coded into an autonomous process is challenging. Because of these challenges, commentators note that more regulatory areas of the law may be better suited to being transformed into computer code.[75]

Whilst such issues also exist with machine-learning systems, arguably they become less relevant over time. However, there is still a need for 'codes' to be constantly updated due to frequent legislative amendments and where complex transitional provisions exist.[76] Automated systems will also require a capacity to apply the law from various points in time, to ensure that cases are decided on the laws that applied at the relevant time the actions occurred. These challenges can potentially be met by including lawyers and policymakers in the creation and updating of these computer programs.[77]

---

[75] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1127, citing Chief Justice T F Bathurst, 'iAdvocate v Rumpole: Who Will Survive? An Analysis of Advocates' Ongoing Relevance in the Age of Technology' (Speech, Australian Bar Association Conference, Boston, 9 July 2015) 4 [13].

[76] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 115, 1128, citing Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

[77] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 115, 1128, citing Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32; Jameson Dempsey and Gabriel Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit.edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

With more sophisticated machine-learning approaches, some other concerns that are noted above are still relevant. That is, if the form of Judge AI relies on past decisions and if the law changes (which occurs frequently in many countries) there is a significant risk that the Judge AI will produce inaccurate outcomes. In addition, Judge AI outcomes could be stuck 'in time'. That is, they might reflect past social and financial arrangements and not contemporary arrangements. For example, one criticism of an AI approach currently used in property damage insurance in Australia is that compensation amounts determined by the AI reflect past understandings and are not increased (although the cost of repairs may have increased over time).[78]

Similarly, syntax and semantics and understanding of human meaning are problematic for many forms of AI that extend beyond basic transactional arrangements. Whilst voice to text tools are now relatively common, the capacity to derive meaning requires complex contextual understandings. This is probably one of the more significant issues in terms of the development of Judge AI (see Chapter 8). In effect, if the Judge AI is also responsible for considering evidence and that evidence extends beyond text-based material (such as oral evidence), meaning can be lost or corrupted. In addition, as noted in Chapter 4, should the evidence be paper based, there can be more digital divide issues as wealthier court participants may be better able to advocate 'on the papers' in terms of more sophisticated forms of Judge AI. Supportive Judge AI can alleviate such concerns, in that a human judge could translate and consider both meaning and context.

Supportive Judge AI arrangements that address issues relating to syntax and semantics can also impact on both the acceptability of assisted AI outcomes as well as the quality of the decision making that takes place (see discussion in Chapter 8). This can be an issue in the understanding of evidence as well as the emphasis placed on that evidence. Whilst some commentators might argue that this could result in a reduction in bias (see Chapter 3), there are concerns that if material is interpreted on the basis of the material itself without attention paid to extrinsic material, this in itself means that meaning is lost. Supportive Judge AI would reduce this risk and the potential risk raised by algorithmic bias. This may mean that extrinsic material is considered so that 'human thinking' is reflected in the outcome. Notably:

> Along similar lines, the use of AI in law may be confronted by the philosophical distinction between syntax and semantics. Searle famously noted that computer programs possess syntax (a formal structure of operation), but do not possess semantics (meaning behind these operations). Digital technology processes information in

---

[78]   See IBM Watson, 'How Does IBM Watson Work?' (YouTube, 12 November 2018) <https://www.youtube.com/watch?v=r7E1TJ1HtM0> accessed 13 August 2020.

the form of abstract symbols, namely ones and zeros. The technology possesses the ability to process and manipulate these symbols, but it does not understand the meaning behind these processes. In other words, the machine does not understand the information that it is processing. This can be contrasted with the human mind, which can understand the information that it processes. This issue means that computer programs will be able to simulate human ways of thinking, but it will be some time before they can truly duplicate human ways of thinking.[79]

DATA SAMPLES, ABERRANT AND HARD CASES

The data that is used to inform the development of either supportive or standalone Judge AI which is enabled through machine learning may also be problematic. The author has previously noted that, in general, little is known about the disputes, disputants or outcomes in the civil court system. That is, while there is an understanding that many civil cases settle or are withdrawn and that few cases in most jurisdictions progress to a final hearing,[80] the demographics or circumstances of those using civil courts may not be known nor the outcomes achieved. This is because in many civil courts more than 90 per cent of cases do not progress to a hearing, and information about this significant group of cases is either not known or not tracked in many court systems (see also Chapter 3).

What this means is that if AI is developed so that decided cases are used to determine what outcomes should apply, then this data sample is likely to be incomplete and potentially misleading. Such a data set might, for example, only focus on aberrant cases as arguably the cases that progress to a full hearing are likely to be more difficult in terms of task or behavioural complexity as they might otherwise have settled.[81] To use a medical analogy, if such a data sample is used, only outlier cases will inform the development of the system in much the same way as a physician using such a limited data sample might only receive data about medical cases where significant complications are evident.

---

[79]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 115, 1131, referring to John Searle, 'Can Computers Think?' in David J Chalmers (ed), *Philosophy of Mind: Classical and Contemporary Readings* (Oxford University Press, 2002) 669, 673.

[80]   See Tania Sourdin, Naomi Burstyner, Chinthaka Liyange, Bahadorreza Ofoghi and John Zeleznikow, 'Using Technology to Discover More About the Justice System' (2018) 44 *Rutgers Computer and Technology Law Journal* 1.

[81]   See Tania Sourdin, Naomi Burstyner, Chinthaka Liyange, Bahadorreza Ofoghi and John Zeleznikow, 'Using Technology to Discover More About the Justice System' (2018) 44 *Rutgers Computer and Technology Law Journal* 1.

If a sophisticated machine learning approach is to be adopted it is therefore important that the data sample that is used, at least initially, extends beyond decided case data. Notably, once a competent machine learning Judge AI system is in place and well developed, this may become less relevant as the data will include the data informed by past Judge AI processes. In terms of the data sample, even with the digitization of court records, many courts have incomplete sets of data that might exclude relevant material. For example, where parties to a civil court matter reach an agreement, the nature and terms of that agreement might simply not be known to the court.

This may mean that initial data skimming needs to extend beyond court files and include other data such as lawyer case file data. Indeed, it will also require that litigants furnish far more material to a court. Such an approach is considerably easier if the process of commencing a court action is simplified so that data capture happens through the life of a court process. Such data could also assist courts to better understand where referral to alternative dispute resolution (ADR) or online dispute resolution (ODR) might be useful and could also result in automated triage and follow up (although privacy concerns may be present – see Chapter 10).

Bell has also highlighted this issue in the context of family law disputes. Here, Bell argues that any reliance on data comprised only of judgments would represent a collection of 'outlier' data, given that the majority of separations do not proceed to final hearing and judgment.[82] The Australian Law Reform Commission has similarly noted that those litigating family law disputes represent only a very small proportion of all people who go through separation, with approximately 70 per cent of people resolving parenting disputes without recourse to the family law system, and 40 per cent resolving their property disputes via discussion. It is projected that this rate is higher for separating couples without children. Of matters which do enter the system, the 'vast majority' settle.[83]

In relation to criminal matters, in many courts, the data sample is far more extensive and outcome and demographic information is also available. The same could be said in relation to some categories of administrative dispute, although there are issues that exist relating to data overreach and the extent to which data (including social surveillance data) might be used to inform machine learning in the context of Judge AI (see Chapter 3).[84]

---

[82] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 118.

[83] Australian Law Reform Commission, *Family Law for the Future: An Inquiry into the Family Law System – Final Report* (Report No 135, March 2019) 79, 80.

[84] Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020). For example, social surveillance data can be used in

In relation to how Judge AI might deal with more aberrant or hard cases, it has been suggested that human decision makers may be better equipped than robot judges to deal with such cases. Wu has argued that human judges have a clear advantage over their algorithmic alternatives in hard cases. This is because: (i) the software lacks the ability to understand context or nuance; (ii) they require the balancing of conflicting values or avoidance of absurd consequence; or (iii) the stakes are high enough to merit human involvement.[85] Specifically, it is noted that human courts are preferable in such cases where it is crucial to ensure 'the prevention of absurd errors, obviously unjust results, and other inequitable consequences of a blind adherence to rules'.[86]

Taruffo has similarly argued that while the factors of simplicity, repetitiveness and frequency can be identified in similar cases, this is rarely the most frequent or 'normal' situation. Rather, these 'easy cases' are often too difficult to be standardized in terms of computerized models. As such, standardization is extremely difficult or impossible to achieve in the 'average' judicial case, let alone in 'hard' cases.[87]

The issues identified by Taruffo do not (understandably given the date at which they were expressed) appear to contemplate the more evolved machine-learning approaches that are currently in place and which are likely to develop in the future. Such machine-learning approaches are likely to support the development of Judge AI in simpler and more 'easy' cases. Indeed, AI based on machine-learning approaches is already well developed in the insurance sector (to deal with claims)[88] and in other areas that involve consumer transactions. Such simpler cases could include cases involving debts, fines, consumer issues, simpler contractual cases and some personal injury matters

---

China to calculate a social credit score. The compilation may involve data from many agencies and the score itself may be used to limit citizen movements and benefits or can be used in court proceedings and could conceivably be used to assess credibility. See Rogier Creemers, 'China's Social Credit System: An Evolving Practice of Control' (Research Paper, Van Vollenhoven Institute, Leiden University, 9 May 2018) and for an example of how this is perceived in China see Dev Lewis, 'Separating Myth from Reality, How China's Social Credit System Uses Public Data for Social Governance', *Nesta* (Blog Post, 18 May 2020) <https://www.nesta.org.uk/report/separating-myth-reality/citizen-scoring/>.

[85]   Tim Wu, 'Will Artificial Intelligence Eat the Law? The Rise of Hybrid Social-Ordering Systems' (2019) 119 *Columbia Law Review* 2001, 2023.

[86]   Tim Wu, 'Will Artificial Intelligence Eat the Law? The Rise of Hybrid Social-Ordering Systems' (2019) 119 *Columbia Law Review* 2001, 2023.

[87]   Michele Taruffo, 'Judicial Decisions and Artificial Intelligence' (1998) 6 *Artificial Intelligence and Law* 311, 318.

[88]   Vali Asimit, Ioannis Kyriakou and Jens Perch Nielsen, 'Machine Learning in Insurance' (2020) 8(2) *Risks* 54.

as well as other categories of cases that are likely to be dealt with at lower tiers of the court system.

However, the streaming of simple cases to Judge AI does raises many issues (see Chapter 9). In particular, there is question around the acceptance of AI to deal with cases that may appear to be 'simple' from a court perspective, but which may be complex and life changing for the humans involved in such disputes. For some, a Judge AI experience may not equate to a 'day in court', particularly if there is limited opportunity to participate in a court process (see Chapters 2 and 6) and the lack of a human face may result in a range of unintended consequences. On the other hand, savings in terms of a reduction in cost and delay as well as the introduction of 24/7 justice may mean that, for many, Judge AI is an improvement on the way that the justice system currently works.

In terms of the experience that people take away from Judge AI, there are many issues regarding responsiveness that were canvassed in Chapter 2 of this book. That is, human judges who are responsive and preside over problem-solving courts or who use a therapeutic jurisprudential approach to court hearings may reshape human behaviour and play an important role in terms of promoting justice. Whilst developments in affective computing might assist in better understanding the dynamics that are present in such court environments,[89] there are many issues about the extent to which forms of AI can model more responsive judicial interactions (see Chapters 4 and 9).

Indeed some commentators have raised the concern that, as Judge AI proliferates in the judicial sphere, the performance of discrete, emotive tasks that human judges typically perform to promote engagement with the legal process and its normative legitimacy will be lost.[90] Re and Solow-Niederman, for example, note the concern of Judge AI being less capable of fostering feelings of 'respect' among losing litigants:

> For instance, human judges often win the respect of litigants by acknowledging that the losing party's views have some force, but it is an open question whether that psychological effect would still arise when a programmed machine behaves in a similar manner. True, a robot judge could express even handed respect for both

---

[89] Developments in affective technology are already being developed to assist in better understanding what takes place in educational environments – see Sanna Järvelä, Dragan Gašević, Tapio Seppänen, Mykola Pechenizkiy and Paul A Kirschner, 'Bridging Learning Sciences, Machine Learning and Affective Computing for Understanding Cognition and Affect in Collaborative Learning' (2020) 51(6) *British Journal of Educational Technology* 2391.

[90] Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 276.

sides – but would a litigant feel respected when a programmed device simply does what it is programmed to do?'[91]

CONCLUSIONS

The opportunities presented by Judge AI suggest that a continuum of approaches will emerge in the short term that can be described using the supportive, replacement and disruptive stages of technological development approach described previously (see Chapter 1). That is, some Judge AI might be supportive and enable judges to better manage their judicial workloads as the creation of basic template judgments and cobots that assist with judicial work are further developed. Some supportive developments may raise more issues than others, particularly where they may 'nudge' judges or 'correct' judicial decision making. These issues are discussed further in Chapters 7 and 8.

Other developments may be more focused on the replacement of some or most determinative judicial tasks with forms of AI. From this perspective, judges may remain involved in adjudication, with supportive and replacement technologies enabled by machine learning. However, the judicial role may be limited and shift in some instances to a more supervisory, monitoring and reviewing function with the development of supportive Judge AI.

There are some more significant and disruptive changes that are the result of using Judge AI to completely replace human judges. Such developments, as discussed above and in Chapters 8 and 9, are likely to initially occur at lower court levels and in relation to certain categories of cases (for example, 'simple' insurance cases) or similar cases that arise in high volume court environments. The developments in these areas are, as previously noted, the most controversial and require considerable thought as well as the articulation of ethical boundaries and appropriate approaches (see Chapter 9). Such approaches are also likely to occur over time so that initially supportive and replacement technologies will be adopted and adapted by courts.

There are also particular issues that emerge where novel cases or creative solutions are required. The extent to which this is relevant may vary from country to country. However, in general, jurisdictions that have a common law tradition and rely on the creation of precedent (see discussion in Chapter 2) may have greater concerns about the development of Judge AI which, at present, is likely to be limited to a 'past' rather than 'future' focus. In this regard: 'machine learning techniques are only useful where analysed informa-

---

tion is similar to new information presented to the AI. Should an AI program be presented with a novel case where no similar precedent exists, it may not be well-suited in making a prediction or coming to an outcome'.[92]

It is clear that some jurisdictions have already commenced their journey along the Judge AI continuum and others are yet to consider how the judicial role will change as a result of the evolution in Judge AI. One matter is, however, very clear. The development of Judge AI requires that court records be digitized so that more evolved machine learning can take place. In addition, the online court models discussed in Chapter 4 enable Judge AI developments that Susskind has identified as an extension of the online court process. Essentially, using this framework Judge AI is somewhat inevitable; it is really a question of how far it will extend and to what extent judges are supported, rather than supplanted by such developments.

There are other disruptions that might previously have been thought to exist only in science fiction literature that are worthwhile considering in the context of Judges, AI and technology. Such developments include the potential for human judges to be 'improved' so that they are more able to deal with complex caseloads, and suggest that the arguments for or against Judge AI are not merely binary. In this regard, the author notes that already police recruitment in some parts of the world involves brain scans to determine which applicants might be a good 'fit', that is, might be more able to successfully undertake a range of policing duties and have an appropriate temperament.[93] Such developments suggest that technology could be used to recruit 'better' or more 'effective' judges.

Finally, within the realms of speculative ways in which technology can assist judges, transhumanism is being considered by futurists in a range of contexts.[94] Essentially, transhumanism suggests that humans can be 'upgraded' using biotechnological approaches and that such approaches are both beneficial and inevitable.[95] In view of many medical science developments over the

---

[92] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1126, citing Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105.

[93] Antonio Berlanga, *Policing and Mediation: Neuroscience Applied to the Training Area of Police Mediation* (Report, 27 January 2020).

[94] Some might suggest that such developments are no longer merely speculative and the author notes that the Neuralink technology developed by Elon Musk has the capacity to make transhumanism a reality. See 'Everything You Need to Know about Neauralink', *Science Focus* (Blog Post, 9 October 2019) <https://www.sciencefocus.com/future-technology/everything-you-need-to-know-about-neuralink/> accessed 4 September 2020.

[95] Benjamin Ross, *The Philosophy of Transhumanism: A Critical Analysis* (Emerald Publishing, 2020).

past few decades, a growth in interest in this notion is not surprising. Whilst there are many concerns about the potential for transhumanism which has been described as a 'thoroughly materialist and computational view',[96] some might consider that Judge AI might involve the alteration and recruitment of future judges who are very different from the judges of today. The author has previously noted that transhumanism:

> … may allow the judges of the future to integrate computer circuits and programs into their bodies, or modify their physical or genetic makeup, to increase their intelligence and memory, increase their ability to manage and process information, and reduce the occurrence of fatigue.[97]

---

[96]   Benjamin Ross, *The Philosophy of Transhumanism: A Critical Analysis* (Emerald Publishing, 2020) 5.
[97]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1131.

6.   Better access to justice?

INTRODUCTION

Extensive commentary exists relating to the meaning of 'justice' and how technology may support either better quality justice or access to justice (or both). At times, commentary on these issues is influenced by the perspective of the commentator and their definition of justice. For example, a sitting judge may perceive a court as the epicentre of the justice system, whilst a member of the community may consider that the concept relates to individual or human rights, policing or law and order arrangements.[1] Those conducting Alternative Dispute Resolution (ADR) processes may perceive justice in broad terms and may consider notions of participatory and procedural justice to be as relevant in the attainment of justice as notions of substantive justice (or consider that the notions are intertwined). Judges may also have varying views about what justice is, and problem solving, restorative and therapeutic justice concepts may be more relevant to some judges as well as others in the justice sector. Justice, as the author has previously noted, is like beauty and is therefore 'in the eye of the beholder'.[2]

Despite these vast differences in perceptions of justice and the extent to which it incorporates non-court activities,[3] there is, as noted in Chapter 1, some consensus amongst judges that technology can assist in upholding core principles of access to justice. Judges in Australia,[4] the United Kingdom[5] and the United States[6] have, for example, all reflected on the access to justice

---

[1]   Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[2]   Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[3]   See, for example: Hazel Genn, 'What Is Civil Justice For? Reform, ADR, and Access to Justice' (Winter 2012) 24 *Yale Journal of Law & the Humanities* 397.

[4]   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 34.

[5]   Lord Hodge, 'Law and Technological Change' (Speech, British Irish Commercial Bar Association, Edinburgh, 4 April 2019) [9].

[6]   Justice Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 880–881.

benefits associated with enhanced technology use and the digitization of court processes. However, beyond digitization and the development of more supportive technologies that can inform and assist people, there are some very different views about the capacity of technology to support just outcomes and facilitate access to justice.

The elusive definition of 'justice' is also an issue in terms of the meaning of 'access to justice'. It has been said that the term 'access to justice' is nebulous and 'survive[s] in political and legal discourse because it is capable of meaning different things to different people'.[7] In this regard, there can be deep philosophical differences that are related to where justice is perceived to be located. For example, in 'Justice in Many Rooms',[8] Galanter argues that the access to justice movement historically adopted a view of justice that he terms 'legal centralism'. The movement was 'an effort to enhance the flow of disputes into appropriate official forums where they would find justice'.[9] Galanter suggests that legal centralism portrays a 'picture in which the state agencies occupy the centre of legal life and stand in a relation of "hierarchic control" to other, less normative orderings such as the family, the corporation, the business network'.[10] Whilst Susskind proposes that justice does not require a physical court location, he, to some extent, adopts a centralist perspective which assumes that courts remain at the epicentre of the justice system, although they may be virtual rather than physical.

In response to significant concerns about access to courts, there has been an ongoing emphasis on the digitization of court processes,[11] as well as a focus on supportive technologies that enable telephone and videoconferencing arrangements (particularly in the COVID-19 era).[12] In addition, there has been a growing focus on what people do before they might get to court and how this fits within the access to justice equation. This has led to the development of a broader definition of justice that identifies courts and judges as critical but

---

[7]   Ronald Sackville, 'Access to Justice: Assumptions and Reality Checks' (Workshop Paper, Law & Justice Foundation of New South Wales, 10 July 2002) 1.

[8]   Marc Galanter, 'Justice in Many Rooms' in Mauro Cappelletti (ed), *Access to Justice and the Welfare State* (1981) 147.

[9]   Marc Galanter, 'Justice in Many Rooms' in Mauro Cappelletti (ed), *Access to Justice and the Welfare State* (1981) 147, 161.

[10]   Marc Galanter, 'Justice in Many Rooms' in Mauro Cappelletti (ed), *Access to Justice and the Welfare State* (1981) 147, cited in Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[11]   See, for example: Sir Andrew McFarlane, President of the Family Division and Head of Family Justice, *COVID-19: National Guidance for the Family Court* (Guidance, 19 March 2020) [2].

[12]   David Steve, Maaike de Langen, Sam Muller and Mark Weston, *Justice for All and the Public Health Emergency* (Justice in a Pandemic – Briefing One, April 2020) 5.

not the only component of the justice system,[13] and in relation to technology use, is often linked to notion of 'e-justice'. In addition, in keeping with the broader definition of justice, access to justice has been reinterpreted to mean 'giving people choice and providing the appropriate forum for each dispute, but also facilitating a culture in which fewer disputes need to be resolved'.[14] This reinterpretation has paved the way for the development of legal help tools and online dispute resolution (ODR) that exists outside courts.

Indeed, many jurisdictions now include ODR processes such as online mediation, online case appraisal, and online arbitration or adjudication outside the court system.[15] By incorporating these and also newer AI-based ODR developments,[16] justice systems are 'moving towards supporting resolution via technological means'[17] and ultimately substantiating the notion that access to justice does not depend on physical location.[18] Such ODR arrangements can be described as e-justice options, although the notion of e-justice is often broader and linked to the development of portals or platforms supported by technology which can assist in the resolution of disputes both within and outside courts (see the discussion below).

---

[13]   Christine Parker, 'Access to Justice' in Christine Parker, *Just Lawyers: Regulation and Access to Justice* (1999) 30, 47–54. As Parker has noted: '… while recourse to law can be one means of … doing justice, it is severely limited in what it can achieve … other arrangements and institutions for constituting deliberative democracy – such as informal means of dispute resolution, social movement politics, formal political action, and dialogic, moralizing, and persuasive means of social control – will often be preferable.'

[14]   Access to Justice Taskforce, *A Strategic Framework for Access to Justice in the Federal Civil Justice System* (Report, Attorney-General's Department, Commonwealth of Australia, Canberra, September 2009) 4. This material is also drawn and discussed in more detail in: Tania Sourdin, 'Civil Dispute Resolution Obligations: What is Reasonable' (2012) 35(5) *UNSW Law Journal* 889; Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *The Future of Dispute Resolution* (LexisNexis, 2012).

[15]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[16]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 484.

[17]   Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *The Future of Dispute Resolution* (LexisNexis, 2012) 155.

[18]   Peter Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39, 52.

It is clear that increased access to the internet has enabled ODR processes to be embraced by jurisdictions in an effort to enhance access to justice. However, literature exists that suggests disseminating justice by online means may actually hinder access to justice for some. In this regard, it is often assumed that as internet use increases, individuals will be able to access dispute resolution options online. Yet, for many people, this is not the case. Cashman and Ginnivan explain that the efficiency of ODR 'relies on parties having both digital access (access to a working internet connection) and digital ability (the ability to use the internet to navigate an online platform)'.[19] In this sense, and as discussed later in this chapter, it is noted that a shrinking 'digital divide' still exists in many well-resourced communities.[20] Cabral et al. explain that, because of this digital divide, ODR systems (and, by extension, virtual court systems) may be 'incapable of delivering appropriate justice to low-income persons'.[21]

A number of researchers have examined the access to justice benefits associated with the use of technology and have also explored the notion of e-justice. In addition, policymakers have considered how portals can be developed that enable a 'one-stop shop' to be developed to support the attainment of self-help, dispute resolution, legal support, legal rights and, where necessary, court action.[22] Before considering the benefits of such systems and the way in which technology can assist, it is important to first consider what kind of 'justice' is referred to when considering access to justice in the context of technological change.

DEFINING JUSTICE

Conceptions of justice, as noted above, vary significantly and access to justice can be perceived by reference to the processes and mechanisms that can be used to attain justice as well as the outcomes that can be achieved. In this

---

[19]   Peter Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39, 54.

[20]   Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 32.

[21]   James E Cabral, Abhijeet Chavan, Thomas M Clarke, John Greacen, Bonnie Rose Hough, Linda Rexer, Jane Ribadeneyra and Richard Zorza, 'Using Technology to Enhance Access to Justice' (2012) 26(1) *Harvard Journal of Law & Technology* 241, 265.

[22]   See, for example: 'European E-Justice', *European E-Justice* (Web Page) <https://beta.e-justice.europa.eu/?action=home&plang=en> accessed 14 August 2020. This material is discussed in more detail below.

vein, Susskind has argued that the concept of access to justice embraces four different elements:

(i)   Dispute resolution;
(ii)   Dispute containment;
(iii) Dispute avoidance; and
(iv)   Legal health promotion (i.e. the law can be power conferring and furnish us with ways to promote our general well-being).[23]

This articulation is relevant as it assists in defining what values and objectives might underpin justice sector developments in the future (including those that are linked to technological change). In addition, in evaluating such change, clear objectives can assist to determine to what extent initiatives should be further developed, extended or halted. The development of a well-being objective by Susskind is also consistent with the objectives that underpin the ethical frameworks that are discussed in more detail in Chapters 9 and 10 of this book. Notably, Susskind concludes that in light of the elements above, access to justice refers to much more than quicker, cheaper and less adversarial resolution of disputes. Essentially, he considers that it encompasses techniques that deeply empower all members of society.[24]

In adopting a broader view of justice in the context of ADR developments, the author has previously noted that:

> … there need not be a rejection of the notion that courts, judges and the role that is played by legal institutions in supporting the rule of law are critical in both creating justice and securing it … it is important to recognise that the role of an independent court system and impartial adjudication is critical in the weaving of the social fabric of a civilised society and creating social justice where liberty and equality remain critical values. It is under these circumstances that effective ADR that is 'just' can thrive.[25]

The author notes that similar comments can also apply to technology and justice. That is, an independent court system allows technologically enabled justice options that may exist within and outside courts and are 'just' to thrive.

---

[23]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 67–70.
[24]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 67–70.
[25]   Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

In this regard, notions of 'justice' are important, and Susskind has distinguished between seven conceptions of justice according to the law:[26]

(i)   Substantive justice (fair decisions and outcomes);
(ii)   Procedural justice (including 'like cases should be treated alike' and 'judges should be honest, impartial, independent, and free of bias. More, they should work in a court system that is itself independent and supported by processes and procedures that are balanced and free of bias, including the methods that are used to allocate judges to specific cases, the appointment of judges …');
(iii)   Open and transparent justice;
(iv)   Distributive justice (the court system should be accessible and intelligible to all);
(v)   Proportional justice (appropriately balanced): 'the expense, speed, complexity, and the extent of the combativeness of any case should indeed be proportionate to the substance and scale of that case';
(vi)   Enforceable justice; and
(vii)   Sustainable justice: 'it is … hard to conceive of a truly sustainable court system that is not technologically in tune with the communities that it serves … this incompatibility will both reduce confidence in the justice system and create the widely accepted inefficiencies'.[27]

For each of these components, arguments can be made that, in some circumstances, technology might reduce the quality of justice and, in other circumstances, it may enhance justice access and quality. The impacts will of course depend on the types of technologies that are deployed, how they are deployed and the extent to which they have been adequately assessed (for example, in relation to outward facing case management by using the framework approach referred to Chapter 4). Turning to each of the components identified by Susskind, it is clear that issues can emerge regardless of whether the technology can be described as supportive, replacement or disruptive (or a mix of these). In addition, the author proposes that some extension and additional articulation in respect of the meaning of these objectives is consistent with a view that justice can also be achieved outside courts and, that within courts, some objectives could be framed more broadly (see below and also Chapter 9).

For example, some issues surrounding substantive justice and technology are explored in Chapter 2. In that chapter it was noted that substantive justice

---

26   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 73–85.
27   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 73–85.

can be affected by 'the quality of representation, the resources available to the litigant, and the quality of the decision-making and surrounding rights-based framework'.[28] In this regard, technology that supports litigants to make sound decisions about how to progress a matter and which also enable legal advice to be available when required (for example via a legal chat or voice bot) might improve the likelihood that an outcome is substantively fair or just. On the other hand, 'digital divide' issues discussed later in this chapter can result in unfairness or a lack of substantive justice.[29] It has also been noted in Chapter 3 that 'algorithmic bias', which refers to situations where one group or individual is unfairly favoured or discriminated against in relation to others,[30] can also be an outcome where technology is used in a justice setting (see below). Notably, in China, more disruptive technologies have been used with a view to correcting judicial bias, and it has been suggested that transparency and substantive decisions could be improved as 'a rules-based system can explain precisely how every variable was set and why each conclusion was reached'.[31]

As noted in Chapter 3, substantive justice may be a more problematic objective where AI is used. Some authors have, for example, highlighted the way in which often simplistic algorithms can replicate and/or exacerbate societal biases as a result of the data they are 'fed with'.[32] On the other hand, Završnik has considered algorithmic justice in the context of criminal law proceedings, observing that human decision making is often flawed due to stereotypical

---

[28] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1129. For further discussion see: Tania Sourdin, 'The Role of the Courts in the New Justice System' (2015) 7 *Yearbook on Arbitration & Mediation* 95.

[29] For example, an interim report issued by the Equality and Human Rights Commission found that 'video hearings can significantly impede communication and understanding for disabled people': Equality and Human Rights Commission, *Inclusive Justice: A System Designed for All* (Interim Evidence Report, 22 April 2020) 2.

[30] Lisa Toohey, Monique Moore, Katelane Dart and Dan Toohey 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 148.

[31] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 440.

[32] See, for example: Will Bateman, 'Algorithmic Decision-Making and Legality: Public Law Dimensions' (2020) 94 *Australian Law Journal* 1; Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147; Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1833.

arguments and prohibited criteria creeping into judgments.[33] It is noted that algorithms too can be 'fed' with data that is not 'clean' of 'social, cultural and economic circumstances'.[34] Crootof has similarly noted that AI 'incorporates human bias and adds other kinds'.[35]

In relation to substantive justice and AI, a distinction can be drawn between what Re and Solow-Niederman refer to as 'codified justice' and 'equitable justice':

> Codified justice aspires to establish the total set of legally relevant variables in advance, while discounting other facts and circumstances discoverable in individualized proceedings. The basic goal of such standardization is to reduce space for human discretion in adjudication, thereby diminishing opportunities for arbitrariness, bias, and waste, while increasing efficiency, consistency, and transparency. In short, codified justice sees the vices of discretion, whereas equitable justice sees its virtues.[36]

The discussion above is not intended to suggest that substantive justice is not an appropriate objective. Rather, it is suggested that the meaning of this objective requires additional clarification. For example, 'fairness', like justice, can be perceived differently across the justice sector. On the one hand, as noted above, there can be greater 'fairness' where discretion is present and, on the other hand, some might argue that there is more fairness when it is not (see discussion below). The notion of substantive justice also assumes that there is some objective truth or judgment about what is fair in any given situation. Whilst it is assumed that Susskind means to refer to 'fairness' in terms of 'the law', there is no doubt that at times the strict application of the law might also result in unfairness. In addition, technology and ODR will increasingly encourage people to resolve their differences before the legal rights or substantive issues can be articulated or determined. Under these circumstances, it is impossible to test whether an outcome is substantively or objectively 'just' although the arrangements made might be lawful.

Fairness under such circumstances may be related more to perceptions rather than any objective 'truth'. However, predictive AI developments that are already in use in the legal system may enable those who are reaching an

---

[33] Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 11.

[34] Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 11.

[35] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 240.

[36] Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 254.

agreement to have a better sense about the range of likely outcomes and in this way support more substantively fair outcomes. Where issues have not been clarified and where disputants have not formed a view about the strengths or weaknesses of their opponent's 'case', AI might offer some support. However again, it is questionable whether AI can predict what a 'just' outcome might be in the absence of relevant material.

Importantly however, there are questions about how fairness can be supported as efficiency and uniformity are identified as the 'main strengths of AI adjudication' and the 'two hallmarks of codified justice'.[37] Re and Solow-Niederman argue that the rise in codified justice and decline in equitable justice leads to 'alienation' and the risk that 'important aspects of social life [are left] without sufficient public participation and oversight'.[38] This can, in turn, be considered in the objectives of sustainable justice (see below). Further, it is argued that decreased human involvement or full automation may make the operation of law 'seem that much less interesting, relevant, and subject to the control and care of everyday people'.[39]

In light of these concerns, Re and Solow-Niederman canvas four responses to the decline in equitable justice that may result from AI use, thus supporting substantive justice. One of these involves integrating a measure of equitable justice into AI adjudication by 'coding equity' into the AI adjudicator itself.[40] To avoid the risk of 'locking in a baseline definition of equity that is "aligned" with extant values', they note that it would be preferable to update this coding at regular intervals. Further, it is noted that 'a machine capable of dispensing "AI equity" could also mitigate the problem of datafication by being even more responsive than human judges when it comes to a case's subtle factual

---

[37]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 255.

[38]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 275–276.

[39]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 276.

[40]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 280.

nuances or changes in social values'.[41] Nevertheless, it is ultimately concluded that:

> Coding for equity is not a straightforward fix, however, in either a technical or a normative sense. It is not clear whether it is even technologically possible to code for nuanced equitable correction.[42]

In relation to procedural justice, the distinctions noted above by Susskind do not clearly align with some definitions of procedural justice, which, as noted in Chapter 2, can include notions of participatory justice[43] and levels of responsiveness that support human dignity and voice.[44] As noted in Chapter 1: '... fairness in this context is not only in the outcome of their case or resolution of their issue. It is the human need to be listened to'.[45] Much work in the procedural justice arena[46] also suggests that procedures, participation, and the timeliness and cost of arrangements will assist in determining whether an outcome is fair and just.[47] In this regard, procedural justice can incorporate references to interpersonal justice which refers to situations where 'people are treated with politeness, dignity, and respect by authorities or third parties involved in executing or determining outcomes'.[48] In the context of technological changes, there may be particular concerns relating to participation,

---

[41]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 280–281.

[42]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 281.

[43]   Ayelet Sela, 'Can Computers Be Fair? How Automated and Human-Powered Online Dispute Resolution Affect Procedural Justice in Mediation and Arbitration' (2018) 33 *Ohio State Journal on Dispute Resolution* 91, 100.

[44]   Lola Akin Ojelabi, 'Mediation and Justice: An Australian Perspective Using Rawls' Categories of Procedural Justice' (2012) 31(3) *Civil Justice Quarterly* 319; Tania Sourdin, *Mediation in the Supreme and County Courts of Victoria* (Report, Department of Justice, Victoria, Australia, 2009).

[45]   Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, 21 September 2017) [64].

[46]   In the psychology area there has now been several decades of work which charts a 'paradigm shift' in terms of the meaning of procedural justice and the relationship with interactional, informational and motivated justice: E Allan Lind, 'The Study of Justice in Social Psychology and Related Fields' in E Allan Lind (ed), *Social Psychology and Justice* (Routledge, 2019).

[47]   Tania Sourdin, *Exploring Civil Pre-Action Requirements Resolving Disputes Outside Courts* (Report, 2012) 88.

[48]   Jason Colquitt, Donald Conlon, Michael Wesson, Christopher Porter and KY Ng, 'Justice at the Millennium: A Meta-Analytic Review of 25 Years of Organizational Justice Research' (2001) 86(3) *Journal of Applied Psychology* 425, 427.

explanations,[49] procedural understandings and the use of processes that are culturally appropriate.[50]

Speaking in relation to the introduction of online courts, Lord Sales of the Supreme Court of the United Kingdom has also noted the importance of ensuring that online courts 'allow space for the procedural values which are at the heart of a fair and properly responsive system of justice'.[51] Clearly there are issues that can be magnified by a lack of procedural justice, even where this is defined in a simple manner, if technological change is poorly implemented and managed.

For example, a study by the UK Civil Justice Council ('CJC') assessing COVID-19 arrangements noted that UK courts were undergoing a period of rapid reform. Yet despite such reform, at the County Court level, survey respondents commented that the under-investment in facilities, technology and staff, and lack of availability of videoconferencing platforms 'had compounded the difficulties experienced by court users'.[52] In this regard, the CJC cited one response to a call for submissions that stated:

> The COVID-19 pandemic has revealed the court system was poorly prepared for the need to conduct large scale remote hearings. However, given the lack of investment in the courts and tribunals service over the last ten years this is not altogether surprising.[53]

There can be also be issues relating to the extent to which justice that is supported by technology is 'open' and 'transparent'. A reduction in transparency can be linked to the use of more disruptive technologies (see Chapter 3) and

---

[49] It has been suggested that explainability levels can vary and that this can impact on the extent to which outcomes are considered to be fair. Jonathan Dodge, Vera Liao, Yunfeng Zhang, Rachel Bellamy and Casey Dugan, 'Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment' (2019) *Paper*, IUI '19: Proceedings of the 24th International Conference on Intelligent User Interfaces, 275–285, available at <https://dl.acm.org/doi/10.1145/3301275.3302310> accessed 24 September 2020.

[50] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 23. See also: Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1124.

[51] Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, 12 November 2019) 19–20.

[52] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7.

[53] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8, 24.

the opacity of decisions that may be made as a result of forms of AI (see Chapters 5 and 8). In addition, even the use of some supportive technologies might result in less transparent processes and a reduction in public access to court hearings. In this regard, web-based platforms such as Teams, Skype, Zoom, Google Hangouts and WebEx[54] can lead to an increase in virtual hearings with little public access.[55] Videoconferencing and virtual hearings using such platforms have been embraced by some court systems in response to the COVID-19 pandemic. Indeed, Australia,[56] the United Kingdom,[57] the United States,[58] Canada,[59] Singapore,[60] Peru[61] and China[62] have all employed videoconferencing technology to advance from a traditional physical presence model of justice and instead conduct hearings on a virtual basis (see Chapters 2 and 10).

---

[54]   Suzie Forell, Meg Laufer and Erol Digiusto, 'Legal Assistance by Video Conferencing: What is Known?' (Justice Issues Paper 15, Law and Justice Foundation of New South Wales, November 2011) 3.

[55]   Frederic Lederer, 'The Road to the Virtual Courtroom? A Consideration of Today's and Tomorrow's High-Technology Courtrooms' (1999) 50 *South Carolina Law Review* 799, 801.

[56]   Family Court of Australia and Federal Circuit Court of Australia, *Joint Practice Direction (JPD 2 – Special Measures in Response to COVID-19, 2020)*; 'Supreme Court Changes in Response to COVID-19', Supreme Court of Victoria (Web Page, 20 March 2020) <https://www.supremecourt.vic.gov.au/news/supreme-court-changes-in -response-to-covid-19> accessed 14 August 2020; New South Wales Bar Association, *COVID-19: Information for Attending Court* (6 April 2020).

[57]   Judiciary of England and Wales, Civil Justice in England and Wales: Protocol Regarding Remote Hearings (Protocol, 26 March 2020).

[58]   New York State Unified Court System, 'Virtual Court Operations to Commence in NYC Mid-Week' (Press Release, 22 March 2020).

[59]   'Consolidated Notice to the Profession, Litigants, Accused Persons, Public and the Media', *Superior Court of Justice* (Web Page, 13 May 2020) <https://www .ontariocourts.ca/scj/notices-and-orders-covid-19/consolidated-notice/> accessed 14 August 2020.

[60]   Supreme Court Singapore, *Guide on the Use of Videoconferencing and Telephone Conferencing & Videoconferencing for Hearings before the Duty Registrar* (Guide, 27 March 2020).

[61]   'Judiciary Implements Google Hangouts Platform for Virtual Hearings and Administrative Meetings', *Poder Judicial Del Peru* (Web Page, 27 March 2020) <https://www.pj.gob.pe/wps/wcm/connect/cortesuprema/s_cortes_suprema_home/ as_inicio/as_enlaces_destacados/as_imagen_prensa/as_notas_noticias/2020/cs_n-pj -utiliza-plataforma-google-hangouts-para-reuniones-virtuales-27032020> accessed 14 August 2020.

[62]   'China Steps Up Online Litigation Services Amidst Coronavirus Epidemic', *The Supreme People's Court of the People's Republic of China* (Web Page, 31 March 2020) <http://english.court.gov.cn/2020-03/31/content_37534820.htm> accessed 14 August 2020.

However, the approaches vary significantly from jurisdiction to jurisdiction, with some courts not enabling public access to such hearings, whereas others have posted YouTube links or audio links to hearings in real time. While responses have varied by jurisdiction, with some courts enabling TV or internet coverage of hearings, others have reduced opportunities for 'open' and 'transparent' access to courts (see additional discussion in Chapter 8).

For example, in the abovementioned UK study relating to the impact of COVID-19 pandemic arrangements, journalists and court reporters made comments on how principles of open justice had been impacted by the COVID-19 measures.[63] They reported being 'largely able to attend hearings' and some indicated that the move to remote hearings had had a 'positive impact' on the number of hearings they were able to cover.[64] However other media creators such as legal bloggers and also the general public found access to courts to be 'more problematic'.[65] The CJC also reported concerns about the difficulties in accessing case data to ensure accurate reporting.[66] In this regard, 'existing deficiencies in the current arrangements for accessing primary legal information (listings, judgments, transcripts and case documents where authorised by the court)' were noted by the CJC as exacerbating the current crisis.[67]

At the same time, in relation to open court processes, it is notable that during the COVID-19 pandemic the CRT in Canada was able to keep 'its doors open'[68] while many other courts and tribunals were either unable to operate or required to significantly reduce the services that were available. However, open arrangements in technologically enhanced justice systems may come at the cost of privacy. Notably, in the framing proposed by Susskind there is little reference to confidentiality and privacy (see Chapter 9) and issues in these areas might not have previously garnered much explicit attention given the paper-based processes that previously operated in most courts. However, such

---

[63] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 10, 70.

[64] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 10–11, 70–71.

[65] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 11, 70.

[66] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 11.

[67] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 11, 74.

[68] Elizabeth Raymer, 'B.C.'s Civil Resolution Tribunal Keeps "Doors Open" During Pandemic', *Canadian Lawyer* (Blog Post, 27 March 2020) <https://www.canadianlawyermag.com/practice-areas/adr/b.c.s-civil-resolution-tribunal-keeps-doors-open-during-pandemic/328037> accessed 14 August 2020.

issues are more likely to become relevant as technological tools are considered. For example, a review of material relating to COVID-19 changes reveals that there have been some significant issues with videoconferencing tools such as Zoom and Skype that have arguably prioritized openness and commercial viability over privacy and security.[69]

Proportional justice is also raised as an essential justice component by Susskind. There has been debate in many courts about how to adequately define this term, and in some jurisdictions the concept of proportionality is more relevant and better defined than in others. It requires that 'legal and other costs incurred in connection with the proceedings are minimized and proportionate to the complexity or importance of the issues and the amount in dispute'.[70] Technology can clearly play a role in reducing cost and delay. In this regard, in large-scale litigation, there are distinct benefits that technology can provide – particularly in the e-discovery setting – that can assist in reducing costs.[71] In addition, justice apps and other technologies (see Chapter 3) can make justice processes more efficient and reduce costs.[72] Proportionality is, however, a concept that is more comprehensively explored in the context of UK courts, and notably a stated objective of reform by HM Courts and Tribunals Service (HMCTS) is to create a system that is 'just, proportionate and accessible to everyone'.[73]

The core notion is that the time (and therefore cost) spent on a dispute is proportionate to the complexity of the dispute. The author notes that the 'time spent' can be a function of a complex array of factors that can include the attitudes and behaviours of litigants and their representatives. The fairly centralist view of Susskind is also evident in the articulation of proportionality. That is, he perceives courts as the place where justice takes place and does not consider that in many jurisdictions disputes are often resolved outside courts and before court action takes place. In this regard, structural factors that have an impact on the availability of dispute resolution options will also impact on the extent

---

69   Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138. The author notes that other specific concerns relating to security and privacy can arise with cloud-based platforms and raise issues where sensitive (commercial or personal) material is considered (see also Chapter 9).

70   Victorian Law Reform Commission (VLRC), *Civil Justice Review*, Report No 14 (2008) 188.

71   Peter Cashman and Eliza Ginnivan, 'Digital Justice: Online Resolution of Minor Civil Disputes and the Use of Digital Technology in Complex Litigation and Class Actions' (2019) 19 *Macquarie Law Journal* 39.

72   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

73   Natalie Byrom, The Legal Education Foundation, *Digital Justice: HMCTS Data Strategy and Delivering Access to Justice* (Report, October 2019) 2.

to which proportionality objectives might be met. Arguably, technology that can support the development of clearer pathways for litigants or 'could be' litigants could enhance public and private efficiencies and therefore promote more proportionate outcomes.

However, where technology does not work well, is ineffective, untrustworthy or inaccurate, there is potential for more time to be spent and also for costs to increase. In this regard, it cannot be assumed that the benefits that are achieved for some parties will necessarily be achieved for all. For example, the CJC study referred to above revealed that, for some, the changes made as a result of COVID-19 might cause an increase in time and cost. Indeed, this may not only be the result of technology that does not work well. In this regard, the CJC noted that lay parties reported concerns that: the 'lack of communication from court staff' and 'decline in the amount of administrative support' was disproportionately affecting lay parties;[74] many lay parties are unable to access appropriate technology to participate in remote hearings and effectively communicate with their lawyer;[75] and 'restricted access to legal advice', along with difficulties associated with 'navigating unfamiliar technology' exacerbated 'pre-existing practical and emotional barriers to effective participation'.[76]

The inclusion of an 'enforceable justice' element by Susskind is of interest in part because so little empirical work has been conducted about the extent to which people comply with court outcomes. When working in the courts in the early 1990s, the author recalls being astounded to discover after closely examining a sample of 12 months of finalized commercial court proceedings that only about 50 per cent of people had complied with court judgments. Those who did not comply often spent some time restructuring business and other affairs to avoid or delay payment. In contrast, other research suggests that compliance with mediated outcomes, particularly where people have adequate support, can be far higher (which is not surprising given that such outcomes are based on agreement).[77]

In some jurisdictions, rather than their being 'enforceable', a focus might be on whether or not there is 'compliance' with outcomes. This may require consideration of the extent to which the justice system has promoted behavioural

---

[74] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 10, 62.

[75] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 10, 62–64.

[76] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 10, 64.

[77] Tania Sourdin, 'Evaluating Alternative Dispute Resolution (ADR) in Disputes about Taxation' (2015) 34(1) *The Arbitrator and Mediator* 19.

change and understandings which can be linked to the extent to which people accept and comply with outcomes reached in the justice system.[78]

Compliance is also relevant in the context of the sustainable justice notion that can more broadly refer to restorative and therapeutic approaches to justice which require levels of human empathy and compassion (see Chapter 2). Although these human characteristics may be replicated by newer technologies (as more affective technologies develop), at present most technological systems, despite the development of better quality sentiment analysis programs, are unable to engage, understand or respond with empathy (and are unlikely to be able to do so for some time). Sustainability is therefore a broader concept that can relate to compliance, the expenditure of appropriate public and private costs, the ongoing support and development of the justice system, and the adequacy of ongoing support for that system (see Chapter 9). In addition, the concept can also include the notion that justice technologies that involve AI must support human well-being and dignity as well as human rights so that human sustainability justice objectives are met (see Chapter 10).[79]

ACCESS TO JUSTICE: POTENTIAL

Online Courts or e-Justice?

There is ample evidence that there are extensive and worldwide issues that exist regarding access to justice. For example, as noted in Chapter 1, in 2019 it was estimated that more than 1.5 billion people around the world were unable to access a justice system to assist them in dealing with a legal issue, and often those who were unable to access the justice system were the most marginalized members of the community.[80] In countries around the world, access to justice is regarded as a significant issue, with commentators in the USA indicating that:

> Each year, more than 30 million Americans encounter civil legal problems without the help of a lawyer. Many of the issues these individuals face, such as debt col-

---

[78]   Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[79]   See, for example: Audrey Azoulay, 'Artificial Intelligence with Humans for Sustainable Development', *United Nations Educational, Scientific and Cultural Organization* (Web Page) <https://en.unesco.org/artificial-intelligence> accessed 14 August 2020.

[80]   David Steve, Maaike de Langen, Sam Muller and Mark Weston, *Justice for All and the Public Health Emergency* (Justice in a Pandemic – Briefing One, April 2020) 2.

lection, eviction, foreclosure, child custody, bankruptcy, and disability claims, can have profound, even life-changing, implications.[81]

However, technological advances in the justice sector cannot of themselves enable access to justice for all. Essentially, if a person is not technologically literate, does not have access to a device or has a poor internet connection, then the promise of greater access to justice as a result of new technologies is illusory. However, the digital divide is rapidly shrinking and for the vast majority of people in developed countries, technology can enable greater access to justice (see the discussion later in this chapter).

In adopting a centralist view that courts are mainly responsible for justice, Susskind argues that 'online courts offer the most promising way of radically increasing access to justice around the world'.[82] Here, Susskind also makes a moral case for online courts, arguing that 'all human beings – whatever their capabilities, status, wealth, and wherever they live and work – deserve and should be accorded equal respect and dignity'.[83]

In contrast, other commentators (including the author) have adopted an approach where the online court is not the dominant focus and which holds that there may be more benefits in the development of a cohesive e-justice system. In this regard, it could be argued that an e-justice approach that includes courts[84] could be more effective in that it might support the provision of legal

---

[81]   Erika Rickard, 'Project: Civil Legal System Modernization', *PEW* (Web Page) <https://www.pewtrusts.org/en/projects/civil-legal-system-modernization> accessed 4 September 2020.

[82]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 8.

[83]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 8.

[84]   See, for example: 'European E-Justice', *BETA E-Justice* (Web Page) <https://beta.e-justice.europa.eu/?action=home&plang=en> accessed 14 August 2020.

advice,[85] triaging, ADR and ODR, and the capacity to engage with justice apps that might be of assistance.[86]

A number of researchers have explored the access to justice benefits associated with what is described as 'e-justice'.[87] Kiroogo and Kitwayiki explain that e-justice is aimed at 'improving service delivery and collaboration between all justice players through the use of information and communication technologies'.[88] A pragmatic example of the use of e-justice is provided by the European Union ('EU'). As mentioned above, the EU has developed an e-justice portal which is conceived as a 'future electronic one-stop-shop in the area of justice'.[89] As a first step, the portal aims to assist end users by providing information on justice systems, including explanatory material about the law, judicial systems, the legal profession, court processes and mediation. In addition, the portal seeks to enhance access to justice throughout the EU by offering this information in 23 different languages.[90]

Growth in the use of e-justice has occurred on an almost global scale and often e-justice options and platforms are located outside of courts with court options included. A review of the literature reveals that a number of

---

[85]   See, for example: Lisa Toohey, Monique Moore, Katelane Dart and Daniel Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 143; Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 18; Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165. The author recognizes that there are distinct differences in terms of how access to justice is measured, see, for example: 'National Centre for Access to Justice at Fordham Law School', *NCFORAJ* (Web Page) <https://ncforaj.org/>.

[86]   See Judith Bennett, Tim Miller, Julian S Webb, Rachel Bosea, Adam Lodders and Scott Chamberlain, 'Current State of Automated Legal Advice Tools' (Discussion Paper No 1, The University of Melbourne, April 2018) 26; Sherley Cruz, 'Coding for Cultural Competency: Expanding Access to Justice with Technology' (2019) 86 *Tennessee Law Review* 347, 364; Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[87]   For a definition of the term, see: 'e-Justice', *Libre Research Group* (Web Page) <http://libreresearchgroup.org/en/a/e-justice> accessed 14 August 2020.

[88]   Fredrick Edward Kitoogo and Constantine Kitwayiki, 'e-Justice Implementation at a National Scale: The Ugandan Case' in Adolfo Villafiorita, Regis Saint-Paul and Alessandro Zorer (eds), *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering* (Springer, 2010) 40.

[89]   'European E-Justice', *E-Justice* (Web Page) <https://e-justice.europa.eu/home .do?action=home> accessed 14 August 2020.

[90]   'European e-Justice', *e-Justice* (Web Page) <https://e-justice.europa.eu/home.do ?action=home> accessed 14 August 2020.

jurisdictions, including Singapore,[91] Australia,[92] Uganda,[93] France,[94] Brazil,[95] Belgium[96] and Portugal[97] have all adopted forms of e-justice. A 2016 panel discussion held by the United Nations ('UN') and the Rule of Law Unit specifically highlighted the benefits of e-justice, including the positive impacts and relationship with the judicial system:

> e-justice has provided significant financial and time savings, thereby enhancing the effectiveness of the proceedings and timely delivery of justice … At the same time, easier access to information and thereby the transparency of the judicial system has not only been important in itself, but it has also increased the quality of justice. The access to monitor the advancement of proceedings, good quality legal databases, and the availability of public versions of judgements has also provided an opportunity for public awareness and scrutiny, enhancing the accountability of the whole judicial system. This has created a shift in the expectations of the public, in particular of young people.[98]

However, the author notes that there are a number of challenges associated with the use of e-justice. One obstacle highlighted by the UN is the difficulty in ensuring the validation and authentication of information, as well as data security.[99] An improvement in data security would seemingly involve an

---

[91]   Joao Rosa, Claudio Teixera and Joaquim Sousa Pinto, 'Risk Factors in e-Justice Information Systems' (2013) 30(3) *Government Information Quarterly* 241.

[92]   Anne Wallace, 'E-Justice: An Australian Perspective' in Augusti Martinez and Pere Fabra Abat (eds), *E-Justice: Information and Communications Technology in the Court System* (IGI Global, 2008) 204.

[93]   Fredrick Edward Kitoogo and Constantine Kitwayiki, 'e-Justice Implementation at a National Scale: The Ugandan Case' in Adolfo Villafiorita, Regis Saint-Paul and Alessandro Zorer (eds), *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering* (Springer, 2010) 40.

[94]   Velicogna Marco, Antione Errera and Derlange Stephane, 'e-Justice in France: The e-Barreau Experience' (2011) 7(1) *Utrecht Law Review* 163.

[95]   Joao Rosa, Claudio Teixera and Joaquim Sousa Pinto, 'Risk Factors in e-Justice Information Systems' (2013) 30(3) *Government Information Quarterly* 241.

[96]   Joao Rosa, Claudio Teixera and Joaquim Sousa Pinto, 'Risk factors in e-justice information systems' (2013) 30(3) *Government Information Quarterly* 241.

[97]   Joao Rosa, Claudio Teixera and Joaquim Sousa Pinto, 'Risk Factors in e-Justice Information Systems' (2013) 30(3) *Government Information Quarterly* 241.

[98]   United Nations, 'E-justice: Enhancing Transparency, Effectiveness and Access to Justice', *United Nations and the Rule of Law* (Blog Post, 13 June 2016) <https://www.un.org/ruleoflaw/blog/2016/06/e-justice-sharing-national-experiences-in-enhancing-transparency-effectiveness-and-access-to-justice/> accessed 14 August 2020.

[99]   United Nations, 'E-justice: Enhancing Transparency, Effectiveness and Access to Justice', *United Nations and the Rule of Law* (Blog Post, 13 June 2016) <https://www.un.org/ruleoflaw/blog/2016/06/e-justice-sharing-national-experiences-in-enhancing-transparency-effectiveness-and-access-to-justice/> accessed 14 August 2020.

enhancement in the type of networks that are used to support the e-justice system. Yet Contini notes that an increase in the neural complexities of an e-justice system may give rise to its own issues. Contini queries which features an e-justice application should have in order to effectively support access to justice without being 'too complex to be developed, too interoperable to be evolvable and too expensive to be sustainable in the long run'.[100] The specific challenges associated with access to justice mechanisms are discussed in more detail below.

In respect of access to justice outside courts that could be linked to e-justice strategies, the author notes that one option posited by Steven et al. is to encourage donors to fund and partner with 'intermediaries who support the development and dissemination of open source apps and platforms that can be rapidly deployed by civil society actors'.[101] This is an interesting proposition that can also can be linked to issues surrounding the digital divide, which is discussed in more detail later in this chapter.[102]

A number of writers have focused on the justice options that exist outside courts, where, as noted in Chapter 4, much ODR activity currently takes place. For example, Bellucci, Macfarlane and Zeleznikow have highlighted the affordability of online technologies compared to the costs of litigation or prolonged negotiations.[103] More specifically, the author has observed that ODR can save travel time and disbursements, alongside contributing to a faster finalization of disputes compared with traditional litigation processes and some forms of ADR.[104]

---

[100] Francesco Contini, 'Let Agency Circulate: Architectures and Strategies for Pan-European e-Justice' in Francesco Contini and Giovan Francesco Lanzara (eds), *The Circulation of Agency in E-Justice: Interoperability and Infrastructures for European Transborder Judicial Proceedings* (Springer, 2014) 331, 346.

[101] David Steve, Maaike de Langen, Sam Muller and Mark Weston, *Justice for All and the Public Health Emergency* (Justice in a Pandemic – Briefing One, April 2020) 20.

[102] See also research by the PEW Charitable Trust where it is noted that one key pathway to accessible justice is to 'build partnerships with the private sector, policymakers, and other stakeholders to advance comprehensive improvement to the legal system': Erika Rickard, 'Project: Civil Legal System Modernization', *PEW* (Web Page) <https://www.pewtrusts.org/en/projects/civil-legal-system-modernization> accessed 4 September 2020.

[103] Emilia Bellucci, Deborah Macfarlane and John Zeleznikow, 'How Information Technology Can Support Family Law and Mediation' in Witold Abramowicz, Robert Tolksdorf and Krzysztof Węcel (eds), *Business Information Systems Workshops* (Springer International Publishing, 2010) 243, 252.

[104] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 26.

McGill, Bouclin and Salyzyn have identified two other opportunities beyond the mitigation of financial barriers that are relevant to access to justice: (i) the mitigation of psychological and informational barriers; and (ii) the mitigation of physical barriers.[105] Improved access to justice can include removing barriers that might otherwise prevent disadvantaged parties from accessing dispute resolution processes.[106]

For instance, when it comes to supportive technologies, improved access to justice flows from the 'weaker' party in the dispute being able to receive appropriate legal information and advice, thereby addressing power imbalances and increasing the possibility of obtaining a 'just' settlement that can occur outside courts.[107] More broadly, it has been recognized that ODR that is external to court processes can provide a useful alternative to those disadvantaged by the fact that 'traditional dispute resolution mechanisms advantage people who are physically attractive, articulate, well-educated, or members of a dominant ethnic, racial, or gender group'.[108] Rogers has similarly noted that ODR 'presents promising possibilities for reaffirming victim autonomy, increasing victim safety, and reducing the effect of harmful gender and racial norms in the judicial process'.[109] Others have referred to the potential for ODR to contribute to 'an increase in client empowerment'.[110]

Access to Justice and Access to Online Courts

Despite the importance of considering access to justice in the context of the cultures and mechanisms that exist outside courts, much of the access to justice discussion in jurisdictions such as the UK and the USA has focused on the move towards online courts.[111] For example, in addition to more affordable

---

[105] Jena McGill, Suzanne Bouclin and Amy Salyzyn, 'Mobile and Web-based Legal Apps: Opportunities, Risks and Information Gaps' (2017) 15 *Canadian Journal of Law and Technology* 229, 241–243.

[106] Michael Legg, 'The Future of Dispute Resolution: Online ADR and Online Courts' (2016) 27(4) *Australasian Dispute Resolution Journal* 227, 227.

[107] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 27.

[108] Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 169.

[109] Sarah Rogers, 'Online Dispute Resolution: An Option for Mediation in the Midst of Gendered Violence' (2009) 24(2) *Ohio State Journal on Dispute Resolution* 349, 379.

[110] Jena McGill, Suzanne Bouclin and Amy Salyzyn, 'Mobile and Web-Based Legal Apps: Opportunities, Risks and Information Gaps' (2017) 15 *Canadian Journal of Law and Technology* 229, 242.

[111] See Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 881.

access to justice, Lord Sales of the Supreme Court of the United Kingdom
has highlighted the potential for online courts to offer enhanced efficiency in
the justice system, and an increased understanding of rights for individuals.[112]
Indeed it is in this context that the HMCTS has promised the delivery of
reformed processes to 'maintain or improve access to justice'.[113]

Even if this narrower definition of access to justice as being synonymous
with access to courts is accepted, there are issues about whether the develop-
ment of online courts would be sufficient to resolve access to justice issues.
As noted in Chapter 2, Morison and Harkens have concluded that the 'social
aspect' of the courts and the judicial role means that while new technologies
may disrupt current working patterns, they cannot produce a new kind of
justice system alone.[114] Essentially it is suggested that changing the courts as
well as judicial roles and functions will not, in isolation from other changes to
the justice sector and the attendant cultures of the legal profession, enhance
access or support a more effective or accessible justice system.

In arguing that online courts are critical in terms of access to justice, as
noted in Chapter 4, Susskind contends that online court adoption requires new
thinking and that the idea of the administration of justice as 'an intrinsically
human business' is 'an emotional and psychological claim, conditioned largely
by past experience', rather than any principle of justice or empirical or legal
argument.[115] This approach would seem to support Judge AI developments.
However, the author notes that Judge AI is currently not perceived to be a nec-
essary component of technologically advanced access to justice formulations
in most countries.

According to Susskind, any moral objections to online courts need to be bal-
anced against the access to justice benefits, with moral objections ultimately

---

[112] Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry
Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November
2019) 19–20.

[113] Natalie Byrom, The Legal Education Foundation, *Digital Justice: HMCTS
Data Strategy and Delivering Access to Justice* (Report, October 2019) 2. It is
further noteworthy that the Legal Education Foundation has developed a number of
minimum standards of access to justice under which reformed services can be eval-
uated. The minimum standard consists of four 'interrelated, mutually supportive and
non-divisible' principal components, namely: access to the formal legal system; access
to a fair and effective hearing; access to a decision in accordance with substantive law;
and access to remedy: 4, 19–21.

[114] John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges,
Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal
Studies* 618, 631.

[115] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University
Press, 2019) 206–207.

outweighed by 'the manifest injustice of having no recourse whatever to the state for the resolution of legal problems'.[116] Susskind also draws a direct link between access to justice and the rule of law, noting that 'when only a minority enjoys access to an outstanding court service, the credibility of the entire institution is at risk and so, in turn, is the rule of law'.[117]

A number of significant claims about the capacity of AI or automated systems to improve access to justice are related to how people might engage with courts, lawyers and other justice system actors.[118] For example, judicial officers have recognized that technology can create new pathways to justice, with the former Chief Justice of the Supreme Court of Canada, Beverley McLachlin, urging the legal profession to accept the reality that some tasks traditionally performed by lawyers can now be more effectively executed through technological means.[119] In Australia, Justice Perry of the Federal Court has observed that automated systems can assist self-represented applicants in accessing justice.[120] In the United States, Utah Supreme Court Justice Deno Himonas has stated that the introduction of an ODR system in Utah's Small Claims Court is grounded in the Court's commitment to access to justice.[121] In the United Kingdom, the Ministry of Justice's *Transforming our Justice System* report notes that digitization of proceedings is intended to play a major role in ensuring that the legal system of England and Wales provides 'swift and certain justice' in a manner that '[saves] people time and money, and [shrinks] the impact of legal proceedings on their lives'.[122]

As also noted in Chapter 4, Justice Perry from Australia has outlined the 'great benefit' of automated processes which are linked to cost reductions that

---

[116] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 292.

[117] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 30.

[118] See, for example: Lisa Toohey, Monique Moore, Katelane Dart and Daniel Toohey 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 143; Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 18; Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165.

[119] Chief Justice Beverley McLachlin, 'The Legal Profession in the 21st Century' (Speech, Canadian Bar Association Plenary, 14 August 2015).

[120] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 34.

[121] Justice Deno Himonas, 'Utah's Online Dispute Resolution Program' (2018) 122(3) *Dickinson Law Review* 875, 881.

[122] United Kingdom Ministry of Justice, *Transforming Our Justice System: Summary of Reforms and Consultation* (Report, 2016) 3–5.

can in turn enhance access to justice: the ability to 'process large amounts of data more quickly, more reliably and less expensively than their human counterparts'.[123] However, this form of 'enhanced access' as a result of cost savings is not linked to the development of a domestic online court. That is, these benefits could flow to litigants by reducing the amount of work that is required to understand legal issues and to prepare a case. This is significant given the fact that disputes can include international, national and local interaction.[124]

ACCESS TO JUSTICE: CHALLENGES

Despite the access to justice benefits discussed above, some academics have queried whether technological developments in the justice sector should be viewed as a panacea for access to justice issues.[125] As noted by Bell, there are many reasons beyond affordability why people do not access justice options.[126] These include 'not knowing there is a legal issue, personal stress or distress, inconvenience, fear or mistrust of the legal system, or lacking faith in the system's effectiveness'.[127] Indeed, a UK Justice Committee report that relates to the shift to online hearings in the UK as a result of the COVID-19 pandemic has confirmed that online hearing approaches are not suitable for all people and that the move to online communications can exacerbate the disadvantages faced by 'vulnerable users'.[128] As the Justice Committee has noted:

> Poor digital skills, limited access to technology, low levels of literacy and personal disadvantage experienced by particular groups create barriers to access to digital justice services. HMCTS has not taken sufficient steps to address the needs for vulnerable users, particularly as regards an absence of adequate legal advice and support.[129]

---

[123] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 30.

[124] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 36.

[125] See, for example: Francesca Bartlett, 'An Uncomfortable Place for Technology in the Australian Community Legal Sector' (Speech, International Legal Ethics Conference VIII, University of Melbourne Law School, 7 December 2018).

[126] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 125.

[127] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 125.

[128] Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21) 16.

[129] Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21) 16, citing Justice Committee, *Court and Tribunal Reforms* (House of Commons Paper No 190, Session 2019) [39].

There has also been some concern that ODR can skew the access to justice debate. According to McGill, Bouclin and Salyzyn, cheaper and easier substitutes for full-service legal representation can reduce the general sense of urgency about the access to justice crisis and distract from the ongoing need to improve the affordability and accessibility of real-time legal and court services.[130]

Perhaps most significantly, there is some concern that a focus on the cheap and quick resolution of disputes will come at the cost of a just outcome.[131] The author together with Li and Burke has noted that, whilst perceptions of justice can be linked to cost savings, a focus on cost reduction and time saving can result in the system becoming less 'just', especially where justice processes are 'dehumanized'.[132] As discussed in Chapter 4, Condlin has also questioned whether 'the cheap and efficient processing of disputes is a capitulation to the conditions of modern society more than a superior system for administering justice'.[133] In this regard it has also been suggested that more extensive ODR systems may restrict the ability of parties to argue the substantive merits of their claims:

> Uncoupling disputes from their substantive merits can undermine the fairness of individual outcomes and, if widespread, threaten the legitimacy of dispute resolution systems themselves.[134]

Condlin further notes that ODR systems might require parties to explain their claims in fixed or pre-defined parts. As a result, there is a risk that ODR systems may not capture all the dimensions of the claim, and people may not be able to recover the entire claim's worth.[135] On the other hand, the author notes that ODR systems and processes may not be solely focused on advisory

---

[130] Jena McGill, Suzanne Bouclin and Amy Salyzyn, 'Mobile and Web-Based Legal Apps: Opportunities, Risks and Information Gaps' (2017) 15 *Canadian Journal of Law and Technology* 229, 251.

[131] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 18.

[132] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 18.

[133] Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 721.

[134] Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 722; see also Hazel Genn, 'What Is Civil Justice For? Reform, ADR, and Access to Justice' (Winter 2012) 24 *Yale Journal of Law & the Humanities* 397 cited in Tania Sourdin, 'A Broader View of Justice' in Michael Legg (ed), *Resolving Civil Disputes* (LexisNexis, Australia, 2016).

[135] Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 721.

or determinative processes and that facilitative approaches may not raise the same issues.

THE DIGITAL DIVIDE

Challenges surrounding the existence of a digital divide are also central to any discussion about the potential for new technologies to improve access to justice. As internet use continues to grow, it is often assumed that people will be able to access ODR options via the internet or use supportive or other technologies to access the justice system. However, the existence of a 'digital divide' means this is not always the case.[136] The digital divide can relate to access to technology and internet connectivity as well as the capacity to use technology that is in place. In addition, digital divide issues may vary according to the type of dispute or legal matter. That is, in a commercial dispute, digital divide issues may not be significant as parties are more likely to be well funded, connected and digitally literate. Yet, in other civil disputes, such issues may be much more relevant.[137]

There is evidence that the digital divide in respect of internet connectivity is shrinking as access to technology increases. Indeed, in 2020, mobile phones became the dominant means by which people access the internet around the world. Internet connectivity has also increased and the Australian Bureau of Statistics (ABS) has noted that in 2016–17, 87 per cent of people were internet users, with mobile or smartphones used by 91 per cent of connected households.[138] In 2018, there were approximately 27 million mobile handset subscribers in Australia.[139]

The number of mobile handset subscribers, and the volume of data they download, continues to grow. Similar increases in connectivity have been experienced in other jurisdictions. China, for example, gained access to the internet in 1994. Since then, the number of internet users in China has ballooned, from

---

[136] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 124; Jena McGill, Suzanne Bouclin and Amy Salyzyn, 'Mobile and Web-Based Legal Apps: Opportunities, Risks and Information Gaps' (2017) 15 *Canadian Journal of Law and Technology* 229, 246.

[137] David Bilinsky, 'Report from the ODR Conference in Buenos Aires', *Slaw* (Web Page, 3 June 2010) <http://www.slaw.ca/2010/06/03/report-from-the-odr-conference -in-buenos-aires/> accessed 14 August 2020.

[138] Australian Bureau of Statistics, *Household Use of Information Technology, Australia, 2016–17* (Catalogue No 8146.0, 28 March 2018).

[139] Australian Bureau of Statistics, *Internet Activity, Australia, June 2018* (Catalogue No 8153.0, 2 October 2018).

620,000 in 1997 to 854 million as at 30 June 2019.[140] This is the highest in the world.[141] Globally, it is estimated that 62.6 per cent of the world's population, or 4.78 billion people, were mobile phones users in 2020.[142] The use of smartphones to access the justice system may also mean that the way in which the system is perceived may change.[143] For example, Dysart has also observed that while technology and courts may intimidate clients, they are often well versed in the use of smartphones, and shifts to smartphones may therefore change the way that people perceive e-justice or online courts.[144]

However, even with more extensive access to technology, many people within developed and developing countries can face difficulties in using technology. Cabral et al. explain that the digital divide 'institutionalizes a two-tiered system incapable of delivering appropriate justice to low-income persons'.[145] As outlined by Toohey et al., however, it is not just individuals from lower socioeconomic communities who may have trouble accessing digital services.[146] For example, in English-speaking countries, individuals with disabilities, indigenous people, and those who speak English as a second

---

[140] Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 58.

[141] China's growth in internet use is evident across a number of different domains. For example, instant messaging ranked first in online activities (824 million users), followed closely by online video users (759 million), online shoppers (639 million) and users of electronic government services (509 million): Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 58–59.

[142] Jasmine Enberg, 'Global Mobile Landscape: A Country-by-Country Look at Mobile Phone and Smartphone Usage 2016' (Emarketer, 2016).

[143] For example, Chinese courts have developed a 'Mobile Court' litigation service, powered by WeChat. The Mobile Court uses facial recognition software, remote audio and video technology, and e-signature capabilities to enable litigants, practitioners and judges to 'easily use mobile phones to conduct online litigation activities such as filing, service, hearing, evidence exchange, mediation, and so forth'. As at 31 October 2019, there were 1.16 million litigants and 73,200 lawyers registered for Mobile Court operations. The Supreme People's Court of China further explains that, as at this time, these registered users had completed a total of 3.14 million litigation activities on the Mobile Court platform: Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019) 70.

[144] Joe Dysart, 'Justice in Your Palm' (2014) 101 *ABA Journal* 54, 55.

[145] James E Cabral, Abhijeet Chavan, Thomas M Clarke, John Greacen, Bonnie Rose Hough, Linda Rexer, Jane Ribadeneyra and Richard Zorza, 'Using Technology to Enhance Access to Justice' (2012) 26(1) *Harvard Journal of Law & Technology* 241, 265.

[146] Lisa Toohey, Monique Moore, Katelane Dart and Daniel Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 145.

language can also face particular difficulties accessing technology.[147] The author together with Li and Burke, has similarly identified an 'uneven' readiness to adopt new technologies that can be associated with geographical location, age, economic circumstances, and other factors that can be linked to vulnerability.[148] Any meaningful implementation of justice technologies therefore requires consideration of the socioeconomic and other barriers to technology access.

Digital literacy issues also pose a challenge when considering access to justice that is driven by newer technologies. Here, questions can arise as to whether older individuals are comfortable engaging with technology, or whether technology enhanced dispute resolution is better suited to a younger, more technologically literate population. For example, Giddings and Robertson have reported that there can be cultural issues and expectations surrounding the use of lawyers, with older people less likely to make use of self-help options.[149] In this respect, cultural issues, as distinct from digital literacy issues, may prevent older people from using technology to access the justice system.

A 2008 report prepared for the Law Foundation of Ontario found that 'internet and other text-based solutions are of limited use to people who do not have the literacy skills to use them or to use them effectively'.[150] The report cautioned that 'vulnerable people, because they face language barriers, isolation, poverty, or a cluster of other difficulties that often accompany a legal problem, [ideally] need to receive direct services rather than to rely on self-help [through either digital or paper-based resources]'.[151]

Bailey, Burkell and Reynolds have similarly noted that there is a need to tailor the design of technological tools aimed at enhancing access to justice to ensure they do not in fact exacerbate the access to justice gap for intended

---

[147]   Jeff Giddings and Michael Robertson, '"Informed Litigants with Nowhere to Go": Self-Help Legal Aid Services in Australia' (2001) 26(4) *Alternative Law Journal* 184, 188; Lisa Toohey, Monique Moore, Katelane Dart and Daniel Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 145.

[148]   Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 34.

[149]   Jeff Giddings and Michael Robertson, '"Informed Litigants with Nowhere to Go": Self-Help Legal Aid Services in Australia' (2001) 26(4) *Alternative Law Journal* 184, 188.

[150]   Karen Cohl and George Thomson, *Connecting Across Language and Distance: Linguistic and Rural Access to Legal Information and Services* (Report, 2008) 35.

[151]   Karen Cohl and George Thomson, *Connecting Across Language and Distance: Linguistic and Rural Access to Legal Information and Services* (Report, 2008) 52.

beneficiaries.[152] They suggest that such design strategies may include the use of plain language, the availability of content in multiple language formats, and design features to accommodate visual and other physical impairments.[153] Size has also noted that as technology increasingly becomes a feature of litigation, courts will need to provide devices to self-represented litigants who cannot afford their own, and must be prepared to provide training and assistance.[154] In this regard, it is probable that more effective voice-to-text and text-to-voice services may better assist various populations who may currently be underrepresented or unsupported in the justice system.

There is also some concern that automation may result in a 'two-tiered' justice system, as those who cannot afford 'real' lawyers are forced to 'make do' with automated options.[155] This concern might also extend the opposite risk, that people will not be able to afford automated options (which could be superior to a 'human' lawyer) and highlights the fact that a segment of the community may not be able to afford either a 'real' lawyer or an automated alternative. A related issue which is more relevant in the context of Judge AI is that wealthier litigants and big law firms with superior technological supports may be able to 'game' the system and be advantaged over other litigants with less capacity to present material that might satisfy a form of Judge AI. This may, in effect, widen current existing disparities.

Where supportive technologies are used, as noted previously, there is some evidence about the impact of the digital divide in relation to the COVID-19 pandemic arrangements in the UK. Clearly the move to remote hearings significantly altered the context in which work is conducted across the civil justice system in the UK.[156] Litigants' ability to initiate their case in person was suppressed, as was the capacity of vulnerable people to participate in court

---

[152] Jane Bailey, Jacquelyn Burkell and Graham Reynolds, 'Access to Justice for All: Towards an "Expansive Vision" of Justice and Technology' (2013) 31 *Windsor Yearbook of Access to Justice* 181, 198.

[153] Jane Bailey, Jacquelyn Burkell and Graham Reynolds, 'Access to Justice for All: Towards an "Expansive Vision" of Justice and Technology' (2013) 31 *Windsor Yearbook of Access to Justice* 181, 198.

[154] Robert Size, 'Taking Advantage of Advances in Technology to Enhance the Rule of Law' (2017) 91 *Australian Law Journal* 575, 585.

[155] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 131. See also Lisa Toohey, Monique Moore, Katelane Dart and Daniel Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 146. The author notes that it has also been suggested that private entities could assist in funding 'automated justice' mechanisms – see the earlier discussion in this chapter.

[156] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7, 21.

hearings during this time. As a result, the types of cases proceeding through the courts were fundamentally impacted.[157] For example, in the CJC study, when lawyer survey respondents were asked about the most recent remote hearing they had participated in (480 hearings in total), data revealed that 47.3 per cent of remote hearings had a monetary value of £50,000.00 or above.[158] Only 2.9 per cent related to housing matters and 1.2 per cent pertained to debt.[159] In addition, of the few hearings involving a litigant in person (10.9 per cent),[160] over half were in relation to cases with a monetary value of less than £10,000.00.[161] In this regard, the CJC noted that:

> These findings would indicate that the proportion of vulnerable people and litigants in person participating in remote hearings may be artificially repressed by COVID-19 measures, with implications for findings regarding the efficacy of remote hearings.[162]

Bailey, Burkell and Reynolds have also noted that there is a need to tailor the design of technological tools aimed at enhancing access to justice to ensure they do not in fact exacerbate the access to justice gap for intended beneficiaries.[163] In the CJC study, survey respondents also reported that the measures implemented to limit the spread of COVID-19 had caused a reduction in the availability of legal advice and assistance.[164] This was especially so for individuals of low socioeconomic status.[165] The CJC noted that this caused significant concern among respondents that, as a result of the economic impacts of the pandemic, the need for legal advice will substantially increase.[166] Indeed,

---

[157] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7, 21.

[158] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7–8, 29.

[159] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8, 21.

[160] 'Litigants in person' being self-represented litigants.

[161] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8, 29.

[162] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 21.

[163] Jane Bailey, Jacquelyn Burkell and Graham Reynolds, 'Access to Justice for All: Towards an "Expansive Vision" of Justice and Technology' (2013) 31 *Windsor Yearbook of Access to Justice* 181, 198.

[164] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7.

[165] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7.

[166] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7, 22–23.

it was noted that this need would continue even after the immediate effects of COVID-19 had subsided. The CJC noted that this concern caused respondents to 'repeatedly emphasise' the 'urgency' of creating a professional working group to develop ways to deal with this backlog.[167]

The urgency of the situation was further emphasized by lay parties' responses to the online survey conducted by the CJC. A thematic consistency in lay parties' responses related to a decreased ability to access legal services remotely (see previous discussion). The CJC also noted that lay parties had difficulties associated with 'navigating unfamiliar technology', which exacerbated 'pre-existing practical and emotional barriers to effective participation'.[168]

The CJC further noted that almost half (44.7 per cent) of survey respondents reported experiencing technical difficulties during their remote hearing.[169] Of these instances of technical difficulties, 30.4 per cent of respondents reported that 'no one had provided technical support'.[170] In addition, when lawyers were asked to compare audio and video hearings to hearings in person, the CJC noted that the respondents tended to perceive remote hearings as 'worse', 'less effective' and 'more tiring' than hearings in person.[171] These findings highlight the need for supportive infrastructure to be in place where technology is being developed, trialled and used, and also indicate that 'human' options need to be retained.

However, the CJC found that the majority of lawyers who completed the survey 'were satisfied with their experience of remote hearings'.[172] A total of 71.5 per cent indicated that their experience was 'positive' or 'very positive'.[173] Further, 86.9 per cent of respondents indicated they would recommend partici-

---

[167] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 7.

[168] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 10, 64.

[169] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8, 29, 36.

[170] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8, 29.

[171] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 9, 52–53.

[172] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8.

[173] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 9, 25, 50.

pating in a remote hearing to their colleagues and clients.[174] The CJC identified the 'drivers' of lawyers' satisfaction with remote hearings to include:

> Agreeing with the outcome of the hearing; not experiencing technical difficulties; participating in a fully video hearing (compared to an audio hearing); having greater experience of remote hearings; participating in a hearing at the start of the crisis; and participating in a hearing that did not involve a litigant in person.[175]

The CJC has also suggested that supportive technologies that enable remote attendance at court events may be more appropriate for some types of court hearings than others. For example, costs hearings conducted by videoconferencing were more likely to be perceived positively by lawyers in comparison to interlocutory hearings.[176] Moreover, the data further revealed that enforcement hearings, appeals and trials were less likely to be perceived positively in comparison to interlocutory hearings.[177] Such results led the CJC to recommend that remote hearings be reserved 'for matters where the outcome is likely to be less contested, where the hearing is interlocutory in nature and for hearings where both parties are represented'.[178]

This experience can be contrasted with the experience in the US where in one court extensive work has been undertaken to support litigants:

> In the 4th Judicial District, which makes up the northernmost part of New York, the courts built virtual kiosks near the entrance for self-represented litigants to participate in virtual court hearings and to receive live video conferencing assistance from court employees.
> 'These kiosks are providing access to justice for litigants who lack necessary computer equipment or internet access, particularly in the rural areas of our state where internet service is often unavailable,' Chief Judge DiFiore said.[179]

---

[174] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 50.

[175] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 8–9.

[176] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 9.

[177] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 9.

[178] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020) 9.

[179] See article in the *Brooklyn Daily Eagle*, 2 September 2020, 'Chief Judge Highlights Technology in the Courts as Jury Trials Resume this Month' available at <https://brooklyneagle.com/articles/2020/09/02/chief-judge-highlights-technology-in-the-courts-as-jury-trials-resume-this-month/> (accessed 17 September 2020)

CONCLUSIONS

The emergence of new technologies and the reusing of existing technologies within the justice sector clearly creates additional opportunities to enhance access to justice. These advantages arise through a reduction in cost and delay and the removal of physical, psychological and informational barriers to justice. Some of the less obvious benefits can include empowering the parties to a dispute, demystifying legal institutions,[180] and providing more holistic assistance to litigants and others. At the same time, there are issues about whether technology can be viewed as a panacea for access to justice issues. That is, there is significant risk that a focus on cost reduction and time saving together with the 'dehumanization' of justice processes can lead to a justice system becoming less 'just'.[181]

In terms of technological disparities, some research indicates that the digital divide has decreased as simpler technologies have evolved, internet access has increased across communities and technological competencies and preferences have grown.[182] Yet while the digital divide is no longer as significant an issue as it previously was, there are still issues relating to technology use and access. In particular, research from the UK illustrates that digital divide issues may result in 'injustice', particularly if appropriate levels of human support are not retained.

There are also more system-wide access to justice benefits that can be considered in relation to technology use. Internationally, it has been recognized that technology can create new pathways to justice, and in terms of where and how courts and judges are located in this new justice system, there are some interesting issues.[183] For example, technology through the creation of e-justice portals may mean that courts and judges are not at the epicentre of this system (as is arguably the situation in many justice systems already). The emergence of justice apps, platforms and portals could increasingly mean that

---

[180] See, for example: Jane Bailey, Jacquelyn Burkell and Graham Reynolds, 'Access to Justice for All: Towards an "Expansive Vision" of Justice and Technology' (2013) 31 *Windsor Yearbook of Access to Justice* 181, 195.

[181] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 18.

[182] Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 36.

[183] See, for example: David Luban, 'Optimism, Skepticism and Access to Justice' (2016) 3(3) *Texas A&M Law Review* 495, 502; Jessica Frank, 'A2J Author, Legal Aid Organizations, and Courts: Bridging the Civil Justice Gap Using Document Assembly' (2017) 39(2) *Western New England Law Review* 251; Sherley Cruz, 'Coding for Cultural Competency: Expanding Access to Justice with Technology' (2019) 86 *Tennessee Law Review* 347, 348.

courts are located as a 'last resort'. The relationship between courts, judges and the other parts of the system will require rethinking in that a more holistic and sustainable approach to justice requires a collaborative approach to justice system design.

In addition, the advantages of e-justice or technologically supported justice may differ according to its location. For example, the increased use of justice apps may result in easier access to information, legal advice, guidance and support.[184] Similarly, the increased use of remote videoconferencing to support ODR may result in cost and time savings. Forms of AI may assist people in better understanding and deciphering financial arrangements and predictive technology may enable people to resolve disputes by better understanding the potential outcomes of litigation. Judge AI may mean that simpler court matters can be dealt with in a proportional manner. However, technological solutions are not a 'one size fits all' answer to improving access to justice. Risks remain that can be reduced by ensuring that justice objectives are well articulated, system design includes a human focus, and provision is always made for human supervision, monitoring, evaluation and revision (see Chapters 9 and 10).

The digitization of court records, as noted in Chapter 5, also provides opportunities to better track and understand what happens within courts. This is in itself a significant benefit as there is a greater potential to understand who uses the court system,[185] how the court system is used and why. The information that can be revealed by basic data studies if court records are appropriately digitized (hopefully with ease-of-use filing incorporated) will better support courts and judges into the future in both planning and general operations. If, for example, a data study reveals that part of the population is simply not accessing civil courts, this could indicate a downstream issue with representation or information, or even a broader issue linked to trust in courts and judges.

---

[184] See generally: Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[185] There are postcode studies of courts that indicate that access to courts is limited to certain groups: Pascoe Pleasence and Nigel Balmer, *Legal Needs Survey and Access to Justice* (Guidance, 3 December 2018).

7.   Judges, technology and judicial independence

INTRODUCTION

Some issues that emerge in the context of how judges work with newer technologies are linked to the relationships that exist between the judiciary and the other 'arms' of government. In most democratic countries, the concept of separation of powers (sometimes called the Westminster system in the UK) is intended to ensure that no branch of government becomes too powerful. In such systems, the judiciary is one of the three arms of government comprised of the judiciary, the executive and the legislature. The judicial arm is intended to support a system of checks and balances, to enforce legislative requirements and to also support the legality and appropriateness of government decision making. Whilst some might question the extent to which the doctrine is realistic,[1] constitutional arrangements can require that each of the three arms of government have distinct roles and function independently of the other.

It is in this context that concerns regarding Judge AI may arise. Most commentators suggest that central to the establishment and maintenance of the rule of law is the concept that the judiciary remains independent, and the extent to which the judicial arm is 'independent' may be questionable, particularly if other arms of government are involved in the creation of Judge AI. A central tenet of judicial independence that is also challenged by Judge AI relates to how an AI Judge could really be said to serve as a significant 'check' on the executive and legislative branches of government.[2] For example, Zalnieriute and Bell have identified the potential for automation to undermine the inde-

---

[1]   See the discussion in Mike McConville and Luke Marsh, *The Myth of Judicial Independence* (Oxford University Press, 2020).
[2]   Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

pendence of the judiciary from interference or usurpation by the other branches of government.[3] According to Michaels:

> The arguments for automated judges overlook the judiciary's constitutionally designed separation of powers role as a check on the other two branches. That is, these arguments present an unreasonably narrow view of the judiciary's role, seeming to assume that the judiciary's only role is to robotically apply the law to the facts. Although automation may be more appropriate in agency adjudication or in other aspects of the executive branch, the judiciary's separation of powers role makes its proposed automation particularly problematic.[4]

In addition, online 'courts' that are created as separate tribunals or entities may also raise issues of independence, particularly where they are developed and maintained without judicial supervision or monitoring (as proposed by Susskind – see discussion below). Both online courts and Judge AI may also raise concerns about the extent to which judicial independence is supported where court processes are not 'open'. In this regard, judicial independence, impartiality and 'open' courts are often perceived to be essential to the maintenance of the rule of law (see the discussion later in this chapter). Further, some commentators consider that online court developments which involve online dispute resolution (ODR) constitute a potential encroachment on judicial independence by limiting the matters that may come before a judge or by otherwise impacting on the business of courts and therefore judges (see further discussion below).

Supportive Judge AI arrangements could also be perceived to be problematic in some countries, particularly if such supports are regarded as having an 'improper' influence on a judge. For example, in the UK it has been noted that:

> When carrying out their judicial function they must be free of any improper influence. Such influence could come from any number of sources. It could arise from improper pressure by the executive or the legislature, by individual litigants, particular pressure groups, the media, self-interest or other judges, in particular more senior judges.[5]

---

[3]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[4]   Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

[5]   'Independence', *Courts and Tribunals Judiciary* (Web Page) <https://www.judiciary.uk/about-the-judiciary/the-judiciary-the-government-and-the-constitution/jud-acc-ind/independence/> cited in Mike McConville and Luke Marsh, *The Myth of Judicial Independence* (Oxford University Press, 2020) 4.

It could, for instance, be argued that judicial independence is threatened by partial systems of automation if such systems are considered to exert 'pressure' on judges. As discussed in Chapter 2, such pressure could arise where judicial decisions are monitored, checked or reviewed by AI systems (as in China).

However, it must be noted that a number of countries do not have a clear separation of powers approach and this factor alone can mean that developments in respect of online courts and Judge AI will vary according to the domestic emphasis placed on judicial independence. For example, prior to 1982 constitutional reforms being undertaken in China, it was expected that the communist party would approve all court decisions.[6] The 1982 reforms still require that there is party approval of current judicial decisions in relation to 'political and sensitive matters'.[7]

In some jurisdictions there are ongoing and significant issues relating to judicial independence. These issues are often related to the way in which judges may challenge executive decisions, the extent of judicial political engagement and the adequacy of court funding, and can result in media and political commentary. In Poland, for example, judicial independence issues have led to action being taken by the EU in relation to threats to judicial independence as well as an extensive political campaign that has targeted judges.[8] These issues may mean that it is more likely in some jurisdictions that there will be attempts to replace human judges with Judge AI.

The World Justice Project, which ranks countries in terms of their support for the rule of law, provides ample evidence for the proposition that many countries may not have either an independent or impartial judiciary.[9] Under such circumstances, Judge AI may be a much more palatable option, and online courts that are designed and managed by an executive arm of government may not raise significant issues. Notably, however, Estonia – which as noted in Chapter 5 is establishing a system of AI judging – ranks highly on the World Justice Project rankings Table.[10]

---

[6]   Björn Ahl, 'Why Do Judges Cite the Party? References to Party Ideology in Chinese Court Decisions' (2020) 18(2) *China: An International Journal* 175.

[7]   Li Ling, 'The Chinese Communist Party and People's Courts: Judicial Dependence in China' (2016) 64(1) *American Journal of Comparative Law* 66, cited in Björn Ahl, 'Why Do Judges Cite the Party? References to Party Ideology in Chinese Court Decisions' (2020) 18(2) *China: An International Journal* 175.

[8]   Juan Ameen, 'European Court Orders Poland to Suspend Judiciary Panel for Lack of Independence', *The Shift* (Online, April 2020) <https://theshiftnews.com/2020/04/28/polish-judiciary-disciplinary-panel-suspended-for-lack-of-independence/> accessed 14 September 2020.

[9]   World Justice Project, *Rule of Law Index 2020* (Report, 2020).

[10]   Seda Fabian, 'Artificial Intelligence and the Law: Will Judges Run on Punch Cards?' (2020) 16 *Common Law Review* 4.

These variations in relation to jurisdictional acceptance of judicial inde-pendence may mean that in some countries there will be more extensive development of both online courts and Judge AI. This presents some risk in that it may be assumed that reforms in one jurisdiction can be transplanted to another without considering local jurisdictional requirements (see also Chapter 9 relating to ethical frameworks).

AN AFFRONT TO THE SEPARATION OF POWERS? ONLINE COURTS AND AI JUDGES

As noted above, there are questions that are raised by the establishment of online courts in terms of a separation of powers. However, some issues raised by the development of online courts and AI Judging are linked to concerns relating to the role of judges and the extent to which they should undertake 'non-judicial' tasks. Other issues raised by ODR activities include whether online court activities might include activities that could be regarded as non-judicial or, alternatively, activities that are not adequately supervised or monitored by the judiciary.[11]

Susskind, in considering the development of online courts, notes that the 'extended court' function in his proposed model provides services that sit well beyond the traditional role of the courts in judicial decision making.[12] Susskind clearly draws a distinction between the 'primary' and 'secondary' functions of online courts: 'the provision of authoritative, binding, impartial judicial deci-sions should and will remain the primary function of courts', and is confined to Tier 3 on Susskind's model. Extended services are intended to be provided by the executive arm of government and are presented as a secondary provision and confined to court Tiers 1 and 2. Thus, 'judges are in no way involved in the provision of services in the extended court … and so independence and separation is thereby maintained'.[13]

In relation to Susskind's Tier 1 and Tier 2 activities (see also Chapter 5), there are questions that remain about the extent to which such activities are or could be regulated and supported by the executive rather than the judiciary

---

[11]   Jeffrey Stempel, 'Reflections on Judicial ADR and the Multi-Door Courthouse at Twenty: Fait Accompli, Failed Overture, or Fledging Adulthood?' (1996) 11(2) *Ohio State Journal on Dispute Resolution* 310, citing Carrie Menkel-Meadow, 'Narrowing the Gap by Narrowing the Field: What's Missing from the MacCrate Report – Of Skills, Legal Science and Being a Human Being' (1994) 69 *Washington Law Review* 593, 604.

[12]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 227.

[13]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 228.

(see also the discussion in Chapter 6) and how realistic it is to consider that such activities can be 'separated'. If the Tier 1 and 2 arrangements are focused on ODR, and take place without judicial oversight, it is likely that they will be regarded as independent from judicial and court functions.[14]

In particular, the Tier 1 and Tier 2 arrangements contemplated by Susskind that are operated by the executive raise a number of questions about what a 'court' is and whether a 'court' requires judicial engagement and supervision.[15] The author suggests that such arrangements might not meet a definition of a 'court' in some jurisdictions because of a lack of judicial oversight. The Susskind approach also differs from those in many countries[16] where e-courts or online courts are part of an existing court arrangement that is supervised and run by judges.[17] These online courts can either include ODR functions that take place within the court[18] or some ODR arrangements can be more more clearly separated from the court.[19]

There are other jurisdictional differences. For example, many tribunals in jurisdictions such as Australia currently incorporate online arrangements that

---

[14]   The author notes that there has been some discussion related to this point in the UK. See Marialuisa Taddia, 'Shock to the System', *The Law Society Gazette* (Online, 6 July 2020) <https://www.lawgazette.co.uk/features/shock-to-the-system/5104867 .article#.XwWanLEh9zs.twitter> accessed 14 August 2020, where it is stated that '[t]he nearest thing to the "online court" in England and Wales is the Online Civil Money Claims (OCMC) digital service for small claims, which account for most claims in this jurisdiction'.

[15]   A court is most frequently defined in jurisdictions such as Australia by reference to the administration of justice and judicial power – see Chief Justice Robert French AC, 'Essential Characteristics of Courts in an Age of Institutional Change' (Speech, Supreme and Federal Court Judges Conference, 21 January 2013) 11, where His Honour stated that 'the most important thing which courts and judges do … is to exercise judicial power'. However, this definition of a 'court' has been seen to be expanded in recent times with the advent of digitization and the consequential reconfiguration of court systems: Alexandra Marks, *What is a Court?* (Report, May 2016) available at <https://justice.org.uk/wp-content/uploads/2016/05/JUSTICE-What-is-a-Court-Report -2016.pdf> accessed 30 September 2020.

[16]   Amy Schmitz, 'Expanding Access to Remedies through E-Court Initiatives' (2019) 67(1) *Buffalo Law Review* 89.

[17]   See previous discussion relating to China. See also, for example, the recent developments in Indonesia: Dian Latifiani, Anis Widyawati, Nurul Fibrianti and Ayup Suran Ningsih, 'Advocate as Law Enforcer in the Implementation of E-Court' (2020) 11(4) *International Journal of Innovation, Creativity and Change* 439.

[18]   Janet Martinez, 'Designing Online Dispute Resolution' (2020) 1 *Journal of Dispute Resolution* 135 has noted that 'now, nearly fifty courts in the United States – as well as courts in Canada, the Netherlands, India, Brazil, the United Kingdom, and China – have established ODR process options'.

[19]   Janet Martinez, 'Designing Online Dispute Resolution' (2020) 1 *Journal of Dispute Resolution* 135.

include ODR.[20] However, such bodies are not recognized as 'courts',[21] partly because they may not incorporate the management of the entity by a judicial officer and also because they may be staffed by people appointed by varying processes, with a shorter tenure, who may not be considered to be independent and are therefore not defined as 'judges.' Other responses by governments that are focused on technology in the justice sector have included either the setting up of a new Tribunal that is specifically focused on using technology to support justice (such as the CRT in Canada) or a focus on pre-action processes that require ODR before court proceedings can commence (see also the discussion relating to court centralist approaches in Chapter 6).

The issues that are raised by Susskind's shift towards an online court which does not involve judicial management or oversight at the first two tiers of his extended court model are numerous. There are, for example, significant questions about the legitimacy, authority and effectiveness of an online court which operates without judges and without judicial supervision.[22] The changes also potentially impact on the role and function of the judiciary into the future in that, as Susskind points out, only judicial adjudicative functions are retained

---

[20]   See e.g. 'Facilitation', *Civil Resolution Tribunal* (Web Page, 2020) <https://civilresolutionbc.ca/tribunal-process/facilitation/> accessed 14 August 2020.

[21]   In proposing reform in the development of an online dispute resolution system, Briggs LJ argued that the name 'Online Court' is 'unsuitable' as a key to its distinguishing features. In this sense, the author suggests there is a recognized need to develop rules in relation to a digital system and a confirmation of who would have control over this entity. Indeed the Courts and Tribunals (Online Procedure) Bill was introduced with the aim of 'developing new, simplified rules for online services in civil, family and tribunal proceedings, as originally envisaged by Briggs LJ'. While it is noted that the Bill failed to complete its passage through Parliament following prorogation of Parliament on 9 September 2019, there is evidence to suggest that the Bill will be reintroduced 'as soon as time allows': Practical Law Dispute Resolution, 'Online Dispute Resolution and the Development of an Online Court', *Thomson Reuters: Practical Law* (Web Page, 2020) <https://uk.practicallaw.thomsonreuters.com/w-020 -4843?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1> accessed 14 August 2020. See also: Marialuisa Taddia, 'Shock to the System', *The Law Society Gazette* (Online, 6 July 2020) <https://www.lawgazette.co.uk/features/ shock-to-the-system/5104867.article#.XwWanLEh9zs.twitter> accessed 14 August 2020; Joshua Rozenberg QC, 'The Online Procedure Bill that Never Was', *The Legal Education Foundation* (Web Page, March 2020) <https://long-reads.thelegaleducation foundation.org/a-new-bill/> accessed 14 August 2020.

[22]   JJ Prescott and Alexander Sanchez, 'Platform Procedure: Using Technology to Facilitate (Efficient) Civil Settlement' in Yun-Chien Chang (ed), *Selection and Decision in Judicial Process around the World: Empirical Inquiries* (Cambridge University Press, 2020) 30.

at Tier 3 (and then only on an initial basis before Judge AI is developed and leads to some judicial replacement).[23]

It is no doubt a consideration of the particular UK arrangements coupled with perceptions of judges and judicial activities that has prompted the proposed Susskind division. Indeed, the IAALS framework (discussed in Chapter 5) assumes that ODR and e-court extensions can be undertaken using revised and reformulated case management approaches within existing court frameworks. Such arrangements would not appear to raise issues relating to legitimacy and authority in most jurisdictions.

The Tier 3 arrangements envisaged by Susskind that are intended to eventually incorporate Judge AI raise additional issues in relation to the separation of powers. In regard to these arrangements that relate to '[t]he provision of authoritative, binding, impartial judicial decisions', Susskind notes that whilst the first generation of services at this level involves human judges (but not in a traditional, physical courtroom), he envisages a second generation where determinations are made by some form of AI.[24]

It is at this more advanced Tier 3 level that questions about how Judge AI is developed, the extent to which judges are engaged in that development, and the capacity for human judges to monitor, evaluate and review decisions become more relevant. Essentially, if the system is designed by the executive rather than judges, and the machine learning and data pools are determined by those outside the judiciary, there are substantive issues about whether or not a separation of powers has been maintained. In addition, where Judge AI is used, even if the executive arm of government has little or no impact on the development of Judge AI, would such an arrangement be consistent with existing political and constitutional requirements relating to an independent judiciary? Could an AI judge be regarded as part of an independent judiciary?

Whilst such developments apply more to judicial activities than the other activities that may be undertaken in an online court, they do point to potential constitutional issues that may emerge in some countries when judicial activities are altered perhaps through automated means or where decision making is informed by forms of AI. In other words, could the use of more extended forms of AI be regarded as incompatible with the exercise of judicial power?

Some similar issues have been raised in the context of judicial alternative dispute resolution (ADR), with different jurisdictions taking varying approaches to what might be properly regarded as acceptable judicial activi-

---

[23]   See in particular judicial accountability issues as discussed in Peter Winn, 'Online Court Records: Balancing Judicial Accountability and Privacy in an Age of Electronic Information' (2004) 79(1) *Washington Law Review* 307.

[24]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 116–118.

ties, and it is likely that different jurisdictions will respond differently to each of these questions. For example, although not entirely analogous, the treatment of judicial activity in terms of ADR does highlight significant jurisdictional variation. In this regard, judicial activism in the settlement process appears to be more acceptable in the United States than in Australia.[25] In countries such as Japan and China judges are often involved in ADR activities that are perceived to be part of the judicial function. In contrast, in Australia, in *Wardman v Macquarie Bank Limited* [2019] FCCA 939, Judge Dowdy refused to appoint himself, or any other Federal Circuit Judge, as a mediator in spite of the power to do so under Rule 45.13B of the *Federal Circuit Court Rules 2001* (Cth). His Honour held that it would be in breach of the constitutional incompatibility doctrine that exists in Australia to distinguish the nature of mediation from the exercise of judicial power.[26] In particular, His Honour stressed that meeting with the parties in private, expressing interim views as to the strengths of the parties' legal arguments and engaging with the non-legal problems that often arise in the course of a mediation, was unacceptable conduct for an Australian Federal judicial officer to engage in.[27]

These varying jurisdictional approaches to the use of ADR by judges suggest that there will also be a variation in jurisdictional responses to Judge AI, with some jurisdictions adopting a view that Judge AI or even possibly supportive Judge AI is 'incompatible' with the use of judicial power. The author notes that this does not mean that an online court which supports ODR would be problematic. Using an ADR analogy, the author notes that at present, in many courts, where ADR processes are used, in jurisdictions such as the UK and Australia, these are likely to be separated from judicial functions. However, these functions may still be 'supervised' by courts and judges, who are ultimately responsible for court activities.

There are other issues linked to judicial independence that are not related to potential executive control or interference. For example, there are concerns regarding digital overreach in that many digital corporations may not understand democratic notions nor the rule of law and may reshape judicial activities in unforeseen ways. For example, Paul Nemitz has noted:

> [The] explicit or implicit claim [of digital corporations, activists, programmers] that parliamentarians and governments do not understand the Internet and new technology such as AI, and thus have no legitimacy to put rules for these in place,

---

25   Stephan Landsman, *American Bar Association Section of Litigation – Readings on Adversarial Justice: The American Approach to Adjudication* (West Publishing Co, 1988) 23.

26   *Wardman v Macquarie Bank Limited* [2019] FCCA 939 [27]–[30].

27   *Wardman v Macquarie Bank Limited* [2019] FCCA 939 [28], [55].

is not matched with a self-reflection on how little technologists actually understand democracy and the functioning of the rule of law as well as the need to protect fundamental rights in a world in which technology increasingly tends to undermine all these three pillars of constitutional democracy'.[28]

Clearly in many courts around the world it is the judiciary that has driven a digital strategy to reform courts, yet interestingly in the UK there has essentially been a proposal to remove that reformist function from the scope of operations undertaken by the judicial arm of government, and this too has implications in terms of judicial independence. The author notes that if judges are to be engaged in the technological challenges that will take place in courts and to undertake the important policy and reform work that requires advanced technological design components, there is a need to appoint judges with backgrounds that include sophisticated understandings of new technologies and the time and ability to design systems that are responsive to judicial and user needs. For if judges do not do this important design and operational work, who will? If it falls entirely upon the executive arm of the government, then separation of powers and judicial independence issues emerge. If judges retain consultants without adequate supervision or an understanding of judicial functions or approaches, then other concerns arise about judicial independence that can be linked to an over-reliance on technological entities.

JUDICIAL ACTIVISM AND RESPONSIVENESS

In considering the judicial role in the context of the separation of powers doctrine, some judicial activism issues emerge. In some circumstances, judicial activism is perceived as both dangerous and inappropriate where it results in judicial overreach (that is where judges 'make law' and therefore might interfere with the activities of the other arms of government in a democratic society). However, judicial activism can be tempered by a strong commitment to duty[29] and, as discussed in Chapter 2, the role of judges in democratic societies can be regarded at some levels as incorporating an activist role, despite views to the contrary (although the author suggests that it could be more appropriate to refer to such a judge as 'responsive').

---

[28]   Paul Nemitz, 'Constitutional Democracy and Technology in the Age of Artificial Intelligence', *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* (Online, 28 November 2018).
[29]   For an in-depth discussion on the notion of judicial activism more broadly, see: Michael Kirby, 'Judicial Activism' (1997) 27 *Western Australian Law Review* 1; Michael Kirby, 'Judicial Activism: Power Without Responsibility? No, Appropriate Activism Conforming to Duty' (2006) 30(2) *Melbourne University Law Review* 576.

Indeed, the technological changes foreshadowed elsewhere in this book require that judges be 'activists' in the protection of the judicial system (a 'guardian' of justice function) whilst also being individually 'responsive' to the technological changes that are occurring and will likely occur over the next decade. For example, at both an individual and collective level, scepticism about the utility of Judge AI can be linked to the rejection of strong legal formalism and a move to more realist understandings of judicial decision making, including acknowledging that in many jurisdictions, judges may make law.[30] An activist collective judicial response could ensure that appropriate referral to Judge AI takes place (for example in relation to cases where there is 'weak' discretion – see Chapter 9) while a responsive individual judicial response might require that a judge raise concerns about human contact so that a more vulnerable litigant is not automatically referred to Judge AI (even where a case involves 'weak' discretion).

Collective judicial activism supports continuing judicial engagement with critical policy issues relating to technology that could impact on the long-term future of the judicial system. For example, whilst some theorists consider that technology can enhance rule making and lead to the development of more context-specific laws,[31] others consider that this is an unlikely outcome. Indeed, some question how law is currently being developed and query the extent to which it is already reflecting the interests of digital giants.[32]

Such arrangements can have potential impacts on domestic jurisdictional arrangements. In this regard, the author notes that some private ODR arrangements that are fostered by digital giants are already reducing judicial input at a time when concerns are being raised that large digital corporations may be 'above the law'. It is in this context that an independent judiciary that is not defined by technology and which incorporates an activist or responsive approach becomes even more important. As Nemitz has noted:

> Seeing all this in context, the common denominator is indeed an effort to evade responsibility, first on the level of making the law, second on the level of the application of the law, and this by a group of companies which concentrate power in their hands without precedent in history. It is important not to ignore this history

---

[30]	Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 104.

[31]	Anthony Joseph Casey and Anthony Niblett, 'The Death of Rules and Standards' (2017) 92(4) *Indiana Law Journal* 1401.

[32]	In this regard, the potential issues are not triggered by executive overreach but rather concerns about technological overreach in relation to the digital giants (sometimes referred to as the 'Digital Switzerlands').

of failure to assign and assume responsibility in the Internet age, both by legislature and by tech corporations, which led to the fiascos of the Internet, in the form of spreading of mass surveillance, recruitment to terrorism, incitement to racial and religious hate and violence as well as multiple other catastrophes for democracy, the latest being the Cambridge Analytica scandal and the rise of populists, often the most sophisticated beneficiaries of the assistance of Facebook, YouTube, Twitter and co, combining the advertising and network techniques of targeted advertising developed for profit with political propaganda.[33]

In an expanded formulation of the judicial role, it is human judges who support and maintain important aspects of society and continue to preserve and, to some extent, protect against populist approaches that may over-simplify discussion and erode the rule of law. In this regard, the inability of some judges to appropriately use technology to engage in discussion within society is problematic and the author notes that if activism (or responsiveness) is within the province of judicial work then it will also require additional consideration of how judicial views can be expressed in a modern society.[34]

Indeed some authors suggest that modern society requires a 'reimagining'[35] of the judicial role and function that includes considering existing structural arrangements and the role of an individual judge within the collective judiciary.[36] The author would suggest that such an approach reflects the broader responsive nature of the judicial role which incorporates an advocacy function:

> Judges have some freedom of action in applying law to achieve social goals, describing what we consider to be a responsive judge as one '… who loves creativeness, who can without loss of sleep combine risk-taking with responsibility, who sees and feels institutions as things built and to be built to serve functions, and who

---

[33] Paul Nemitz 'Constitutional Democracy and Technology in the Age of Artificial Intelligence', *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* (Online, 28 November 2018).

[34] M Semwal and Sunil Khosla, 'Judicial Activism' (2008) 69(1) *The Indian Journal of Political Science* 113, 113; Clint Bolick, 'The Proper Role of "Judicial Activism"' (2019) 42 *Harvard Journal of Law & Public Policy* 1, 1; Learned Hand, 'Mr Justice Cardozo' in Learned Hand and Irving Dillard (eds), *The Spirit of Liberty* (Knopf, 1952) 99, cited in Michael Kirby, 'Judging: Reflections on the Moment of Decision' in Ruth Sheard (ed), *A Matter of Judgment: Judicial Decision-Making and Judgment Writing* (Lexis Nexis Butterworths and Judicial Commission of New South Wales, 2003) 43, 45.

[35] Joe McIntyre, *The Judicial Function: Fundamental Principles of Contemporary Judging* (Springer, 2019).

[36] Joe McIntyre, *The Judicial Function: Fundamental Principles of Contemporary Judging* (Springer, 2019) 197.

sees the functions as vital and law as a tool to be eternally reoriented to justice and to general welfare'.[37]

There are other issues that are related to the rejection of a formalist approach in terms of judicial activities. For example, as noted by Michaels, the idea that law can be reduced to computer science is inherently formalist and seems to conceive law as a 'brooding omnipresence in the sky' rather than the social practice that it is.[38] Michaels continues by stating that arguments in favour of Judge AI overlook the teachings of legal realism, specifically the point that not every case has a 'legally best' or 'right' answer.[39]

In this regard, some researchers have pointed to the role of judges in the context of 'resistance'. Whilst this can, to some extent, be linked back to discussion relating to democratic notions that are connected to the separation of powers doctrine, in the digital age there are additional implications in the context of digital giants (as discussed above). That is:

> … we argue, machine-based approaches are unable to accommodate the idea of *resistance* that must inevitably be present in any exercise of power, including judicial power, as a result of the inescapable reality that, as Foucault reminds us, 'where there is power, there is resistance, and yet, or rather consequently, this resistance is never in a position of exteriority in relation to power'.[40]

Similarly, Nemitz questions the capacity of law to be interpreted via forms of AI, noting that law is itself developed following human compromise. In this

---

[37]   Tania Sourdin and Archie Zariski, *The Responsive Judge* (Springer, 2018) ch 1, citing Karl Llewellyn, 'Remarks on the Theory of Appellate Decision and the Rules or Canons about How Statutes are to be Construed' (2015) 3(3) *Vanderbilt Law Review* 395, 397. See also: Tania Sourdin and Archie Zariski, *The Responsive Judge* (Springer, 2018) ch 1, citing Fabien Gélinas, Clément Camion, Karine Bates, Siena Anstis, Catherine Piché, Mariko Khan and Emily Grant, *Foundations of Civil Justice: Toward a Value-Based Framework for Reform* (Springer, 2015).

[38]   Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

[39]   Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

[40]   See John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618 (emphasis in original), citing M Foucault, *The History of Sexuality: An Introduction* (Random House, 1990) 95. 'For Foucault, power does not just react to resistance, nor is it merely preceded by it: resistive tensions constitute power and lie at its very centre. This is a view of the legal process that we can share'. See also e.g. Simon Thorpe, 'In Defence of Foucault: The Incessancy of Resistance', *Critical Legal Thinking* (Blog Post, 7 February 2012) <https://criticallegalthinking.com/2012/02/07/in-defence-of-foucault-the-incessancy-of-resistance/> accessed 14 August 2020.

regard, it could be suggested that retaining human judges is even more important than in the past, precisely because of the concentration of power that has emerged as a result of the technological revolution. Nemitz notes that law can regulate complex technology when interpreted by human judges who enable an understanding of complexities to be considered:

> The claim that the law is not precise enough to regulate complex technology and that a law which is below the detail, precision and user-friendliness of a good code, is not a good law and should thus not be adopted by the legislator, is another fallacy of the engineering view of the world. By definition, law adopted in democratic process requires compromise … And these compromise laws like any other law are not written to be applied – like code – by machines and automation. Laws are produced to be applied by human beings who can reason themselves and to be interpreted in case of dispute by reasonable judges. It is this process of openness of the law and legal process to later interpretation by wise judges (with the help of academia) which gives the law the flexibility to adopt the new requirements of the times without having to be rewritten like code, which needs to be revised from version 1.0 onwards constantly. To be very clear: requiring that law be either as precise as code or be rewritten as fast as code is updated is simply anti-democratic, as this ignores the need for deliberation and compromise in democracy as well as the time required for due process under the rule of law.[41]

JUDGES AND SOCIETAL IMPACT

There are other factors that are important to consider in terms of Judge AI that are central to the creation and maintenance of civilized society (see the discussion in Chapter 2). Arguments have also been made that those in favour of AI Judges overlook the long-term effects of such a shift. Michaels argues:

> Without human judges, we could eventually in large part lose the community of legal experts paying attention to the law. That is, we will have replaced societal legal thought with artificial legal thought. This will likely hinder our ability to adjust the law to changing societal circumstances. It would also make society as a whole less aware of the law, simply obeying the authority of the black box law machines. Without a community of people paying attention to and thinking about the law, the law could become even more susceptible to being co-opted or usurped by powerful interests.[42]

---

[41]   Paul Nemitz 'Constitutional Democracy and Technology in the Age of Artificial Intelligence', *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* (Online, 28 November 2018) 9.

[42]   Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

Whilst some have noted that judging is an important social activity,[43] it has also been noted that there is little information about what judges actually do (see the discussion in Chapter 2).[44] In this regard, the role of judges as social commentators has perhaps not been recognized in the race to consider how AI can replace human judges. Morison and Harkens, for example, have noted that this role incorporates resistance and contestation:

> Law, perhaps above all forms of social interaction, must remain a site for struggle for essentially human values. And in practice, it maintains a central social element that not only tolerates, but produces, resistance and contestation.[45]

It has also been argued that proponents of Judge AI overvalue consistency and ignore the possibility that the legal disagreements which arise from dissenting judgments may be beneficial for society, including by engaging the legal community in debates about law and policy.[46] Indeed the role of a dissenting judge in superior courts has been regarded as critical in terms of the development of the law in many countries as it may have 'prophetic potential' while portraying the complexity of legal reasoning.[47]

There are, as noted in Chapter 2, many functions that judges undertake in different jurisdictions which are dependent on their status as independent and impartial arbiters. For example, judges in some countries may conduct 'judicial inquiries' and do so because of their status, the respect that their office has acquired and also because they are perceived as able to address political matters without bias. However, the author notes that such arrangements (or similar types of arrangements) are not a feature that is present in all jurisdictions, and generally those chosen to undertake such work are at senior judicial

---

[43]   See John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618.

[44]   See John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618, who note that 'there is not a huge amount of *socio-legal* work on judges and their everyday activities. Much of what is known about the judiciary is focused on the USA' (citations omitted).

[45]   John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618, citing Ben Golder and Peter Fitzpatrick, *Foucault's Law* (Routledge, 2009) 2, 79, 83; Alan Hunt and Gary Wickham, *Foucault and Law: Towards a Sociology of Law as Governance* (Pluto Press, 1994) 104.

[46]   Andrew C Michaels, 'Artificial Intelligence, Legal Change, and Separation of Powers' (2020) 88(4) *Cincinnati Law Review* 1083.

[47]   The Honourable Claire L'Heureux-Dube, 'The Dissenting Opinion: Voice of the Future?' (2000) 38(3) *Osgoode Hall Law Journal* 495.

levels. Nevertheless, such additional functions need to be considered in the context of what work could be undertaken by Judge AI and to what extent supported Judge AI arrangements might assist in this work. In jurisdictions where there are significant social issues that may have political ramifications, an independent judicial inquiry can be an important mechanism to support a functioning democracy.

PHYSICAL COURT CLOSURES AND OPEN JUSTICE

There are also questions that are raised by a reduction of physical courts in terms of social impact and the extent to which the judicial branch of government is accorded status that is equivalent to the other two branches of government. Some may, for example, consider that an online court and the absence of a physical building can have a negative impact on the status of the judicial arm of government. Essentially, where the other two arms of government continue to occupy high status physical premises, and where courts do not, inferences could be drawn about both the importance of the rule of law and the status afforded to independent judges.

Discussions about physical courts and the extent to which their reduction can have an impact on the status of the judicial arm of government have so far been somewhat muted in most jurisdictions, with the majority of discussion in countries such as the UK[48] having focused on the potential impacts of court closures on access to justice.[49] There has, however, been some focus on the potential impacts beyond access to justice issues. In a 2019 Parliamentary Report in the UK, it was noted that:

> The Senior President of Tribunals, Sir Ernest Ryder, has also placed on record his commitment to preserving open justice. In a speech in 2018, he noted the 'stagger-

---

48   See John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39(4) *Legal Studies* 618, who note: 'Her Majesty's Courts and Tribunals Service (HMCTS) are producing new online platforms for divorce and probate applications, small money claims, and traffic penalty appeals, among others, so that issues can be dealt with by individuals in the first instance through a form of "do-it-yourself" justice. This move towards so-called "online court" processes has been accompanied by 86 court closures across England and Wales, with a further 15 identified for future action.'

49   The author notes that the Law Society of England and Wales made submissions about court closures which included concerns that 'the reputation of the law may suffer without formal court buildings'; see 'Court Closures', *The Law Society* (Web Page, 20 May 2020) <https://www.lawsociety.org.uk/Campaigns/Court-reform/Whats -Changing/Court-closures> accessed 14 August 2020.

ing' numbers of disputes that are being resolved online by private dispute resolution services, such as those used by eBay and Amazon. He went on to say:

> When justice slips out of sight … .the prospect of arbitrary, incompetent or unlawful conduct raises its head. Again, if we simply accept the argument that private online dispute resolution is the way in which the majority of disputes, and in some areas all disputes, may be resolved in future we accept this loss of accountability; we further accept the growth of a democratic deficit. And the same is the case if we divert public justice to an unobservable online forum. Our digital courts must be open courts.[50]

In the same report it was noted that 'Professor Richard Susskind argued that open justice is not an overriding principle, but one of seven aspects of justice that can pull in different directions'.[51] The report also noted that although open justice was seen to be a priority by the HMCTS, their evidence was that 'the digital court reform programme has never clearly articulated how the principles of open justice will be addressed when physical courts are replaced by online and virtual processes'.[52] In making a series of recommendations, there were concerns expressed about the notion that the setting up of online court processes by the government (and using a government website to access these) could have a negative impact on the separation of powers[53] with a general finding and a specific recommendation that:

> Modernisation of the court and tribunal system has potential constitutional implications which merit the scrutiny of Parliament.
> Given the importance of preserving and communicating the independence of the justice system from the Executive, we recommend that existing access to online justice processes only via the gov.uk website be discontinued and replaced without delay.[54]

Clearly the decline in the availability of physical courts raises issues that are linked to 'open' courts and the capacity of people within a community to see and attend a court hearing. Such issues have emerged in relation to the

---

[50]   Justice Committee, *Court and Tribunal Reforms* (House of Commons Paper No 190, Session 2019) 50 [155].

[51]   Justice Committee, *Court and Tribunal Reforms* (House of Commons Paper No 190, Session 2019) 51 [158].

[52]   Justice Committee, *Court and Tribunal Reforms* (House of Commons Paper No 190, Session 2019) 52 [163].

[53]   The author notes that in a number of jurisdictions there have been concerns expressed about the relationship between courts and public management areas, see, in particular, Former Chief Justice (NZ) Dame Sian Elias 'Managing Criminal Justice' [2017] *NZCLR* 31.

[54]   Justice Committee, *Court and Tribunal Reforms* (House of Commons Paper No 190, Session 2019) 56 [177], [178].

COVID-19 changes where many courts have undertaken work via a range of videoconferencing apps that are not 'open' to the public. The varying responses of courts are discussed in some detail in Chapter 2. However, 'open' processes have not been perceived to be a priority in many jurisdictions as courts have worked to address other priorities – such as the work involved in hearing cases (see also Chapters 9 and 10).

On the one hand, technological developments have the potential to make courts more open by providing opportunities for court proceedings to be livestreamed or recorded and reported on more widely than where physical courts are available. On the other hand, as in the UK, it has been noted that digital transformation and court closures have led to less open court processes rather than the 'opening up' of courts.

In many jurisdictions, concepts relating to 'open' justice are linked to the independence and impartiality required by the judicial arm of government. For example, in the USA, it has been said that:

> The presumption of openness of judicial proceedings is embodied in the Sixth Amendment to the U.S. Constitution, which guarantees the accused in every criminal case the right to a public trial. In the words of Justice Hugo Black, the Sixth Amendment is 'a safeguard against any attempt to employ our courts as instruments of persecution. The knowledge that every criminal trial is subject to contemporaneous review in the forum of public opinion is an effective restraint on possible abuse of judicial power'.[55]

As noted above, developments in technology and a reduction in physical courts can result in both a reduction in access to courts and a negative impact on principles relating to open justice. This is partly because they may limit opportunities for the public (and the media) to be involved in interlocutory matters even if a final hearing is livestreamed.[56] Technological approaches to both online courts and Judge AI therefore require consideration of principles relating to open access to justice (see Chapter 9).

Clearly such principles will be more relevant in some jurisdictions than others and, in many democratic counties, the impacts of newer technologies on both the rule of law and the judicial arm of the government are intertwined.

---

[55]   Peter Winn, 'Online Court Records: Balancing Judicial Accountability and Privacy in an Age of Electronic Information' (2004) 79(1) *Washington Law Review* 307, 308 citing *In re* Oliver, 333 US 257, 270 (1948).

[56]   See for example Michelle Hamlyn, 'A Health Check on Open Justice in the Age of COVID-19: The Case for the Ongoing Relevance of Court Reporters' (2020) 42(5) *Bulletin (Law Society of South Australia)* 6.

As the late Lord Bingham remarked in his famous speech relating to the rule of law and open hearings:

> The general arguments in favour of open hearings are familiar, summed up on this side of the Atlantic by the dictum that justice must manifestly and undoubtedly be seen to be done and on the American side by the observation that 'Democracies die behind closed doors'.[57]

CONCLUSIONS

It seems clear that, in the coming years, technological developments will impact on the role of judges within democratic and non-democratic societies in terms of the retention of human judges, the function of judges, the definition of a court, the 'openness' of justice and also the humanity of the justice system. However, these impacts need not be negative. In many ways, technology can enable a better appreciation and understanding of the judicial role and judges can play a central role in the redesign of the justice system to ensure that technological reform efforts reflect current and potential future judicial functions. Ensuring that judges are engaged in reform is necessary not only because of the issues that can emerge in democratic countries that relate to the separation of powers doctrine, but also because judges on the whole are more likely to be able to manage the balancing process that must be undertaken to ensure that the key tenets of the rule of law inherent in the formulation of justice are maintained and supported.

This means that the design of the justice system of the future must incorporate a nuanced understanding of the role of judges in society and enable judicial activism in an extended public form to assist in guiding that design process. In this regard, it is important that there is an understanding that judges as 'guardians' of the justice system may play a significant role in relation to the judicial supervision, monitoring, engagement and development of online courts and in creating clear boundaries in relation to Judge AI with an understanding that Judge AI will have differing evolutionary stages.

As discussed in previous chapters, there are issues in terms of how far Judge AI might extend, particularly as the evolution is likely to involve a series of stages with Judge AI initially being used to deal with 'small' cases (see Chapter 9). In addition, a first stage might incorporate a testing of Judge AI so that litigants may receive Judge AI 'advice' that is then used to assist party negotiation. According to Susskind, however, the stages could incorporate the

---

[57] Lord Bingham, 'The Rule of Law' (Speech, The Sixth Sir David Williams Lecture, 16 November 2006) 26, citing *R v Sussex Justices, Ex p McCarthy* [1924] 1 KB 256, 259 and *Detroit Free Press v Ashcroft* 303 F 3d 681 (6th Cir 2002) 683.

removal of judges from a supervisory role in a court (as with Tier 1 and Tier 2 stages) and an extension of Judge AI so that it ultimately replaces judges. The concerns with this latter approach are numerous. In this chapter, these issues have been discussed in terms of the separation of powers and also in the context of the judicial role. However, in view of these reformist approaches, if a court without judges is regarded as not feasible or desirable (as the author suggests), then judges may need to undertake a more activist role in defining how the court of the future could be structured and developed.[58]

Other issues also demand active judicial engagement, particularly in relation to the potential limits on AI, how Judge AI is developed and the extent to which it is 'independent'. In this regard, there are of course a number of broader issues that are explored in Chapter 10 that are linked to both the capacity of AI to replicate human judging (which extends beyond adjudication) and also the desirability of such an approach. In this regard, the author has previously noted (with Richard Cornes) that:

> We may well ask, generally (let alone in relation to Judge AI) whether there are *or should be* any limits to the reach of AI. Harari (2015, 394) writes:
>> Scholars in the life sciences and social sciences should ask themselves whether we miss anything when we understand life as data processing and decision making. Is there perhaps something in the universe that cannot be reduced to data? Suppose non-conscious algorithms could eventually outperform conscious intelligence in all data-processing tasks – what, if anything, would be lost by replacing conscious intelligence with superior non-conscious algorithms?
> Our answer is: humanity.[59]

Ultimately, there are questions relating to how judges might be responsive to technological changes and the extent to which it may involve advocacy as well as activism to preserve the independence of the judiciary (where it exists) in

---

[58] See Tania Sourdin and Richard Cornes, 'Do Judges Need to Be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) where it is noted that 'the essence of the critique is that executives (governments), for possibly quite innocent concerns of managerial efficiency can tend to view the work of the courts as merely part of the overall justice sector, including the police and prisons, and not as the operating of a distinct branch of the state'. See also discussion in Sian Elias, 'Managing Criminal Justice' (Conference Paper, Criminal Bar Association Conference, University of Auckland, 5 August 2017).

[59] Tania Sourdin and Richard Cornes, 'Do Judges Need to Be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 102–103 (emphasis in original), citing Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (Harvill Secker, 2015).

the face of threats that are raised by a reductionist view of the separation of powers or by 'dataists'.[60]

During the COVID-19 pandemic, the role of the judiciary and its relationship with other arms of government has been tested. New rules, regulations and laws often required judicial consideration at short notice and the public looked to courts and judges to interpret the many changes with an independent and pragmatic approach. In this regard, most courts did not disappoint. Judges around the world adapted to remote processes where possible (see Chapter 2), supported the electronic filing of documents and tested arrangements for litigants and advocates, while also considering on an almost daily basis new processes, sometimes during periods of civil unrest. Clearly, without access to technology these shifts and the capacity of judges to creatively think about how the courts could remain open would be very limited.

However, the operation of courts in terms of COVID-19 arrangements enables some insights to be drawn that are linked to the separation of powers doctrine and the use of technology in the courts of the future. Essentially such insights show that in many countries, the maintenance of an independent judiciary can be supported where a range of technologies are used by courts. In addition, many judges showed that they could operate in a digitally savvy way, were able to experiment with mainstream 'off the shelf' technology that could be used by all, and were therefore more able to consider court and judicial reform in the future. In this regard, further experimentation would logically include considering additional online court arrangements as well as the introduction of AI in the context of a reduction in cost and delay, while also ensuring that fairness (and openness) is retained. The central question is how future reforms will include the judiciary (which will support judicial independence) or whether additional executive control will be a more significant feature of the courts of the future.

---

[60] Tania Sourdin and Richard Cornes, 'Do Judges Need to Be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 103.

8.   Judge AI

INTRODUCTION

As noted in Chapter 5, it seems likely that in the short term, semi-automated processes will have a significant impact on the role of judges in many court systems. The issues that arise with such semi-automated processes or the development of supportive Judge AI are explored in more detail in that chapter. There are, however, international developments[1] that suggest that fully automated Judge AI will be established in the medium to longer term and this will have the potential to reshape judicial systems around the world. In terms of time span, the fact that some courts are already making forays into Judge AI suggests that within the next decade it is likely that Judge AI will become more prevalent. As discussed in Chapter 5, this is likely to be the result of an evolutionary process following the initial development of supportive Judge AI.

Previous chapters have noted the various issues with Judge AI that have been identified by both judicial and academic commentators. These include: (i) a missing 'human element'; (ii) transparency issues; (iii) issues associated with system transformation and change; (iv) the challenges of coding law; (v) issues surrounding Judge AI in innovative and novel situations; and (vi) issues associated with creating new law in precedent-based systems. In this chapter each of these issues is explored in the context of Judge AI rather than in the generalized context of the use of technology by judges.

The author notes that some relevant overarching issues concerning Judge AI can be linked to the role of judges in a democratic society, and these issues are discussed in greater detail in Chapter 7. In addition, much of the focus in this chapter is on the adjudicative functions of judges, with a focus on final judgments, rather than on the broader role and functions of a judge (see Chapter 2) or more specific concerns with algorithmic justice (see Chapter 3).

As discussed in Chapter 5, many of the issues that relate to the development of Judge AI are also dependent on both the extent that human replacement takes

---

[1]   See for example developments in China and also AI developments in general – for more specific technical discussion see Shang Li, Hongli Zhang, Lin Ye, Xiading Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for Legal Judgment Prediction' (2019) 7(1) *IEEE Access* 151144.

place and the level of judicial and human input into the development of Judge AI. In addition, it seems clear that, at least initially, the development of Judge AI is more likely to be undertaken at lower court levels where high volume caseloads exist (see Chapter 9). This has implications in terms of the discussion in this chapter as, for example, arguably there are fewer opportunities for judicial creativity in terms of 'making law' at lower court levels. However, it is also more likely that litigants at lower court levels may have socioeconomic and other characteristics that might impact on their ability and capacity to use technology (see the discussion on the digital divide in Chapter 6).

As noted previously, the developments are very much dependent on the pace of technological change and, in this regard, there is ample evidence of technological 'hype' that requires that caution be exercised when considering the potential of both current and future AI developments. Nevertheless, the current rapid pace of technological change requires that potential developments be considered in terms of possible as well as probable impacts on the judicial role.

THE HUMAN ELEMENT

Various commentators have canvassed the benefits and disadvantages of non-human decision making. On the one hand, Alarie, Niblett and Yoon have noted that algorithms do not tire and computers do not need to take time off.[2] Volokh has also noted that although an AI Judge may not be capable of compassion or mercy, the focus needs to be on judgments that possess these qualities, rather than decision makers that do so. If there is a focus on AI judgments (rather than the AI Judge) it is possible that, at some point in the future, an AI judgment could demonstrate compassion, mercy and wisdom, and perhaps even more effectively than a human judge might.[3]

In general, however, concerns about AI judging can relate to the judgments that might flow from an AI Judge (see later in this chapter) as well as the fact that a human might not be involved in the judging process. This factor, that is the level of human engagement that might be sacrificed in an AI Judge process, suggests that there is likely to be considerably more interest in supportive Judge AI processes where levels of human interaction are retained (see Chapter 5).

In this regard, the author notes that some models of Judge AI do not assume that human interaction will necessarily be reduced as such developments will

---

[2]   Benjamin Alarie, Anthony Niblett and Albert H Yoon, 'How Artificial Intelligence will Affect the Practice of Law' (2018) 68(1) *University of Toronto Law Journal* 108, 109.

[3]   Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1167.

be linked or accompanied by a shift towards judging that takes place 'on the papers' (where human interaction is already reduced). This shift is already taking place in some jurisdictions and may be appropriate in relation to small claims as it can offer advantages in terms of time and cost savings. An early iteration of this process that does not yet involve Judge AI has been described in the UK as follows:

> Unlike video or audio hearings, the online court is an 'asynchronous process' that does not require participants to be present at the same time.
>   'There isn't actually a hearing at all,' [Susskind] says. Instead, the idea is that parties 'could simply sit at their machines in their kitchen, lay out their claims in ordinary language, and a decision come back through [electronically]'.[4]

More effective voice to text processes will enable these types of processes to become more widely used, and initially, while human judges will be involved, the establishment of such processes will pave the way for Judge AI develop-ments. Whilst current and probable technological developments will enable more variation in terms of the range and types of material to be considered by a judge (Susskind's vision of asynchronous, kitchen table work could involve simple chat bots, voice bots as well as voice to text technologies), in the longer term, it is envisaged that automated processes or an AI Judge would undertake this work (probably with an intermediate supportive Judge AI approach – see Chapter 5).

However 'on the papers' decision-making approaches may not be appropri-ate in many disputes for reasons that may include equity issues (linked to the digital divide but also literacy, capacity and vulnerability) and the inability to test evidence when an 'on the papers' approach is used. Apart from 'on the papers' approaches, in terms of the risks of a missing human element that full AI judging might provoke, Plesničar and Šugman Stubbs have argued in favour of 'empathetic judges' over 'cold-blooded machines'.[5] Kerr and Mathen have noted their uncertainty about an AI Judge's 'imagination, and capacity, to perceive the moral underpinnings of its community'.[6] They suggest that being a judge 'requires the ability to *meaningfully follow* rules and to adopt a particular *point of view* of a legal system', as well as 'being a *member of the*

---

4   Marialuisa Taddia, 'Shock to the System', *The Law Society Gazette* (Online, 6 July 2020) <https://www.lawgazette.co.uk/features/shock-to-the-system/5104867 .article#.XwWanLEh9zs.twitter> accessed 14 August 2020.
5   MM Plesničar and K Šugman Stubbs, 'Subjectivity, Algorithms and the Courtroom' in Aleš Završnik (ed), *Big Data, Crime and Social Control* (Routledge, 2018) 154.
6   Ian Kerr and Carissima Mathen, 'Chief Justice John Roberts is a Robot' (Working Paper, University of Ottawa, 1 April 2019).

community, understanding its history, its moral convictions, having a point of view about its current character and having a stake in its future'.[7]

Similarly, the author together with Cornes has argued that there is a risk that 'humanity is lost' when non-conscious algorithms replace conscious intelligence.[8] In this regard, there are also issues in terms of the social legitimacy of the judiciary in that it flows from the fact that judgments are rendered by a fellow human being,[9] with AI 'unable to interact with people with compassion, emotion, or agile or intuitive responsiveness' or 'meet the need for a party in court to see a decision-maker "grapple conscientiously" with a decision'.[10]

Zalnieriute and Bell have similarly argued that 'judging is a uniquely human process which ought to be retained by humans'. They refer to a decision of the Federal Court of Australia which held that an automatically generated letter from the Australian Taxation Office advising an individual about their tax debt did not constitute a legally effective 'decision', because there was no 'mental process' involved. Zalnieriute and Bell claim that this same logic should apply to judicial decision making.[11] Similarly, Michael Kirby has noted

---

[7]   Ian Kerr and Carissima Mathen, 'Chief Justice John Roberts is a Robot' (Working Paper, University of Ottawa, 1 April 2019) (emphasis in original).

[8]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 103.

[9]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 98.

[10]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 99.

[11]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020), citing *Pintarich v Federal Commissioner of Taxation* [2018] FCAFC 79. The author notes that the Australian government has recently proposed that automated decision making in the social security area should be accepted. In 2020, legislation was introduced in Australia to address automated decision making in social security matters. It is noted in the explanatory material that '… decisions are now frequently made through an automated process. It is not certain that a court would regard a reference to an officer as including an automated process. Accordingly, an amendment to the legislation is to be made to clarify the situation in respect of online claims.' See *Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020*, available at <https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2021a/21bd003 > accessed 18 September 2020.

that 'the right to see a judicial decision-maker struggling conscientiously, in public, with the detail of a case is a feature of the court system which cannot be abandoned, at least without risk to the acceptance by the people of courts as part of their form of governance'.[12]

There are already issues related to human empathy that are relevant in the context of human judging processes which are aided by technology. For example, it has been noted in a therapy context that conversations and, to some extent, respect and status can be reduced when a facilitator appears in a videoconference in a 'postage stamp' sized box.[13] In addition, the opportunities to engage can be considerably reduced partly because the conversation can be stilted where an off mute button or a raising hand function is required.[14] The asynchronous process proposed by Susskind and trialled in the UK does not enable direct human interaction to take place at all (although arguably a well-designed chat bot could replace some human interaction).[15]

It could, however, be argued that in small claims many people might choose speed and cost savings over a more interactive human experience. In this regard, the Online Civil Money Claims (OCMC), a digital service for small claims that was established in the UK, appears to have had considerable success, and by May 2020 it was noted that '137,157 claims had been issued using the service' and that:

> The online service is available 24 hours a day, 365 days a year. By using validation and automation to remove lengthy administrative processes, it can take only a couple of days from claim submitted to directions order made, compared with about 20 weeks using the paper process, HMCTS says. An exit survey on the OCMC digital service shows 90% of users are 'satisfied' or 'very satisfied'.[16]

---

[12] Michael Kirby, 'The Future of Courts: Do They Have One?' (1999) 8 *Journal of Judicial Administration* 185, 188.

[13] See Lou Agosta, 'Empathy in Cyberspace: The Genie is Out of the Bottle' in Haim Weinberg and Arnon Rolnick (eds), *Theory and Practice of Online Therapy: Internet-delivered Interventions for Individuals, Groups, Families, and Organizations* (Routledge, 2019).

[14] See Lou Agosta, 'Empathy in Cyberspace: The Genie is Out of the Bottle' in Haim Weinberg and Arnon Rolnick (eds), *Theory and Practice of Online Therapy: Internet-delivered Interventions for Individuals, Groups, Families, and Organizations* (Routledge, 2019).

[15] Marialuisa Taddia, 'Shock to the System', *The Law Society Gazette* (Online, 6 July 2020) <https://www.lawgazette.co.uk/features/shock-to-the-system/5104867.article#.XwWanLEh9zs.twitter> accessed 14 August 2020.

[16] Marialuisa Taddia, 'Shock to the System', *The Law Society Gazette* (Online, 6 July 2020) <https://www.lawgazette.co.uk/features/shock-to-the-system/5104867.article#.XwWanLEh9zs.twitter> accessed 14 August 2020.

To an extent, some of the issues that relate to the preservation of a human element in the process of judging and the exercise of judgment may relate to decisions about where it is important to retain human judges. As noted previously, it seems most likely that AI Judges will initially be established at high-volume lower court levels (see the specific discussion in Chapter 9). This approach raises some issues in that those typically using the lower tiers of courts are likely to be more vulnerable and arguably more in need of human support. If, however, Judge AI is supported by adequate triage, together with appropriate ODR and human ADR referral, fewer issues may be raised (see the proposed triage questions in Chapter 9). This is because what is lost in terms of a human judicial element may be gained through other human support arrangements that are coupled with cost and time savings.

However, one question that is explored further in Chapters 9 and 10 remains relevant: in what court cases should an 'in person' human judge be retained?[17] This in itself requires careful thought as most judges understand that a small claim (in terms of a low monetary amount) may be of great significance to the human beings involved and a failure to deal with such a claim in a 'human' manner may result in unresolved conflict that has other societal impacts. Similarly, administrative court or tribunal decision making involves a review of government decision making, and the introduction of Judge AI into these areas raises a range of issues that are discussed further in Chapter 9, particularly as automated decision making by government entities becomes more prevalent.[18]

The approaches to the introduction of Judge AI will require the development of much more sophisticated triage processes that can enable and support the referral of matters to a human judge where appropriate. However, this too comes with significant risk. For example, as the result of an automated triage process, it is probable that aberrant cases (for example, those with high levels of task complexity or behavioural complexity, or both) could be referred

---

[17]   For example, should a death penalty ever be rendered by Zoom? See the discussion in Milena Heinsch, Tania Sourdin, Caragh Brosnan and Hannah Cootes, 'Death Sentencing by Zoom: An Actor-Network Theory Analysis' (2020) *Alternative Law Journal* (forthcoming).

[18]   In 2020, legislation was introduced in Australia to address automated decision making in social security matters. It is noted in the explanatory material that '… decisions are now frequently made through an automated process. It is not certain that a court would regard a reference to an officer as including an automated process. Accordingly, an amendment to the legislation is to be made to clarify the situation in respect of online claims.' See *Australia Social Services and Other Legislation Amendment (Omnibus) Bill 2020* available at <https://www.aph.gov.au/Parliamentary _Business/Bills_Legislation/bd/bd2021a/21bd003> accessed 18 September 2020.

to a human judge.[19] Whilst it could be suggested that this already occurs in many superior civil courts as many rational litigants who are able to resolve their differences do so to avoid long waiting times and cost (or simply 'give up' in view of the costs incurred), the author suggests that more sensitive triage approaches could involve thoughtful case weighting systems (aided by technology) that ensure that appropriate human judge referral (escalation) or referral to other supportive humans is possible even in smaller claims.

There are of course additional and much more complex issues that arise in the criminal justice setting. In this setting, where in many countries jury trials still operate and where restorative, problem solving and other courts have been developed, there are compelling reasons to maintain human judging approaches. In such settings there are also issues surrounding the use of technology more generally and to what extent a physical court should be retained.[20] Similar arguments are also relevant in family court settings where technology may support both judges and litigants but where human judging may need to be retained, particularly where therapeutic interventions are appropriate (see Chapter 9).

The author together with Cornes has previously identified a number of questions relating to the capacity of a form of AI to completely replace the human judging process:

> The point at which an algorithm matches the abilities, *and just as importantly, the frailties, confusions, perversions, quirkiness, and uncertainties,* of a human mind (enabling for example empathic understanding and reasoning) is the point at which we have managed to replicate that mind, not imitate or approximate it.[21]

Applying insights from psychoanalytical thought, the author together with Cornes has also considered the unconscious reasoning processes that human judges possess, which an AI Judge is unlikely to be able to replicate. To some extent, this is linked to matters raised below in terms of the capacity for legal problems to be translated into code. Legal problems are often 'messy' in that they may require consideration of legislation and case law and may also incor-

---

[19] Naomi Burstyner, Tania Sourdin, Chinthaka Liyanage, Bahadorreza Ofoghi and John Zeleznikow, 'Using Technology to Discover More About the Justice System' (2018) 44 *Rutgers Computer and Technology Law Journal* 1.

[20] Milena Heinsch, Tania Sourdin, Caragh Brosnan and Hannah Cootes, 'Death Sentencing by Zoom: An Actor-Network Theory Analysis' (2020) *Alternative Law Journal* (forthcoming).

[21] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 104 (emphasis in original).

porate more than one cause of action. The reasons why people seek relief in a court can be complex and the concerns that they raise can require an understanding and analysis of conflicting evidence. Noting that legal reasoning is only partly conscious, the author together with Cornes has previously argued that:

> A psychoanalytical understanding of the judicial mind suggests that the judicial function requires at its heart the organic home of a *human* mind, within which contradictions, at the heart of the judicial process – and human life – are managed. These messy, human, contradictions and accommodations are part of the very definition of 'the judge', enabling as they do the judge to understand both the law and the people to which it is being applied.[22]

TRANSPARENCY

Judicial transparency – 'the commitment to openness and candour' – is one of the most widely accepted judicial values (in relation to openness in the context of courts see also the discussion in Chapter 7).[23] In theory, automated systems offer the potential to make transparent many aspects of judicial decision making. Susskind has argued that automated decision-making systems, if designed correctly, can render transparent each and every step of the decision-making process.[24] Nevertheless, many commentators remain unconvinced when it comes to the transparency of automated tools.

As noted by Deeks, transparency is important because shedding light on how an algorithm produces its recommendations or determinations can simultaneously allow observers to identify biases and errors in the algorithm.[25] Surden has also noted that transparency can impact on the ability to appeal a decision.[26]

---

[22]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 104 (emphasis in original).

[23]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[24]   Richard Susskind, *Expert Systems in Law: A Jurisprudential Inquiry* (Clarendon Press, 1987) 114–115.

[25]   Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1833.

[26]   Harry Surden, 'The Ethics of Artificial Intelligence in Law: Basic Questions' (Research Paper No 19-29, Legal Studies, University of Colorado Law, 22 August 2019).

One of the key issues that arises in this context is known as the 'black box' problem. As noted by Deeks, if algorithms remain opaque, they can impact on people's sense of fairness and trust, particularly when used in government decision making. In the criminal justice setting, opaque algorithms can undercut a defendant's right to a defence.[27] As explained by Deeks:

> Because a machine learning system learns on its own and adjusts its parameters in ways its programmers do not specifically dictate, it often remains unclear precisely how the system reaches its predictions or recommendations. This is particularly true for 'deep learning' systems that use 'neural networks,' which are intended to replicate neural processes in the human brain.[28]

On the other hand, Huq has doubted whether a transparency gap exists between human and algorithmic decision making.[29] He argues that although specialized tools are needed to interrogate algorithmic results, 'the elaborate evidentiary rules that courts have developed for evaluating human testimony suggests that experts are just as needful to the task of understanding human testimony'.[30]

Nevertheless, some commentators have questioned whether AI can ever be truly explainable.[31] Burrell, for instance, has argued that because humans reason differently to machines, they cannot always understand or interpret the interactions among data and algorithms, regardless of whether or not they are suitably trained. One reason for this is the process a machine learning system goes through in refining its results and adjusting the 'weight' accorded to a multitude of variables.[32] Surden argues that while some machine learning techniques based on decision-tree approaches produce answers that are easy to understand and inspect, neural-network and deep-learning approaches can be

---

[27] Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1833.

[28] Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1832.

[29] Aziz Z Huq, 'A Right to a Human Decision' (2020) 105 *Virginia Law Review* (forthcoming).

[30] Aziz Z Huq, 'A Right to a Human Decision' (2020) 105 *Virginia Law Review* (forthcoming).

[31] It has been suggested that explainability levels can vary and that this can impact on the extent to which outcomes are considered to be fair. Jonathan Dodge, Vera Liao, Yunfeng Zhang, Rachel Bellamy, Casey Dugan, 'Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment' (2019) *Paper*, IUI '19: Proceedings of the 24th International Conference on Intelligent User Interfaces, 275–285, available at <https://dl.acm.org/doi/10.1145/3301275.3302310> accessed 24 September 2020.

[32] Jenna Burrell, 'How the Machine "Thinks": Understanding Opacity in Machine Learning Algorithms' (2016) 3(1) *Big Data & Society* 1.

extremely difficult (if not impossible) for humans to understand, including for the programmers who created them.[33] Deeks has also recognized this problem, noting that an explainable AI approach which simply reveals the source code for the machine learning model will rarely be satisfactory, as most people will be unable to understand the code.[34]

More recently, some progress has been made towards the development of 'explainable AI'. According to Deeks, this refers to 'efforts to explain – or help humans interpret – how a particular machine learning model reached its con-clusion'.[35] However, other researchers have recognized that there is little con-sensus on the definition of 'explainability' in the context of AI and machine learning.[36] Recognizing the need to 'open' the black box, Bhatt et al. conducted a focus group study (n = 33) aimed at developing a shared language around the explainability of AI in the context of external stakeholders. They found that:

> All definitions of explainability included notions of context (the scenario in which the model is deployed), stakeholders (those affected by the model and those with a vested interest in the model's explanatory nature), interaction (the goal the model and its explanation serve), and summary (the notion that an explanation should compress the model into digestible chunks). Therefore, explainability loosely refers to tools that empower a stakeholder to understand and, when necessary, contest the reasoning of model outcomes.[37]

Specific to the legal domain, a number of professional organizations, academ-ics and others have noted that the notion of explainable AI remains a signifi-cant issue in the development of AI in law.[38] For example, the American Bar

---

[33]   Harry Surden, 'The Ethics of Artificial Intelligence in Law: Basic Questions' (Research Paper No 19-29, Legal Studies, University of Colorado Law, 22 August 2019).

[34]   See Reuben Binns, Max Van Kleek, Michael Veale, Ulrik Lyngs, Jun Zhao and Nigel Shadbolt, '"It's Reducing a Human Being to a Percentage"; Perceptions of Justice in Algorithmic Decisions' (Conference Paper, CHI Conference on Human Factors in Computing Systems, 21–26 April 2018), which also explores these issues in the context of accountability.

[35]   Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1834.

[36]   Umang Bhatt, McKane Andrus, Adrian Weller and Alice Xiang, 'Machine Learning Explainability for External Stakeholders' (Workshop Paper, ICML Workshop on Extending Explainable AI, 2020) 1.

[37]   Umang Bhatt, McKane Andrus, Adrian Weller and Alice Xiang, 'Machine Learning Explainability for External Stakeholders' (Workshop Paper, ICML Workshop on Extending Explainable AI, 2020) 2.

[38]   See previous comments in Chapter 5. It has been suggested that explainability levels can vary and that this can impact on the extent to which outcomes are consid-ered to be fair. Jonathan Dodge, Vera Liao, Yunfeng Zhang, Rachel Bellamy and Casey

Association's Resolution 112 involving AI and Ethics (2019) urges courts and lawyers to address emerging ethical and legal issues related to the use of AI in law, including through the explainability of automated decisions made by AI.[39] As outlined by Deeks, explainable AI can 'foster trust between humans and the system, identify cases in which the system appears to be biased or unfair, and bolster our own knowledge of how the world works'.[40] At the same time, however, it has been suggested that explainable AI can be costly to build and may decrease algorithmic accuracy.

Coglianese and Lehr have also challenged the notion that complex AI processes can never be completely explainable:

> Analysts can, and do, possess full knowledge of algorithms' inner workings, and they can mathematically explain how these algorithms optimize their objective functions. What they lack is simply an interpretive ability to describe this optimization in conventional, intuitive terms.[41]

In this regard, Deeks has outlined two alternative approaches to explainable AI: a model-centric approach and a subject-centric approach. The former attempts to explain the whole model through, for example, revealing the creator's intentions or the parameters specified by the creators. The latter focuses on the model's performance in a particular case, and might, for instance, provide the subject of a decision with information about the characteristics of individuals who received similar decisions.[42]

It seems likely that Judge AI will become explainable using this second subject-centric approach. However, as noted in Chapter 5, there are issues that remain regarding how and to what extent Judge AI can produce 'reasons' for

---

Dugan, 'Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment' (2019) *Paper*, IUI '19: Proceedings of the 24th International Conference on Intelligent User Interfaces, 275–285, available at <https://dl.acm.org/doi/10.1145/3301275.3302310> accessed 24 September 2020.

[39] See Legal Talk Network, 'The Intersection of Ethics and Artificial Intelligence' (Podcast, 30 January 2020) <https://legaltalknetwork.com/podcasts/digital-detectives/2020/01/the-intersection-of-ethics-and-artificial-intelligence/> accessed 14 August 2020.

[40] Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1834.

[41] Cary Coglianese and David Lehr, 'Regulating by Robot: Administrative Decision Making in the Machine-Learning Era' (2017) 105 *The Georgetown Law Journal* 1147, 1206–1207.

[42] Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1835–1837.

judgment or an 'opinion' (see also Chapter 10).[43] In addition, whilst approaches by judges vary significantly around the world, often the form of a written judgment in a civil matter can involve additional and extensive individual judicial variation,[44] and this variation can be useful in the context of the creation of law (see the discussion in Chapter 7 relating to the importance of judicial dissent).

For example, there are a number of famous judges who are regarded as 'storytellers'[45] in part for their ability to convey in a compelling manner the circumstances surrounding the people, the dispute and their humanity. Whilst some might argue that Judge AI could replicate such approaches at some point in the future, others will note that the creativity is evident not only because of the outcome that is reached but also because of the way in which the analysis and decision is expressed.[46] It is this creativity that will be difficult to replicate and mimic in terms of AI developments for some years. The author notes however that judicial creativity and, by extension, judicial responsiveness (see the discussion later in this chapter), may not be as valued as much at lower court levels or in some jurisdictions.

SYSTEM TRANSFORMATION AND CHANGE

The adoption of automated systems will challenge traditional understandings of fairness and justice. As outlined by the author and discussed in some detail in Chapter 6, there are different philosophical understandings surrounding the meaning of 'justice'.[47] The traditional view, likely to be adopted by litigation supporters, is that justice can only take place within the courts, where a judge is able to articulate understandings about the rule of law.[48] The alternative view adopted by the author is a 'broader' view of justice, which is not limited to the

---

[43]   See Ariel Rosenfeld and Sair Kraus, *Predicting Human Decision-Making: From Prediction to Action* (Morgan and Claypole, 2018).

[44]   The author notes that it seems likely that in the coming years there will be a focus on producing more machine readable judicial decisions. See Jameson Dempsey and Gabriel Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit.edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

[45]   Norman Stockmeyer Jr, 'Beloved Are the Storytellers' (2002) *Plain Language* 54, available at <https://www.michbar.org/file/generalinfo/plainenglish/pdfs/02_jan.pdf> accessed 22 September 2020.

[46]   See the discussion in Chapter 10 of this book and also in; Will Douglas Heaven, 'OpenAI's New Language Generator GPT-3 is Shockingly Good – and Completely Mindless', *MIT Technology Review*, 20 July 2020, <https://www.technologyreview.com/2020/07/20/1005454/openai-machine-learning-language-generator-gpt-3-nlp/>.

[47]   Tania Sourdin, 'The Role of the Courts in the New Justice System' (2015) 7 *Yearbook on Arbitration and Mediation* 98, 99.

[48]   Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 17.

role played by the judiciary in the public adjudication of civil disputes. Rather, justice is also seen to exist 'in the relationships that exist between people and in their ethical values'.[49]

Despite adopting a broader view that does not place courts and judges at the epicentre of the justice system, but rather locates both as a critical and inter-dependent component of the justice system, there are nevertheless significant issues that can be raised about Judge AI (even in the absence of other techno-logical changes). These issues include considering how the role of AI judges might change the justice system, whether AI Judging is compatible with justice objectives and whether a society without human judges could ever be consid-ered to be 'just'. Some of the potential impacts of Judge AI were explored in greater detail in Chapter 7 and can be linked to the broader societal impact that judges have, as well as their impacts within a democratic system.

However, as noted previously, Judge AI developments are not likely to result in the complete replacement of human judges in most jurisdictions. Initially, the impacts are likely to only extend to 'small' civil disputes at lower court levels, and at other levels are more likely to initially incorporate supportive Judge AI approaches (see Chapter 5). In terms of such changes, as previously noted, it is probable that many would consider that the 'trade offs' in terms of cost and time savings (and possibly accuracy) might outweigh the potential negative impacts of having far fewer judges and physical courts that could otherwise be visibly connected to local communities.

The impact will however vary according to the existing jurisdictional arrangements. For example, in some jurisdictions, many small (and, in some cases, 'large') civil claims are already dealt with by tribunals which already have processes in place that include ODR and 'fast' on the papers finalization. In other jurisdictions, there are few judges to deal with civil matters and fewer laws that can support civil actions. In jurisdictions that rely on tribunals, Judge AI may mean that there is a reduction in tribunal members and, in other places where the number of judges is very low, Judge AI may result in the develop-ment of accessible justice options that were previously not available.

In this regard, the author notes that the number of judicial officers per head of population varies significantly around the world. For example, some fairly dated data (2012) suggests that the number of professional judges (rather than lay judges) per 100,000 people can vary between countries, from over 180 to fewer than 1 per 100,000 people.[50] Whilst some differences can be explained

---

49 Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 21–22.

50 'Professional Judges (rate per 100,000 population), *Actualitix: World Atlas – Statistics by Country* (Web Page, 15 July 2015) <https://en.actualitix.com/country/wld/professional-judges.php> accessed 6 September 2020.

by variations in the adoption of inquisitorial rather than adversarial processes (with inquisitorial processes likely to involve more judges), other differences can relate to the extent to which civil claims and other minor matters (including fines and penalties) are dealt with by courts or tribunals or forms of ADR that sit outside courts and may be linked to mandatory pre-filing requirements.

All of this means that system transformation through lower civil claim Judge AI will result in very different impacts in societies around the world. Judge AI development therefore requires a sensitive local environmental scan to ensure that such developments do not have negative social impacts. It is simply not sufficient to conclude that by replicating a Judge AI system that works well in one jurisdiction, similar benefits will be achieved in another. In much the same way that an environmental report might be required before a large construction development takes place, a social impact report which involves a thorough analysis of the potential benefits and negative impacts of Judge AI must be undertaken before Judge AI is integrated or extended into any justice system (see ethical approaches in Chapter 9). In addition, human-centred design processes (discussed in Chapter 10), which are directed at achieving outcomes that have positive long-term impacts, require consideration of both procedural and participatory justice elements.

ISSUES WITH 'CODING' LAW

One significant issue with Judge AI that is arguably less relevant in the context of developments in machine learning (see Chapter 4) is linked to how law is coded or understood by forms of AI. The author suggests that this issue is currently more significant in the context of Judge AI that is oriented towards 'small' matters, partly because at least initially it is likely to involve a greater focus on coding. Several researchers have highlighted the challenges associated with translating law into code. Justice Perry of the Federal Court of Australia has summarized some of these concerns:

> Computer programmers effectively assume responsibility for building decision-making systems that translate policy and law into code. Yet computer programmers are not policy experts and seldom have legal training. How can we be sure that complex, even labyrinthal, regulations are accurately transposed into binary code? … We must be cautious of the human tendency to trust the reliability of computers.[51]

---

[51] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

A similar point has been made by the author and Cornes who note that although computer programmers and IT professionals are not policy or administrative experts and rarely have legal qualifications or experience, these are the people who are most likely to be tasked with translating legislation and case law into AI systems.[52] Nevertheless, challenges of this nature can potentially be met by including lawyers and policymakers in the creation and updating of these computer programs.[53] Whilst this may be labour intensive and costly, the process is front-loaded.[54] The costs however may vary according to the types of matters that are being considered. For example, in smaller criminal matters,[55] the process of coding and weighting might be done at quite a low cost.[56]

The author has previously identified a further challenge: the fact the law can often operate within the context of statutory presumptions and discretionary judgments.[57] Justice Perry of the Federal Court of Australia, has similarly argued that the operation of statutory presumptions, and the fact that meaning is affected by context, means the potential for coding errors or distortions of meaning is real.[58] Further, Justice Perry has noted that shades of meaning may be lost or distorted in any process of translation, and this poses a particular

---

[52] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 101.

[53] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1127–1128.

[54] Benjamin Alarie, Anthony Niblett and Albert H Yoon, 'How Artificial Intelligence will Affect the Practice of Law' (2018) 68(1) *University of Toronto Law Journal* 108, 118–119.

[55] Henry Prakken, 'A New Use Case for Argumentation Support Tools: Supporting Discussions of Bayesian Analyses of Complex Criminal Cases' (2020) 1 *Artificial Intelligence and Law* 27.

[56] The author was part of a team undertaking this work in 2003 and 2007. Essentially, an expert system was devised with input from a range of experts and then coding using simple branching technology was used to develop a working model that replicated legal discretionary decision-making models. See Maria Jean Hall, Domenico Calabro, Tania Sourdin, Andrew Stranieri and John Zeleznikow, 'Supporting Discretionary Decision-Making with Information Technology: A Case Study in the Criminal Sentencing Jurisdiction' (2005) 2(1) *University of Ottawa Law & Technology Journal* 1.

[57] Tania Sourdin, 'Judge v Robot: Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *University of New South Wales Law Journal* 1114, 1127.

[58] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

problem given the increasingly culturally diverse society.[59] It is also noted that laws are not static, meaning automated systems will need to be capable of applying the law as it stood at previous points in time to support decisions that may be impacted by transitional arrangements.[60]

Other commentators have identified the cultural and contextual challenges associated with coding law.[61] As noted by Kaminski, '[a]lgorithms, as programmed entities fed both goals and datasets by humans who are more remote from a particular decision, are often or even inherently culturally or contextually incomplete'. Whilst human decisions about how to treat context may be incorporated into the design of an algorithm, they are absent at the end point when an algorithm is applied to a particular individual case.[62]

Similarly, Crootof has argued that 'while human contextualization may be incorporated during the design or training of an AI system, that is hardly the same as having human contextualization at the time the algorithmic rule is applied, especially as that application may occur in a temporally, geographically, and culturally different context'.[63] Alarie, Niblett and Yoon have considered the highly contextualized nature of legal data, including judicial opinions.[64] They argue:

> While opinions follow a general form – recitation of facts, discussion of relevant case law, and application of law to the facts – judges are highly individualistic in the way they present this information. They vary considerably with one another in their writing style, including grammar and diction. When dissenting with one another, they use different legal precedents to support their analyses. Judges' personal approaches to opinion writing can present obstacles to tools that seek to extract relevant information. Search terms can be noisy, generating under- and over-inclusive

---

[59] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

[60] Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

[61] For many years there has been discussion relating to 'coding law'. See Mark Sergot, Fariba Sadri, Robert Kowalski, Frank Kriwaczek, Peter Hammond and Therese Cory, 'The British Nationality Act as a Logic Program' (1986) *Communications of the ACM*, 29(5), 370–386 available at <https://web.stanford.edu/class/cs227/Readings/BritishNationalityAct.pdf>.

[62] Margot E Kaminski, 'Binary Governance: Lessons from the GDPR's Approach to Algorithmic Accountability' (2019) 92 *Southern California Law Review* 1529, 1547.

[63] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 238.

[64] See also the recent discussion on changing how judges currently write decisions so that they are more 'machine readable'; Jameson Dempsey and Gabriel Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit.edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

results. The highly contextualized writing can make it difficult to identify patterns within and across opinions.[65]

At present, computational models of legal reasoning (CMLRs) can model the legal reasoning techniques involved in statutory and case law and assign values to predict and construct legal arguments. As Morison and Harkens point out: 'while to date these CMLRs have not dealt directly with legal texts, there are developments in text analytics that may change this, allowing conceptual information to be extracted automatically from a range of legal sources with tools developed to process some aspects of the semantics or meanings of legal texts'.[66] In referring to work by Ashley,[67] they note that such developments will logically lead 'the development of applications which integrate the Question Answering (QA) and Information Extraction (IE) functions with argument mining techniques and particular CMLRs to yield new tools for conceptual legal information retrieval, including AR (argument retrieval)'.[68] However, they note that there are significant issues linked to conceptual inferences that may 'remain too indirect or require too much background context'.[69]

As discussed in Chapter 5, it has also been argued that the use of AI in law is confronted by the philosophical distinction between syntax and semantics.[70] Searle explains that computer programs possess syntax (a formal structure of operation), but do not possess semantics (the meaning behind these operations). As such, while computer programs can *approximate* human thinking, they cannot *duplicate* human thinking.[71] According to the author and Cornes,

[65] Benjamin Alarie, Anthony Niblett and Albert H Yoon, 'How Artificial Intelligence will Affect the Practice of Law' (2018) 68(1) *University of Toronto Law Journal* 108, 118–119.

[66] John Morison and Adam Harkens, 'Re-Engineering justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618.

[67] Kevin Ashley, *Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age* (Cambridge University Press, 2017).

[68] John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618.

[69] John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618.

[70] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 102.

[71] John Searle, 'Can Computers Think?' in David Chalmers (ed), *Philosophy of Mind: Classical and Contemporary Readings* (Oxford University Press, 2002) 669.

capturing in AI form the semantics of judicial thinking is the most challenging issue for Judge AI.[72]

The Honourable Tom Bathurst, Chief Justice of the Supreme Court of New South Wales, Australia has raised a further issue: the fact that humans are irrational. This is problematic because 'systems which require definite inputs will inevitably fail to predict or answer human problems accurately'.[73] In light of concerns such as those canvassed above, a number of commentators have asserted that it is crucial that judges remain involved where Judge AI is developed, even where fully automated technologies are used to make decisions.

BIAS

As noted in Chapter 3, the implicit biases that may be perpetuated by AI are problematic when considering the automation of the judicial role. Lord Hodge, Justice of the Supreme Court of the United Kingdom, has outlined some of the subtle ways in which bias can infiltrate AI systems, including: (i) in the data used to train the system; (ii) in the data that the system processes during its operation; and (iii) in the person or organization that created the data.[74] Other judges have identified the very real potential for coding to reflect the unspoken biases of its coders,[75] or for algorithms to incorporate the subconscious biases present in the past decisions upon which the algorithm is based.[76] Importantly, concern has also been raised that any bias perpetuated by Judge AI may be beyond challenge, especially when compared to human judges who can be 'questioned and rebuked for discriminatory behaviour'.[77]

---

[72] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 102.

[73] Chief Justice Tom Bathurst, 'iAdvocate v Rumpole: Who will Survive? An Analysis of Advocates' Ongoing Relevance in the Age of Technology' (Speech, Australian Bar Association Conference, Boston, 9 July 2015) [6].

[74] Lord Hodge, 'Law and Technological Change' (Speech, British Irish Commercial Bar Association, Edinburgh, 4 April 2019) 12.

[75] Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 6.

[76] Justice GC Martin, 'How Far has Technology Invaded the Criminal Justice System?' (Speech, Australia and New Zealand Education Law Association, Legal Studies Teachers' Conference, Brisbane, 11 May 2018) 20.

[77] Frank Pasquale and Glyn Cashwell, 'Prediction, Persuasion, and the Jurisprudence of Behaviourism' (2018) 68 *University of Toronto Law Journal* 63, 66. See also Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 6.

As outlined by Cruz, implicit biases in AI can skew results in a way that negatively impacts minority individuals.[78] This is because the designers of AI programs typically come from very similar backgrounds: they are usually highly educated, cisgender men – most of whom are Caucasian or Asian – and their views do not reflect the beliefs, experiences and preferences of marginalized communities.[79] In the United States, Morison and Harkens have discussed how the risk-assessment tool *COMPAS* may have made racist predictions whereby black defendants in Florida were twice as likely to be misclassified as high-risk[80] (see however the discussion by Lin which presents a contrary view, as noted in Chapter 3).[81]

On the other hand, it has been argued that AI Judges may actually be more credible and less biased than human judges. As outlined by Volokh, 'litigants generally need not fear that the AI Judge would rule against them because it is friends with the other side's lawyer or wants to get re-elected or is biased against the litigant's race, sex, or religion'.[82] Further, Završnik has questioned whether de-biasing is possible or even desirable, given that this would involve important political decisions being made by computer scientists:

> Constitutions and criminal procedure codes have all been adopted through a democratic legislative process that distilled the prevailing societal interests, values, and so on of the given society … it is still relatively open to scrutiny in comparison with a process of de-biasing conducted behind closed doors by computer scientists in a laboratory. The point is that de-biasing entails that inherently political decisions are to be made, for example as to what is merely gendered and what is sexist language that needs to be 'cleaned', or what is hate speech targeting minorities and which differential treatment should be deemed to be discriminatory. In a machine-based utopia, such decisions would thereby be relegated to the experts of the computer science elite. In this sense, de-biasing is not even desirable.[83]

---

[78]   Sherley Cruz, 'Coding for Cultural Competency: Expanding Access to Justice with Technology' (2019) 86 *Tennessee Law Review* 347, 369–371. See also Ian Kerr and Carissima Mathen, 'Chief Justice John Roberts is a Robot' (Working Paper, University of Ottawa, 1 April 2019).

[79]   Sherley Cruz, 'Coding for Cultural Competency: Expanding Access to Justice with Technology' (2019) 86 *Tennessee Law Review* 347, 369–371.

[80]   John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 626.

[81]   Zhiyuan Lin, Jongbin Jung, Sharad Goel and Jennifer Skeem, 'The Limits of Human Predictions of Recidivism' (2020) 6 *Science Advances* 1.

[82]   Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1170.

[83]   Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 11.

A contrary view could be expressed in that, depending on the role that the executive arm of government plays in the development of Judge AI (see the discussion in Chapter 7), there are many potential concerns that arise which relate to both the range of data that might be considered by an AI Judge and the extent to which systemic bias might be hardwired into the system. As discussed in Chapter 3, in some countries there are some more jurisdiction-specific Judge AI issues as a result of a reliance on social credit system information that can raise issues in relation to digital oppression and authoritarianism,[84] as well as concerns relating to ethnic bias.[85]

For example, in China, the social credit system is currently inextricably linked with the legal system, the court system and judges. It is therefore likely that a Judge AI system would also use the social credit system data to determine both credibility and outcomes. As Backer has noted: 'law would become a framework within which a new method of social regulation could be developed ('in accordance with law')'.[86]As noted in Chapter 3, such systems are not 'value' free. In addition, the extent to which inferences could be drawn from data (see the discussion above), and what data can be accessed, can raise both privacy and ethical concerns.[87]

Beyond bias, serious challenges to Judge AI are also presented by unintended glitches with automated processes, and there are potential bias issues that could result from the deliberate interference of malicious actors.[88] In this regard, Judge AI raises additional issues in terms of security safeguards and there are potential risks relating to Judge AI corruption that may be more significant than any risk that is present with a human judge.

JUDICIAL DISCRETION

Issues also exist around the exercise of discretion when considering the extent to which judges should be replaced by AI.[89] Condlin has noted that 'software

---

[84] Fu Hualing, Michael Palmer and Zhang Xianchu, 'Introduction: Selectively Seeking Transparency in China' (2018) 12(2) *The Journal of Comparative Law* 203.

[85] James Leibold, 'Surveillance in China's Xinjiang Region: Ethnic Sorting, Coercion, and Inducement' (2020) 29(121) *Journal of Contemporary China* 46.

[86] Larry Cata Backer, 'China's Social Credit System: Data-Driven Governance for a "New Era"' (2019) 118(809) *Current History* 209, 210.

[87] See Sandra Wachter and Brent Mittelstadt, 'A Right to Reasonable Inferences: Re-Thinking Data Protection Law in the Age of Big Data and AI' (2019) 2 *Columbia Business Law Review* 494.

[88] Rebecca Crootof, '"Cyborg Justice" and the Risk of Technological–Legal Lock-In' (2019) 119 *Columbia Law Review Forum* 233, 240.

[89] Tania Sourdin, 'Judge v Robot: Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *University of New South Wales Law Journal* 1114, 1133.

is logical, not reasonable, and legal judgments often require both qualities in equal measure'.[90] However, it should be noted that views about the importance of judicial discretion vary and the author notes that issues relating to case complexity as well as variations in terms of jurisdictional approaches may mean that judicial discretion is much more relevant in some countries and courts than in others. Speaking in relation to automated decision making in the context of administrative decisions, Justice Perry of the Federal Court of Australia, has observed:

> Automated decision-making systems are grounded in logic and rules-based programs that apply rigid criteria to factual scenarios. Importantly, they respond to input information entered by a user in accordance with predetermined outcomes. By contrast, many administrative decisions require the exercise of a discretion or the making of an evaluative judgment. These are complex and subtle questions incapable of being transcribed into rigid criteria or rules and, therefore, beyond the capacity of an automated system to determine. Different factors may need to be weighed against each other and may be finely balanced. If automated systems were used in cases of this kind, not only may there be a constructive failure to exercise the discretion; by their nature they apply predetermined outcomes raising questions of pre-judgment or bias.[91]

A number of judges from common law countries where there is a greater emphasis on judicial discretion, have voiced similar concerns.[92] Lord Sales of the UK Supreme Court has noted that open-textured ideas such as justice and fairness leave room for wider values which are not explicitly encapsulated in an algorithm.[93] In the criminal law context, Judge Martin of the Supreme Court of Queensland in Australia has argued that sentencing decisions made by an artificial judge would need to identify the weight given to various factors such

---

90   Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 723.

91   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 33.

92   Scholars have also considered judicial discretion and how this can be modelled. See Ruth Kannai, Uri Schild and John Zeleznikow, 'Modeling the Evolution of Legal Discretion. An Artificial Intelligence Approach' (2007) 20(4) *Ratio Juris* 530.

93   Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 6.

as culpability, damage, and the nature of the offence. The author notes that such systems have already been developed.[94, 95]

Importantly, it is noted that these variables do not exist in a vacuum. Rather, 'each are interrelated forces that push and pull in many different directions … sentencing requires judicial discretion for individualised justice to be achieved'.[96] In a similar vein, the author has previously noted that the rigidity of some forms of Judge AI may be incompatible with discretionary decisions which 'may need to take into account community values, the subjective features of parties, and any other surrounding circumstances that may be relevant'.[97] These issues may be particularly pertinent in the family law context.[98] As outlined by Parkinson in Australia, family law decisions are highly discretionary and there are no principles of quantification which can guide the resolution of property disputes.[99]

Finally, Taruffo has distinguished between *strong* and *weak* (or *regulated*) discretion. The former exists 'when the judge is completely free to choose her own decision within a theoretically unlimited range of alternatives'. By contrast, the latter arises 'when the judge is relatively free to choose her own decision but such a choice should be made either within a previously determined inventory of alternatives, or within a range of quantitative possibilities'. Regulated discretion arises 'when these limits, rules or standards are provided for and imposed by the law'. According to Taruffo, strong discretion is unable

---

[94]   The author was part of a team undertaking this work in 2003 and 2007. Essentially, an expert system was devised with input from a range of experts and then coding using simple branching technology was used to develop a working model that replicated legal discretionary decision-making models. See Maria Jean Hall, Domenico Calabro, Tania Sourdin, Andrew Stranieri and John Zeleznikow, 'Supporting Discretionary Decision-Making with Information Technology: A Case Study in the Criminal Sentencing Jurisdiction' (2005) 2(1) *University of Ottawa Law & Technology Journal* 1.

[95]   The development of AI systems in China is well advanced in the criminal area, with fairly sophisticated Judge AI modelling in place. See Shang Li, Hongli Zhang, Lin Ye, Xiaoding Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for Legal Judgment Prediction' (2019) 7(1) *IEEE Access* 151144, available at <https://ieeexplore.ieee.org/document/8861054> accessed 23 September 2020.

[96]   Justice GC Martin, 'How Far has Technology Invaded the Criminal Justice System?' (Speech, Australia and New Zealand Education Law Association, Legal Studies Teachers' Conference, Brisbane, 11 May 2018) 20.

[97]   Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1128.

[98]   Indeed this is especially so in the context of COVID-19, see: Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming).

[99]   Patrick Parkinson, 'Why are Decisions on Family Property So Inconsistent?' (2016) 90(7) *Australian Law Journal* 498, 498–499.

to be rationalized by means of any logical tool and, at most, a judge may be required to justify *ex post* his or her choices. However, when weak or regulated discretion is involved, there is more scope for an *ex ante* rationalization of discretionary choices, and there are pre-existing standards and criteria which determine the borders of judicial discretion (see the discussion relating to 'weak' and 'strong' discretion in Chapter 9).[100]

As noted previously, it is more likely that supportive Judge AI models will be used by judges in higher courts in most countries in the near future, rather than more fully automated Judge AI models that are more likely to be developed at lower court and administrative decision-making levels. Where decisions are made about Judge AI development, distinguishing between discretionary levels may be appropriate as weak discretion arrangements are more likely to be amenable to the introduction of Judge AI (see the discussion of triage in Chapter 9).

INNOVATIVE AND NOVEL SITUATIONS

As discussed in Chapter 5, Judge AI also poses problems when it comes to innovative and/or novel situations. According to Surden, machine-learning techniques are only useful where new information presented to the AI is sufficiently similar to already analysed information:

> Should an AI program be presented with a novel case where no similar precedent exists, it may not be well-suited in making a prediction or coming to an outcome. These issues may arise in Judge AI where the sample size of previous cases is not large enough for the computer program to discover patterns and create effective generalisations.[101]

Surden also identifies the risk of overgeneralization which can arise when a machine-learning algorithm is too attuned to the idiosyncrasies or biases in the training set, and is therefore inadequate for the task of predicting future, novel scenarios, and dealing with the diversity of future cases likely to arise.[102] Such issues are more problematic in some jurisdictions and disputes than in others. For example, where the creation of precedent is more relevant and

---

[100] Michele Taruffo, 'Judicial Decisions and Artificial Intelligence' (1998) 6 *Artificial Intelligence and Law* 311, 319–320.

[101] Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105–106. For example, machine learning that is based on decisions and data from the pre COVID-19 era will not in some circumstances adequately respond to the differing situational factors that may impact on a court decision.

[102] Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 106.

legal doctrine involves notions that may be redefined and reanalysed, such issues are more relevant. In contrast, in some lower courts and where precedent and common law interpretation is less relevant, such issues are clearly less problematic.

The author, together with Cornes has similarly identified the challenge of novelty.[103] Further, it is suggested that the exercise of judicial discretion involved in the application of principle to novel cases 'will always require a fresh evaluation of circumstances beyond the capability of machine learning'.[104] One can therefore conclude that a clear limit on Judge AI, at least at present, relates to novel cases.

At the same time, however, the author notes that AI researchers have been successful in addressing issues of this nature outside the legal field. For instance, the author and Cornes note that there are 'many examples in the medical field with AI now increasingly being used for diagnostic purposes and in relation to some human functions'.[105] Such successes indicate that 'predictive analysis, even where there are significant variations in terms of novelty, can be "learned" and that these insights could be extended into Judge AI applications'.[106]

CREATING 'NEW' LAW – PRECEDENT-BASED SYSTEMS

Finally, consideration also needs to be given to the impact of technology and AI on judgment writing and thus the development of law in common law systems. This concern is linked not only to how novel cases are dealt with, but also to the development of the law more generally. There are two issues

---

[103] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 100–101.

[104] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 100.

[105] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 100.

[106] Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 100.

that are particularly relevant. The first issue has been discussed previously and relates to the capacity for even very advanced forms of AI to do much more than make decisions or engage in limited terms in respect of any dialogue. In this regard, there are still significant issues in terms of the capacity of AI to explain how decisions are made and to do so in a way that might resemble the reasons or opinion as articulated by a human judge (see also Chapter 10).

A number of commentators have expressed concerns about the development of Judge AI in view of this deficit. For example, Wisser has identified the need for automated systems to explain their decisions 'in written, protracted, published opinions'.[107] However, some recent developments in AI[108] suggest that forms of AI will be able to write creatively in the coming decade, particularly in view of the software tool GPT and related developments (where *human-like* writing processes are a focus),[109] although most consider that AI is more likely to be used to assist humans rather than replace them in terms of creative work (see Chapter 10).[110]

On the other hand, Volokh has argued that AI Judges would be expected to offer even more written opinions supporting their judgments than human judges precisely because they may lack creativity:

> For human judges, we generally have to trust their exercises of discretion, whether based on our knowledge of the judge's character, our hope that judges are honorably following their oath of impartiality, or ultimately sheer necessity: courts' busy workloads don't let judges write detailed opinions supporting every decision on every motion. But AI judges have no personal bona fides that might make us trust them. Their written justifications are all that can make us accept their decisions.[111]

---

[107] Leah Wisser, 'Pandora's Algorithmic Black Box: The Challenges of Using Algorithmic Risk Assessments in Sentencing' (2019) 56(4) *American Criminal Law Review* 1811.

[108] See Steven Poole, 'The Rise of Robot Authors: Is the Writing on the Wall for Humans?', *The Guardian* (Online, 25 March 2019) <https://www.theguardian.com/books/2019/mar/25/the-rise-of-robot-authors-is-the-writing-on-the-wall-for-human-novelists> accessed 14 August 2020.

[109] The author notes that 'creative' and meaningful writing by forms of AI may still be some distance away – see Thomas Hornigold, 'The First Novel Written by AI is Here – and It's as Weird as You'd Expect It to Be', *Singularity Hub* (Blog Post, 25 October 2018) <https://singularityhub.com/2018/10/25/ai-wrote-a-road-trip-novel-is-it-a-good-read/> accessed 14 August 2020. See also the discussion relating to GPT and Open AI available at <http://dailynous.com/2020/07/30/philosophers-gpt-3/> accessed 10 September 2020.

[110] Bernard Marr, 'Can Machines and Artificial Intelligence Be Creative?', *Forbes* (Online, 28 February 2020) <https://www.forbes.com/sites/bernardmarr/2020/02/28/can-machines-and-artificial-intelligence-be-creative/#3a68fb214580> accessed 14 August 2020.

[111] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1159.

A second issue relates to judgment writing and the fact that even a single, non-dissenting judgment or opinion can lead to the development of the law, particularly where it involves an analysis of the law from a different perspective. In this regard, the exposition of a judge's reasons is a key feature of common law systems.[112] As argued by Sundaresh Menon, Chief Justice of Singapore: 'cases are the lifeblood of the law' (see also the discussion in Chapter 7 relating to the value of judicial dissent).[113]

As noted previously, the broader social impact that judges may have on the development of the law (see Chapter 7) can be extensive. Indeed in many common law systems, what may eventually become codified may initially often have emerged from a judicial focus on some aspect of social interaction. In essence, there are good reasons why many would consider that often the most intelligent people in society become judges. Simply put: they may then have an opportunity to shape the law so that it remains both relevant and responsive, and in many judicial systems they play an important role in doing so.

CONCLUSIONS

Judge AI development is dependent on a wide range of factors. First, the technology must be able to consider and weigh evidence in the context of the situation and available law. At present, this means that Judge AI requires that evidence be in writing (although the author notes that voice to text conversion is likely to have more significant impacts in the short term). However, even then, there are issues about how inferences can be drawn and a conclusion made that one factual matrix or proposition is more compelling than another. Second, the technology needs to be able to both make a decision and explain that decision. As noted above, explainability remains a significant issue in terms of Judge AI, although simple explainability is already possible. Third, Judge AI requires that people trust the outcomes that are arrived at. Trust in this area is likely to be linked to the development of trust in forms of AI that exist outside the legal domain (see Chapter 5).

Importantly, however, the development of Judge AI will depend on where in the court system it is to be deployed and how. As discussed, there are ongoing

---

[112] Margaret Beazley, 'Law in the Age of the Algorithm' (Speech, State of the Profession Address, New South Wales Young Lawyers, Sydney, 21 September 2017) [60].
[113] Chief Justice Sundaresh Menon, 'Deep Thinking: The Future of the Legal Profession in an Age of Technology' (Speech, 29th Inter-Pacific Bar Association Annual Meeting and Conference, Raffles City Convention Centre, Singapore, 25 April 2019) 14.

digital divide issues that suggest that caution must be exercised in Judge AI development in relation to small claims which are likely to involve more vulnerable members of the population with some technological deficits (in terms of access as well as capacity). In many jurisdictions, there are also issues that are linked to the role of a judge in terms of development of the law and the ongoing maintenance and support of the justice system. In this regard, there are continuing concerns about how to safeguard the law's continuing development.[114] There are also concerns that relate to what might be lost when Judge AI is further developed. Završnik, speaking in relation to criminal justice procedures, argues that if such processes are computerized, there will be ongoing serious questions raised about what is being left out.[115]

Despite these issues, it is clear that in some countries, Judge AI is already at a developmental stage which will mean that it will become a feature of some courts in the near future. In order to develop Judge AI, there is, in addition to the matters noted above, a need to examine what constraints should exist. Such decisions can be informed not only by an understanding of objectives in the justice and judicial system, but also by the use of ethical frameworks to inform decision making (see Chapter 9), coupled with human-centred design processes that require a continuing focus on human well-being and dignity (see Chapter 10).

---

[114] Chief Justice Sundaresh Menon, 'Deep Thinking: The Future of the Legal Profession in an Age of Technology' (Speech, 29th Inter-Pacific Bar Association Annual Meeting and Conference, Raffles City Convention Centre, Singapore, 25 April 2019) 14.
[115] Aleš Završnik, 'Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings' (2019) *European Journal of Criminology* 1, 15.

9.   Ethical issues in Judge AI and judicial technology use

INTRODUCTION

Judge AI along with the use of newer technologies by judges can raise ethical concerns. Such issues can be contextual in nature. For example, the use of technology may be ethically appropriate when used by a judge in one context but not another.[1] In addition, jurisdictional differences mean that what may be considered as ethical or an appropriate use of technology in one jurisdiction may not be considered that way in another.[2] The underlying values and objectives of the justice system in each jurisdiction can help in determining whether an action is ethical or not, and decisions about how to construct and interpret national and regional ethical guidelines can also be relevant.

The differing views about what is 'just' and differing understandings about the purpose and underlying values of the justice system (see Chapter 6) mean that creating a common ethical framework for judges in terms of technology use is a difficult task. However, some basic ethical frameworks that may be extended and varied in different jurisdictions can be invaluable in informing individual judicial responses, assisting with the future development of the justice system and guiding court and systemic decision making in different jurisdictions (for example, in considering what cases could be referred to Judge AI).

General ethical guidance regarding AI is relevant in respect of the more specific use of technology in the justice sector. In this regard, there is a substantial

---

[1]   For example, using Zoom conferencing to replace interlocutory hearings and other courts activities would be likely to meet ethical guidelines. However, ethical issues might surface if Zoom conferencing is used with a vulnerable population and where there is no access to a physical court or where, for example, Zoom is used to sentence someone to death: Milena Heinsch, Tania Sourdin, Caragh Brosnan and Hannah Cootes, 'Death Sentencing by Zoom: An Actor-Network Theory Analysis' (2020) *Alternative Law Journal* (forthcoming).

[2]   The author notes that what might be considered to be palatable by the courts in China in the context of social surveillance data and privacy, might not be considered in the same way in another jurisdiction.

body of literature and a number of institutions as well as research projects that are focused on ethics and AI.[3] In most instances, ethical approaches are informed firstly by considering values and purpose before using an ethical framework that refers to specific principles to determine what response might be right or wrong.[4] In general, ethical concerns about AI and technology use can be grouped into five broad categories:

- Fairness, Transparency and Explainability;
- Responsibility and Accountability;
- Robustness and Reliability;
- Privacy and Trust; and
- Safety and Security.[5]

Each of these areas of ethical concern are also relevant when considering judges, technology and AI. However, in each area there are different relevant sub-factors and, given the social context within which judges work, there is a need to incorporate overarching justice values and objectives.

In respect of a focus on technology, courts and ethics, the COVID-19 arrangements have led to some rethinking about general guidelines that might apply to court and technology use. For example, the Council of Europe European Commission for the Efficiency of Justice (CEPEJ) promulgated

---

[3]   See, for example: Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019); The Canadian Centre for Ethics and Corporate Policy <http://www .ethicscentre.ca/EN/> accessed 21 September 2020; The Oxford Uehiro Centre for Practical Ethics <https://www.practicalethics.ox.ac.uk/> accessed 21 September 2020; The Ethics Centre in Australia <https://ethics.org.au/> accessed 21 September 2020.

[4]   See Matthew Beard and Simon Longstaff, *Ethical by Design: Principles for Good Technology*, The Ethics Centre, Australia, 2018, available at <https://ethics.org .au/ethical-by-design/> accessed 27 September 2020.

[5]   See generally: Paula Boddington, *Towards a Code of Ethics for Artificial Intelligence* (Springer, 2017); Select Committee on Artificial Intelligence, *AI in the UK: Ready, Willing and Able?* (House of Lords Paper No 100, Session 2017-19).

a declaration in relation to the COVID-19 pandemic that included the following:

> Principle 5 (Cyberjustice)
> The recourse to information technologies offers the opportunity for the public service of justice to continue functioning during the health crisis. However, its rapid emergence and excessive use may equally bring negative consequences.
> IT-solutions, such as online services, remote hearings and videoconferences, as well as future development of digital justice must always respect fundamental rights and principles of a fair trial.
> To reduce risks inherent in the deployment of IT, their use and accessibility for all the users should have a clear legal basis. Special attention should be paid to the most vulnerable groups in this respect. The impact of the use of these technologies on justice delivery should therefore be evaluated regularly and remedial measures taken when necessary. Ensuring cyber-security and the protection of personal data must be a priority.[6]

Notably, more recent non-COVID-specific ethical guidelines promote the notion that AI and technology use in the justice area should be governed by overarching objectives. For example, an objective 'that technology use must support a sustainable justice system' may invoke references to objectives in respect of sustainability in terms of governance and trust building (see also Chapter 6 in terms of justice objectives).[7] In addition, as discussed at the end of this chapter, the promotion of human well-being can also be considered as a relevant overarching objective, particularly in areas of existing human activity that are perceived to have wide-reaching social impacts.

There are many questions that have been raised relating to the replacement of critical forms of human decision making by AI, although some material that relates to AI more generally can be less relatable to Judge AI. In respect of specific guidance in relation to AI and judges, developments in Europe in 2018 have led to some international consideration of issues relating to AI, judges and technology use. The Council of Europe European Commission for the Efficiency of Justice (CEPEJ) has, for example, published material that was

---

[6]   Council of Europe European Commission for the Efficiency of Justice, 'Lessons Learnt and Challenges Faced by the Judiciary During and After the COVID-19 Pandemic' (Plenary Meeting Paper, Strasbourg, 10 June 2020).

[7]   For a literature review in this rapidly developing area see: Stefan Larsson, Mikael Anneroth, Anna Felländer, Li Felländer-Tsai, Fredrik Heintz and Rebecka Cedering Ångström, *Sustainable AI: An Inventory of the State of Knowledge of Ethical, Social, and Legal Challenges Related to Artificial Intelligence* (Report, 2019); Daniel Greene, Anna Lauren Hoffman and Luke Starke, 'Better, Nicer, Clearer, Fairer: A Critical Assessment of the Movement for Ethical Artificial Intelligence and Machine Learning' (Conference Paper, Hawaii International Conference on System Sciences, 8 January 2019).

adopted in late 2018 titled 'European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment' (European AI Charter) which is discussed later in this chapter.[8]

The CEPEJ material highlights some of the ethical issues that are relevant in terms of courts and technology as well as the development of Judge AI. These include concerns related to the impacts on people (particularly the most vulnerable) that can also be linked to questions regarding the types of cases that may involve more evolved forms of AI, how privacy and confidentiality issues are dealt with, how fundamental rights are supported,[9] and how fairness and transparency can be ensured.

In respect of the more limited material linked to Judge AI and the role of a judge, much ethical discussion appears to assume that the role of a judge involves (or primarily involves) being presented with 'data' leading to con-sequent decision making. However, as discussed in Chapter 2, the role of a judge is far more complex.[10] The extensive variation in terms of judicial functions can also raise questions relating to the moral purpose of justice and may suggest that reference to the broader range of judicial functions should be incorporated into any ethical guidelines relating to Judge AI (see the discus-sion later in this chapter).[11]

There are other issues that are linked to the pace of technological change and the development of ethical guidelines. As outlined by Donoghue: 'our grasp of the ethical and moral questions concerning the use of IT lags significantly behind the burgeoning technological advances'. Donoghue argues that the pace of technological change 'has not been accompanied by sufficient scrutiny of technology's impact upon court user participation or case outcomes or indeed any rigorous analysis of the normative or social consequences of these increasingly rapidly enacted series of legal reforms'.[12] The author notes that these issues have become even more relevant in the COVID-19 era as a result

---

[8]   European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment (entered into force on 3–4 December 2018).

[9]   The author notes that this has been a particular focus of a number of European instruments. See Jasper Ulenaers, 'The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?' (2020) *Asian Journal of Law and Economics* (forthcoming).

[10]   See Tania Sourdin and Archie Zariski (eds)*, The Multi-Tasking Judge: Comparative Judicial Dispute Resolution* (Thomson Reuters, 2013).

[11]   For a broader discussion of the judicial role and responsiveness see Tania Sourdin and Archie Zariski (eds), *The Responsive Judge* (Springer, 2018).

[12]   Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' (2017) 80(6) *The Modern Law Review* 995, 1024.

of the rapid changes that have been introduced to enable the remote delivery of court services.[13]

In addition, as others have noted, there is a need to ensure that ethical issues are tackled 'proactively'. As in the health area, there are significant risks where reforms are introduced that are not 'ethically minded'. In such circumstances, social opportunity and development costs may be significant as the advancement of the technology is beset by issues relating to social rejection and distorted or inappropriate legislation.[14]

Some particular challenges arise when defining the goals of morality in a way that could enable Judge AI to make substantive moral judgments. Davis has noted that new technologies give novel salience to one of the most fundamental disagreements in jurisprudence: the role of morality in determining what the law is.[15] As discussed in Chapter 8 and Chapter 2, for legal positivists, no substantive moral judgments are necessary to say what the law is. On this view, AI will be capable of displacing human judges if computers can become better at making purely positive judgments about the law than human beings. However, on a natural justice or responsive view of the law and morality, an AI decision maker would also need to be capable of making and acting in accordance with moral judgments about legal issues.

An additional matter that is relevant relates to a lack of clarity – both technically and philosophically – when it comes to determining what is meant by proposing that ethics can be 'built into' AI. In this regard, it is often assumed that when new technologies are constructed, development can be guided by clear ethical principles. This is certainly the approach that is considered by many major technological giants. For example, large technology firms may decide not to support facial recognition developments unless certain ethical requirements are met.[16] Similarly, large technology giants may determine that the development of 'remote controlled killing' devices are unethical.[17]

---

[13]   Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[14]   Jessica Morley, Caio CV Machado, Christopher Burr, Josh Cowls, Indra Joshi, Mariarosaria Taddeo and Luciano Floridi, 'The Ethics of AI in Health Care: A Mapping Review' (2020) 260 *Social Science & Medicine* 113.

[15]   Joshua P Davis, 'Law Without Mind: AI, Ethics and Jurisprudence' (2018) 55(1) *California Western Law Review* 165, 201.

[16]   Jeffrey Dastin and Munsif Vengattil, 'Microsoft Bans Face-Recognition Sales to Police as Big Tech Reacts to Protests', *Reuters* (Online Article, 12 June 2020) <https://www.reuters.com/article/us-microsoft-facial-recognition/microsoft-bans -face-recognition-sales-to-police-as-big-tech-reacts-to-protests-idUSKBN23I2T6> accessed 19 August 2020.

[17]   Jamie Doward, 'Britain Funds Research into Drones that Decide Who They Kill, Says Report', *The Guardian* (Online, 11 November 2018) <https://www.theguardian

However, 'building in' ethical considerations is problematic as technology that is developed for one purpose (which is 'safe') may be used in other ways that are unethical or harmful. There are also concerns that ethical decision making is in the hands of tech giants who may have a variety of incentives to develop technologies that do not support social good or human well-being.[18] As a result, increasingly ethical guidance involves a consideration of both the location of AI use and 'the lifecycle of AI' as discussed later in this chapter.

Finally, as noted by Susskind, issues emerge where people may hope for a quick technical fix for the shortcomings of AI, despite the fact that it is much more likely that such a task would require many years of work.[19] In circumstances where speedy outcomes are sought, there are risks that ethical guidelines will not be adequately considered during either the developmental or continuing use stages. For example, in AI and law, there are a number of researchers considering how the development of legal technology will impact on lawyers; however, the extension of such technologies to both courts and judges is not necessarily considered. This is an issue as lawyers may use such technologies and judges may need to make decisions based on interpretations provided by technologies that are used by lawyers. Also, judges may themselves use such technologies without considering the additional ethical risks that may arise as a result of judicial use (see the previous discussion relating to *COMPAS* in Chapter 8 and below).

In this chapter, much of the focus is on Judge AI with an initial discussion of concerns relating to Judge AI that are relevant to broader ethical approaches. This is followed by a consideration of how and to what extent it is appropriate to retain human judging, what types of matters could be referred to Judge AI and what triage questions might be relevant before specifically considering ethical principles. At the end of the chapter there is a broader discussion about judges and technology use. Here, material is presented with proposed ethical guidelines that highlight considerations that may apply to contextual ethical determinations.

THE AI JUDGE AND ETHICS

Most ethical concerns arise in the context of Judge AI where there is a complete replacement of judges and, to a far lesser extent, in the development of

---

.com/world/2018/nov/10/autonomous-drones-that-decide-who-they-kill-britain-funds -research> accessed 19 August 2020.

[18] Luciano Floridi, 'The Fight for Digital Sovereignty: What It Is, and Why It Matters, Especially for the EU' (2020) 33 *Philosophy and Technology* 369.

[19] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 289.

supportive Judge AI. Indeed some early thinkers in the area of AI considered that, of all groups within society, judges should not be replaced by AI.[20] This concern is partly linked to a concern that AI might eventually 'take over' the world and that human beings might be superseded by forms of AI. This somewhat dystopian view is shared by many leading thinkers in the AI field such as Elon Musk and Bill Gates.[21] Notably, eminent professor Stephen Hawking stated that:

> The development of full artificial intelligence could spell the end of the human race. Once humans develop artificial intelligence, it will take off on its own and redesign itself at an ever-increasing rate. Humans, who are limited by slow biological evolution, couldn't compete and would be superseded.[22]

In this formulation of the potential scope of AI, human judges could be regarded as the guardians of the justice system (see Chapter 6) and perhaps even the gatekeepers or protectors of the human race. In this sense judges could therefore be perceived as critical in ensuring that unethical and unlawful AI use is reduced. Essentially, replacing human judges with Judge AI could mean the gatekeepers of AI development are other forms of AI. This concern is not limited to high-value court cases. For example, frequent, low-value court actions that are the result of biased or inappropriate forms of AI could remain undetected with an AI Judge. Clearly, both social and individual human harm could result from this lack of detection. Whilst some of these concerns relate to the importance of humans remaining involved in the development and application of the law, other issues related to ethics and Judge AI can be linked to the fears about a loss in human empathy, wisdom and creativity as the guardians of a just human society become forms of AI.

Other concerns about the potential outcomes of Judge AI are illustrated in the following story recounted by Nicolson:

> A short story, entitled *Non Sub Homine*, written by a lawyer under the pseudonym H.W. Whyte, provides fodder for discussion concerning the application of technology to the judicial process. The story takes place in the future at the 'old' Foley

---

[20]   Joseph Weizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (WH Freeman and Company, 1976).

[21]   Stanford, 'Stanford HAI 2019: Keynote with Bill Gates' (YouTube, 20 March 2019) <https://www.youtube.com/watch?v=Bdaq-KlyfLQ> accessed 19 August 2020.

[22]   Rory Cellan-Jones, 'Stephen Hawking Warns Artificial Intelligence Could End Mankind', *BBC News* (Online, 2 December 2014) <https://www.bbc.com/news/technology-30290540> accessed 19 August 2020.

Square courthouse in New York. A computer, called the '2-10,' operated by a man named Cook and his assistant Jane, has replaced the courts, both trial and appellate.

> While the computer had originally been intended as a library of legal decisions, its opinions on questions previously decided was soon accepted as irrevocable …. [I]n only four and a half years of full service, the 2-10 had generated a new respect for the law …. for Cook knew that the people felt they were no longer subject to the vagaries of an inherently political judiciary, of mindless whim, of the flux of ulcers. By taking law out of the hands of man, the 2-10 had put it beyond corruption.

This time, however, the 2-10 was unable to reach a decision. '[A] simple question about the assignability of a lease under an ambiguous contract' froze the computer. It printed out two decisions, one in favor of the plaintiff and one for the defendant, but could not choose between them because 'there was nothing to either [opinion] that was not completely justified.' '"The 2-10 is infallible," Cook found himself saying "It cannot be permitted to fail."' Cook tore up the opinion in favor of the defendant and directed Jane, over her protest, to file the opinion in favor of the plaintiff. Cook immediately programmed the 2-10 to select an opinion randomly when the case was evenly balanced. Realizing, however, that the public confidence engendered by the 2-10's ability to dispense perfect justice would be shattered if the public were to learn the computer had failed to reach a decision, Cook concluded that Jane must be killed to ensure the safety of his secret.[23]

In terms of the above story, an opinion by Richard Posner was provided:

> Judge Richard A. Posner, in *Overcoming Law*, concluded *Non Sub Homine* has 'no literary merit.' Nonetheless, he acknowledged that
> > [a]bove all, the story makes us think about the ineradicable element of creativity in legal judgment. The computer has been programmed with all decided cases. It is supposed to decide new cases by reference to them. But many of those decided cases (all that were not mere replays of earlier cases) were once new cases. How is a new case to be decided when the only materials for decision are old cases that by definition are different from it?[24]

Certainly, questions about data use and the availability of useful data are critical in terms of Judge AI. Using data from decided cases, for example, is likely to lead to erroneous decision making in part because many civil cases that end up in a judgment are likely to be aberrant in some way (see the discussion in Chapter 8).[25] Using other data is also problematic and there are particular con-

---

[23] George Nicholson, 'An Environment of Change: Vision of the Future of Appellate Practice and Process' (2000) 2 *The Journal of Appellate Practice and Process* 229, 246–247.

[24] George Nicholson, 'An Environment of Change: Vision of the Future of Appellate Practice and Process' (2000) 2 *The Journal of Appellate Practice and Process* 229, 230, 247–248.

[25] Naomi Burstyner, Tania Sourdin, Chinthaka Liyanage, Bahadorreza Ofoghi and John Zeleznikow, 'Using Technology to Discover More about the Justice System' (2018) 44(1) *Rutgers Computer & Technology Law Journal* 1.

cerns raised in the context of broader data use. This includes, for example, the use of social surveillance data (see the discussion in Chapters 5 and 8).

Harvey gives a simplified description of the process an AI Judge would be required to take, which is described in Chapter 5.[26] It is, however, notable that human judge decision making is largely retained in Harvey's model, and it must be said that this is the case in most Judge AI models. However, an increasing number of experiments have been conducted using AI computer programs to predict the outcomes of cases based on textual information (predictive analysis) which suggest that human replacement will be possible in the coming years (see below). For example, apart from the developments in China (and elsewhere – discussed in Chapters 2 and 4), Aletras and colleagues developed a program that textually analysed decisions relating to breaches of human rights in the European Court of Human Rights to discover patterns in judgments.[27] The program learnt these patterns and was able to predict the outcome of cases presented to it in textual form with an average accuracy of 79 per cent.[28] This is an example of machine learning, where the computer system was able to 'analyze past data to develop rules that are generalizable going forward'.[29] As noted, machine learning allows computer programs to learn complex tasks through experience, rather than through hand-crafted computer functions.[30]

Surden and others note that machine learning may run into some limitations in the development of effective AI that can predict legal outcomes. As noted above, machine learning techniques are only useful where analysed information is similar to new information presented to the AI.[31] Should an AI program

---

[26]   David Harvey, 'From Susskind to Briggs: Online Court Approaches' (2016) 5(2) *Journal of Civil Litigation and Practice* 84, 93.

[27]   Nikolaos Aletras, Dimitrios Tsarapatsanis, Daniel Preoţiuc-Pietro and Vasileios Lampos, 'Predicting Judicial Decisions of the European Court of Human Rights: A Natural Language Processing Perspective' (2016) *PeerJ Computer Science* 2, 15–16.

[28]   Nikolaos Aletras, Dimitrios Tsarapatsanis, Daniel Preoţiuc-Pietro and Vasileios Lampos, 'Predicting Judicial Decisions of the European Court of Human Rights: A Natural Language Processing Perspective' (2016) *PeerJ Computer Science* 2, 15–16.

[29]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105.

[30]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 89; David Silver, Aja Huang, Chris J Maddison, Arthur Guez, Laurent Sifre, George van den Driessche, Julian Schrittwieser, Ioannis Antonoglou, Veda Panneershelvam, Marc Lanctot, Sander Dieleman, Dominik Grewe, John Nham, Nal Kalchbrenner, Ilya Sutskever, Timothy Lillicrap, Madeleine Leach, Koray Kavukcuoglu, Thore Graepel and Demis Hassabis, 'Mastering the Game of Go with Deep Neural Networks and Tree Search' (2016) 529 *Nature* 484, 489.

[31]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105.

be presented with a novel case where no similar precedent exists, it may not be well-suited to making a prediction or coming to an outcome[32] (see the discussion in Chapter 8). These issues may also arise where the sample size of previous cases is not large enough for the computer program to discover patterns and create effective generalizations.[33] In short, it is the loss of the human that results in possible harm and generates an ethical risk, primarily because novel situations cannot be adequately dealt with by existing forms of AI.

TO WHAT EXTENT WILL HUMAN JUDGING BE RETAINED?

As discussed previously, it is important to note that despite technological hype, Judge AI, rather than supportive Judge AI, is unlikely to make a significant impact in many jurisdictions in the short term.[34] However, despite this, as Judge AI begins to develop around the edges of the justice system, there is a need for ethical guidance. For example, in light of the various ethical and other concerns that arise with Judge AI, a number of commentators have asserted that it is crucial that human lawyers and judges remain involved in court proceedings even where fully automated technologies are used to make decisions.[35] According to Justice Perry from the Federal Court of Australia, 'proper verification and audit mechanisms need to be integrated into the systems from the outset, and appropriate mechanisms for review in the individual case by humans, put in place'.[36]

In particular, it is noted that automation which requires the application of strict criteria, rather than the exercise of discretion or a value-based judgment, should be the subject of careful scrutiny in order to guard against unfair or arbitrary decisions (see the discussion in Chapter 8 relating to 'weak' and 'strong' discretionary systems).[37] This could be achieved in a variety of ways. For example, in some circumstances, Judge AI could simply be advisory and

---

[32]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105.

[33]   Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105.

[34]   See previous discussions relating to international developments in Chapters 1, 3 and 8. There are clearly some jurisdictions where Judge AI is likely to make a more significant impact in the short term – for example, in China.

[35]   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

[36]   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 32.

[37]   Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 33–34.

not determinative. In the context of ODR, where determinative and advisory options might be present, Zeleznikow has warned against ODR being fully automated, indicating that such systems should aim to support decision making rather than usurping this function.[38] As summarized by Feldman, if ordinary citizens are to have faith in the credibility of AI, there must be methods of analysing and validating the choices made.[39] These observations are supported by an evaluation of *Rechtwijzer* – a former ODR tool for separating couples in the Netherlands – which found that although participants were satisfied with their experiences using the program, a majority still felt the need to have a third party check over the agreement made through the system.[40]

The right to appeal an AI Judge's decision has also been emphasized by a number of commentators. According to Zalnieriute, Bennett Moses and Williams, automation can compromise individual due process rights by undermining the ability of a party to challenge a decision affecting them.[41] It is important, therefore, to ensure automated processes do not prevent parties from accessing or assessing the information used to make the decision. This has also been explored by the author together with Li and Burke, who refer to the risk that the processes used to reach an outcome, particularly by more 'disruptive' technologies involving developed AI, may be less visible to the parties.

The author notes that both transparency and natural justice issues can arise as a result of Judge AI.[42] Lord Sales of the Supreme Court of the United Kingdom has, for example, emphasized the importance of allowing for 'ex post challenges' to decisions so as to enable the 'correction of legal errors and the injection of equity and mercy'.[43] Further, in Estonia, where the Ministry

---

[38]   John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency and Effectiveness in Courts' (2017) 8(2) *International Journal for Court Administration* 30, 39–41.

[39]   Robin C Feldman, 'Technology Law: Artificial Intelligence: Trust and Distrust' (2019) 3(17) *The Judges' Book* 115, 117.

[40]   Esmee A Bickel, Maria Anna Jozefa van Dijk and Ellen Giebels, *Online Legal Advice and Conflict Support: A Dutch Experience* (Report, March 2015) 22, 31.

[41]   Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision☐Making' (2019) 82(3) *Modern Law Review* 425, 449.

[42]   Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 23–24.

[43]   Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 10.

of Justice is developing a robot judge for small contract disputes, the model provides that the AI's decision can be appealed to a human judge.[44]

Morison and Harkens have distinguished between a human 'in-the-loop' and a human 'on-the-loop' approach. In the United States, *COMPAS* – an automated decision-making tool – is an example of a human 'in-the-loop' tool where humans are required to select and guide inputs.[45] In the United States, the Supreme Court of Wisconsin has held that reliance on this tool in sentencing decisions is permissible, provided the decision is not fully delegated to the output of the machine learning software.[46] By contrast, human involvement in 'on-the-loop' tools is at the final execution stage.[47] Humans thus take on the role of overseer or corrector of algorithmic predictions or determinations.

Commentators have proffered a number of justifications for an approach which retains some level of human judging. According to Morison and Harkens, any clash between what an AI and human decision maker regards as legitimate and fair should not be viewed as an inefficiency, but rather as beneficial since 'maintaining this contestation over the values and purpose of such a process is important, as it enables conscious debate over the utility and suitability of such tools'.[48] Brennan-Marquez and Henderson have argued that maintaining human oversight can mean that affected parties 'have an easier time respecting hard-to-swallow outcomes when they know that a human took part in the decision-making process'.[49] Another reason why humans should

---

[44] Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[45] Michelle Vaccaro and Jim Waldo, 'The Effects of Mixing Machine Learning & Human Judgment: Collaboration Does Not Necessarily Lead to Better Outcomes' (2019) 17 *ACMQUEUE* (4), available at <https://queue.acm.org/detail.cfm?id=3363293> accessed 15 September 2020. See also the general discussion in Khari Johnson, 'Partnership on AI: Algorithms Aren't Ready to Automate Pretrial Bail Hearings', *Venture Beat* (Blog Post, 26 April 2019) <https://venturebeat.com/2019/04/26/partnership-on-ai-algorithms-arent-ready-to-automate-pretrial-bail-hearings/> accessed 19 August 2020.

[46] *State of Wisconsin v Loomis*, 881 NW 2d 749 (Wis, 2016).

[47] John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 625.

[48] John Morison and Adam Harkens, 'Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making' (2019) 39 *Legal Studies* 618, 626.

[49] Kiel Brennan-Marquez and Stephen E Henderson, 'Artificial Intelligence and Role-Reversible Judgment' (2019) 109(2) *Journal of Criminal Law and Criminology* 137, 148.

remain 'in the loop', even if doing so diminishes accuracy and consistency is linked to the concept of 'role-reversibility' in decision making:

> [T]hose who exercise judgment should be reciprocally vulnerable to its processes and effects.
>   What matters, then, is not the fact of humanness per se. What matters is whether decision-makers are situated to imagine themselves into the role of an affected party, and vice versa – such that both participants, and in some sense the entire moral community, can understand judgment as a democratic act.[50]

When it comes to the practicalities of keeping human decision makers both in- and on-the-loop, Re and Solow-Niederman outline two possible options.[51] First, 'human and AI judges might collaborate by operating in tandem at specified stages of the judicial process'. This could occur either by preserving a measure of human oversight and involvement at particular points or incorporating human oversight at the front-end or back-end of a legal decision.

A second option is to 'apportion discrete types of judicial decision-making to human as opposed to mechanized actors'. The resulting separation could be based on either subject matter, or a more fine-grained determination about the parts of a legal decision that raise particular justice concerns. This division of labour preserves 'a traditional role for humans within systems of AI adjudication, even if that role introduces increased opportunities for bias, arbitrariness, error, and cost'.[52] At the same time, however, it is recognized that there are 'pragmatic difficulties' which can hinder the attempt to divide human and AI tasks in a way that desirably preserves human discretion, including an inability to know the right balance of human and AI activity prior to experimentation.[53] As such, there is a risk that 'pursuit of human-AI collaboration … could end up being more like the worst of both worlds than the best if the wrong policy tradeoffs are struck'.[54]

---

[50]   Kiel Brennan-Marquez and Stephen E Henderson, 'Artificial Intelligence and Role-Reversible Judgment' (2019) 109(2) *Journal of Criminal Law and Criminology* 137, 149.

[51]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 282–283.

[52]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 282–283.

[53]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 284.

[54]   Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 285.

EMOTION AND JUDGING

Questions arise as to whether an automated process can possess both the rational and emotional authority to make decisions in place of a human judge.[55] In 2003 Michael Kirby, a former High Court Judge in Australia, stated that it was difficult to conceive of a machine that has the *will* to do justice.[56] This is significant because Kirby notes that the courts are judged 'not only by what they do but how they do it'.[57] Kirby continues, stating that courts also play a role in helping human beings, 'including in situations of great anxiety, distress and inconvenience'.[58] Importantly:

> Their functions are not limited solely to efficient throughput or diversion of ever increasing caseloads. Their tasks extend to the public display of the ultimate commitment of an essential institution of government to the dual objectives of ordered lawfulness tempered by human notions of justice and fairness.[59]

Chief Justice Allsop of the Federal Court of Australia has argued that the 'courts involve human reasoning and emotion, and that the courts are humane'.[60] The author together with Cornes has also argued that Judge AI may 'reduce the capacity of the justice process to deal with people within courts with dignity and to respond in a human way (which may incorporate emotion and compassion)'. At the same time, however, the author and Cornes note that 'it may be feasible in the future to develop coded applications able to recognise and respond appropriately to human emotion'.[61]

---

[55]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 98.

[56]   Michael Kirby, 'The Commonwealth Lawyer: Law in an Age of Fantastic Technological Change' (Speech, Greek/Australian International Legal and Medical Conference, 4 June 2001).

[57]   Michael Kirby, 'The Future of Courts: Do They Have One?' (1999) 8 *Journal of Judicial Administration* 185, 188.

[58]   Michael Kirby, 'The Future of Courts: Do They Have One?' (1999) 8 *Journal of Judicial Administration* 185, 191.

[59]   Michael Kirby, 'The Future of Courts: Do They Have One?' (1999) 8 *Journal of Judicial Administration* 185, 191.

[60]   James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019) 3.

[61]   Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018) 87, 96–97.

By contrast, Ćapeta has argued (along formalist lines – see Chapter 8) that: 'the ideal judge' is 'an impersonal judge who uses objective legal methods to solve disputes'; 'a learned person capable of leaving his or her "self" out of the adjudication process'; and someone who can abandon their personal values, ideologies, and cultural biases.[62] By contrast, 'a human concept of justice cannot be detached from the personal beliefs, experiences and emotions of the concrete human being'.[63] Significantly, Ćapeta concludes that reluctance to embrace robot judges reveals much about society's image of a 'good judge'. This image does not correspond to the 'ideal judge', but rather, 'is a judge who will invest his/her sense of justice in coming to the right solution'.[64]

Questions about the importance of judicial 'emotion', humanity and their role in moral decision making can be linked to ethical guidelines that stress the importance of human well-being and human dignity. If judges play a substantive role in court actions where such factors are relevant, then ethical guidelines may support a human rather than an AI Judge (see Table 9.2 and the ethical guideline discussion that follows).

WHAT CASES?

There is some debate about the type of cases where it would be appropriate to utilize an AI Judge. Some commentators have argued that, in light of the challenges associated with translating law into code, more regulatory areas of the law are better suited to automation.[65] Others have suggested that it will never be appropriate to have appellate-level AI Judges, given that the role of a judge, at this level, is often to develop the law and to consider the broader social context. It may be beyond the capabilities of an AI Judge to predict whether a proposed legal rule will do more harm than good, whether it would prove hard to apply in certain classes of future cases, how people would likely react to it, whether it would alienate some members of the public from the legal system, and whether certain social norms would be undermined or reinforced by the new rule.[66]

---

[62]   Tamara Ćapeta, 'Of Judges and Robots' in Marko Ilešič (ed), *Challenges of Law in Life Reality* (University of Ljubljana, 2017) 129, 131.

[63]   Tamara Ćapeta, 'Of Judges and Robots' in Marko Ilešič (ed), *Challenges of Law in Life Reality* (University of Ljubljana, 2017) 129, 138.

[64]   Tamara Ćapeta, 'Of Judges and Robots' in Marko Ilešič (ed), *Challenges of Law in Life Reality* (University of Ljubljana, 2017) 129, 140.

[65]   Chief Justice Tom Bathurst, 'iAdvocate v Rumpole: Who will Survive? An Analysis of Advocates' Ongoing Relevance in the Age of Technology' (Speech, Australian Bar Association Conference, Boston, 9 July 2015).

[66]   Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1183.

It is perhaps not surprising that in the two areas of law where AI has already been developed and is being used – family and criminal cases – there is some resistance to Judge AI. However, the forms of AI that are currently being used in most jurisdictions (see the previous discussion in this book relating to developments in China that differ significantly from approaches elsewhere) are not normally focused on replacing the substantive and final determination of a judge. For example, in many jurisdictions in the criminal area primitive forms of AI are designed to guide prosecutors, judges and others when making sentencing, bail and parole decisions. In the family sector, justice apps may incorporate AI as part of a broader ODR application (for example to guide parties about what might be regarded as 'fair' by a court).[67] As a number of commentators have noted, Judge AI may not be appropriate in either area (although AI could be usefully integrated into ODR settings even in the criminal area where plea bargaining may take place).

For example, in the criminal justice setting, McKay states:

> …criminal justice is a human institution which is focused on human behaviours and human harms and has, traditionally, resolved human transgression in a communal fashion. At least an imperfect decision by a judge may be tested on appeal, whereas an imperfect algorithm may be forever concealed.[68]

Plesničar and Šugman Stubbs have argued that, in criminal justice systems, some procedures should not be subjected to automation because 'there is simply too high an impact upon society and upon the human rights of individuals for them to be influenced by a reduced human agency relegated to machines'.[69] Zalnieriute and Bell have similarly argued that automation is not appropriate in criminal sentencing decisions given that decision making in this area involves constraints on individual liberty.[70] On the other hand, it has been

---

[67]   Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming).

[68]   Carolyn McKay, 'Predicting Risk in Criminal Procedure: Actuarial Tools, Algorithms, AI and Judicial Decision-Making' (Research Paper No 19/67, University of Sydney Law School, November 2019).

[69]   MM Plesničar and K Šugman Stubbs, 'Subjectivity, Algorithms and the Courtroom', in Aleš Završnik (ed), *Big Data, Crime and Social Control* (Routledge, 2018).

[70]   Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

argued that as the facts have already been determined in sentencing matters, this is an ideal area for the application of automated systems.[71]

As discussed previously, there are also good reasons to retain human judges in restorative and therapeutic courts that have more of a focus on human engagement. This is because the complex issues that often underpin such matters might not be detected or understood by even more developed forms of Judge AI. There are additional broader issues that relate to the loss of a human judicial therapeutic approach and the negative impact on families, victims and offenders of forms of AI (discussed within the context of ethical frameworks below).

The use of both technology and AI in the family law context has also been considered in some detail. However, it has not been considered in the context of Judge AI as the focus has been more on technology use or AI tools in the ODR setting. For example, it has been noted that the use of AI and supportive technologies in the family law context can enable people to avoid face-to-face interaction and 'divorce at a distance', partly because AI tools can provide indicative outcomes that enable people to reach an agreement.[72] This is particularly useful where there are allegations of violence or abuse, or significant power imbalances which mean that traditional face-to-face forms of dispute resolution are inappropriate.[73] Indeed, the author and Liyanage have previously suggested that ODR that is supported by forms of AI may be particularly suitable for family law disputes.[74] Bell has also recognized that 'the complete physical (and possibly temporal) separation of the parties in particular lends itself to family mediation or family dispute resolution (FDR), especially in cases involving allegations of violence'.[75]

---

[71]   Nigel Stobbs, Dan Hunter and Mirko Bagaric, 'Can Sentencing Be Enhanced by the Use of Artificial Intelligence?' (2017) 41 *Criminal Law Journal* 261.

[72]   Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 113.

[73]   Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 170; Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483.

[74]   Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483, 499.

[75]   Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 119.

This view has also been advanced by Chief Justice Allsop of the Federal Court of Australia, who has noted that, in family law matters where safety is a concern, technology can facilitate the safe and remote appearance of parties.[76] Further, Bellucci, Venkatraman and Stranieri highlight technology's ability to filter negative emotions out of the dispute process, noting that this provides another reason ODR processes have been embraced in the family law context.[77] On the other hand, Condlin has argued that the removal of face-to-face interaction can 'suspend, at least in part, the felt obligation to be sociable' meaning ODR, in an 'ironic twist', 'might undo some of the important reforms produced by the ADR movement of the past several decades'.[78] Zalnieriute and Bell have also identified a further challenge: the current inability of automated tools to determine factual disputes. This is problematic because, at present, the automation of family dispute decision making relies on facts being agreed or admitted.[79]

It is clear that technology use in the family law context can also result in significant cost savings. Tyler and McPherson note that processes surrounding separation and divorce, especially in relation to parties that are geographically remote, can involve expensive correspondence and litigation, and greater than normal costs in time, travel and accommodation.[80] Given that in many jurisdictions the settlement of a divorce comes out of the one pool of assets, any process that reduces costs is likely to be of benefit.[81]

Improved access to justice is also a key consideration. Access to justice in family law matters has been identified as a serious problem, with the system plagued by delays and backlogs.[82] As noted by Bell, family law has historically been an area that many people end up traversing with only limited legal

[76] James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019).

[77] Emilia Bellucci, Sitalakshmi Venkatraman and Andrew Stranieri, 'Online Dispute Resolution in Mediating EHR Disputes: A Case Study on the Impact of Emotional Intelligence' (2019) *Behaviour & Information Technology* 1, 3, 6.

[78] Robert J Condlin, 'Online Dispute Resolution: Stinky, Repugnant, or Drab' (2017) 18(3) *Cardozo Journal of Conflict Resolution* 717, 751–752.

[79] Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020).

[80] Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 170.

[81] Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 170.

[82] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 105.

assistance.[83] There are particular issues in that those unable to afford the cost of engaging a lawyer might not qualify for any legal support.[84] Higgins terms this the 'missing middle' of the legal services market.[85] It is this 'missing middle' who are the expected or intended beneficiaries of the use of technologically supported systems in the family law context.[86]

In respect of Judge AI, one significant reason for retaining some human involvement in the judgment process in the family area has been previously discussed and identified by Bell: the fact that reliance on data comprised only of judgments may represent a collection of 'outlier' data. This is particularly so in family law proceedings, where the majority of separations do not proceed to final hearing and judgment.[87] In this regard, it is noted that the benefit of using a 'real' lawyer is their experience of settled as well as litigated cases.[88]

In general, the limited discussion relating to family cases and Judge AI suggests that, provided effective Judge AI can be built,[89] there is scope for advisory Judge AI that could for example become determinative after a certain period of time has elapsed (for instance, after seven days if neither party objects the Judge AI opinion could be converted into a judgment). Such advisory Judge AI could operate in selected circumstances (such as in property and child maintenance arrangements) and would be less desirable when the focus is on children's issues that are linked to custody and care. In these latter circumstances, ODR which is informed by AI may assist. This is partly because of the potential impacts on the most vulnerable, but also because it is desirable to consider the importance of facilitated communication where parties have a continuing parenting relationship.

---

[83] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 103.

[84] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 113.

[85] Andrew Higgins, 'The Costs of Civil Justice and Who Pays' (2017) 37(3) *Oxford Journal of Legal Studies* 687, 692. See also Margaret Castles, 'Expanding Justice Access in Australia: The Provision of Limited Scope Legal Services by the Private Profession' (2016) 41(2) *Alternative Law Journal* 115, 117.

[86] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 113.

[87] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 118.

[88] Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 118.

[89] See comments above relating to data sampling.

TRIAGE AND JUDGE AI

In respect of other categories of dispute, it is suggested that Judge AI will have particular benefits in civil and minor commercial matters and that there are particular risks regarding administrative matters (see Chapters 7 and 10). Based on the literature, there are useful questions that can assist in triaging disputes into forms of Judge AI. That is, if Judge AI is to be used, should all cases of a certain type be streamed into Judge AI? Or should ethical frameworks (see below) and triage processes be used to stream only some cases into Judge AI, with advisory AI still playing an important role?

On the basis of the discussion in previous chapters, sensitive triage could, for example, involve considering the questions set out in Table 9.1 to determine where Judge AI might not be appropriate (see also ethical frameworks below).

Table 9.1   Triage questions related to Judge AI use

		Judge AI factors to consider
Judge AI Triage	Has a form of AI already resulted in decision making taking place before a case has been filed with a court (or at some stage in a lower court)?	Where a form of AI has already made a decision that impacts on the human, there may be benefits in retaining human rather than AI review mechanisms. For example, in insurance and worker's compensation matters, AI may already be 'making decisions' and determining liability. Any pre-action AI decision making is an important factor in determining whether human judge referral is more appropriate.
	Could one or more of the parties be regarded as vulnerable?	This is a multidimensional concept that may include the individual characteristics of the parties as well as external factors that may impact on vulnerability. For example, a person may be vulnerable for short periods of time, and ill health, job loss, grief and other factors (including high levels of stress and a lack of technological 'know how', digital literacy and capacity) may impact on vulnerability and mean that Judge AI is not appropriate.[i]
	Is there a continuing relationship between the disputants?	This factor has often been considered as relevant when recommending referral to facilitative forms of ADR. This is in part because there may be additional and creative options that can be generated to resolve a dispute where a continuing relationship is present (for example, a new contract could be developed). Human judges may be better able to promote more creative outcomes under such circumstances and may be able to better foster communication that will be necessary to support the continuing relationship.

	Judge AI factors to consider
Judge AI Triage	**Is the human judge bound by 'weak' or 'strong' discretionary arrangements?**	Where human judges have more discretion (strong discretion), there is arguably less capacity for Judge AI to replicate more creative human judging and the development of the law might be impeded should Judge AI be used.
	Are there high levels of complexity or novelty?	Judge AI, at least in terms of its early developmental iterations, may not be able to adequately deal with complex multiparty issues and, as discussed in Chapters 8 and 4, may be unable to effectively deal with 'novel' situations.
	To what extent are there high levels of emotion?	The author notes that in the early iterations of CRT intake questionnaires, this was suggested as a relevant factor that might lead to referral to a human. High levels of disputant emotion may not mean that Judge AI should not be used. However, this factor together with those noted above may suggest that until Judge AI becomes more 'human-like' there are benefits in ensuring that human judges continue to deal with behaviourally complex cases.
	To what extent are litigants comfortable with an AI Judge process?	There may be many reasons why litigants may not be comfortable with a Judge AI process that can be linked to concerns in relation to confidentiality and commercial sensitivity. This concern may arise throughout an AI hearing process (which can involve documents being exchanged via cloud-based services) and may also be related to a distrust of technology.[ii] The author notes that the CEPEJ principles (see later in this chapter) provide for a right of access to a human judge.

Notes: [i] Carol Brennan, Tania Sourdin, Jane Williams, Naomi Burstyner and Chris Gill, 'Consumer Vulnerability and Complaint Handling: Challenges, Opportunities and Dispute System Design' (2017) 41(6) *International Journal of Consumer Studies* 638. [ii] See James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019).

ETHICAL FRAMEWORKS

As noted earlier in this chapter, guidance in terms of the development of ethical principles relating to AI and judges and also the use of technology by judges can be informed by existing literature relating to AI and, more specifically, Judge AI. The literature that is discussed above reveals differing views about the utility of AI processes and the extent to which humans should remain involved in judging. Given, however, the extension of AI into most areas of life and the potential risks in the justice system, it is important to adopt a proactive approach in terms of an ethical framework for Judge AI. In addition, in the making of a decision about AI or technology use in the judicial area that can be guided by an ethical framework, it is inevitable that a values-based approach must be incorporated into such a framework. In turn, this should reflect the values underpinning the judicial system within a particular jurisdiction. For example, in many jurisdictions, values relating to human rights will be dominating features of an ethical framework. In other jurisdictions, such values may not be emphasized in the same way.

In the discussion below, frameworks developed for the use of AI (in both the general and medical sense) as well as the CEPEJ framework which relates more specifically to Judge AI have been analysed. This process is undertaken to create an 'ethics and justice values' table in Table 9.2.

Table 9.2 is designed to incorporate key principles relevant to ethics, technology and judging. As also noted at the beginning of this chapter, the points at which ethical decisions are made about technology and AI use can vary. That is, in the design and development stage, ethical decisions may need to be made and, in the application and implementation stage, additional decision points will arise. For example, a decision to use Judge AI might include a reconsideration of that decision if it is likely that the process could cause harm to a particular individual or group within a society. This feature is often referred to as a consideration in terms of the AI lifecycle (see below).

The May 2019 OECD Recommendation of the Council on Artificial Intelligence recommended the adoption of values-based principles 'for the responsible stewardship of trustworthy AI'.[90] The values are noted below and are articulated in the context of a statement that the purpose of AI is to support 'beneficial outcomes for people and the planet, such as augmenting human capabilities and enhancing creativity, advancing inclusion of underrepresented populations, reducing economic, social, gender and other inequalities, and pro-

---

[90]   Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019) 9.

tecting natural environments, thus invigorating inclusive growth, sustainable development and well-being'.[91]

The core value areas expand in some detail on this overarching objective and specifically discuss some features of systems and processes that are relevant to the judicial role:

> 1.2. Human-centred values and fairness
>> a) AI actors should respect the rule of law, human rights and democratic values, throughout the AI system lifecycle. These include freedom, dignity and autonomy, privacy and data protection, non-discrimination and equality, diversity, fairness, social justice, and internationally recognised labour rights.
>> b) To this end, AI actors should implement mechanisms and safeguards, such as capacity for human determination, that are appropriate to the context and consistent with the state of art.
>
> 1.3. Transparency and explainability
> AI Actors should commit to transparency and responsible disclosure regarding AI systems. To this end, they should provide meaningful information, appropriate to the context, and consistent with the state of art:
>> i.   To foster a general understanding of AI systems;
>> ii.   To make stakeholders aware of their interactions with AI systems, including in the workplace;
>> iii. To enable those affected by an AI system to understand the outcome; and
>> iv.   To enable those adversely affected by an AI system to challenge its outcome based on plain and easy-to-understand information on the factors, and the logic that served as the basis for the prediction, recommendation or decision.
>
> 1.4. Robustness, security and safety
>> a) AI systems should be robust, secure and safe throughout their entire lifecycle so that, in conditions of normal use, foreseeable use or misuse, or other adverse conditions, they function appropriately and do not pose [an] unreasonable safety risk.
>> b) To this end, AI actors should ensure traceability, including in relation to datasets, processes and decisions made during the AI system lifecycle, to enable analysis of the AI system's outcomes and responses to inquiry, appropriate to the context and consistent with the state of art.
>> c) AI actors should, based on their roles, the context, and their ability to act, apply a systematic risk management approach to each phase of the AI

---

[91]   Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019) [1.1].

> system lifecycle on a continuous basis to address risks related to AI systems, including privacy, digital security, safety and bias.
>
> 1.5. Accountability
>
> AI actors should be accountable for the proper functioning of AI systems and for the respect of the above principles, based on their roles, the context, and consistent with the state of art.[92]

It seems clear that the retention of human determination, at least according to the OECD, is regarded as essential in relation to the expansion of AI use (see Recommendation 1.2 above). This principle would appear to endorse the notion that human judges could play an important role 'on the loop' in terms of gatekeeping or overseeing AI developments (see Chapter 8). In addition, there is an emphasis by the OECD on human dignity that could be linked to access to the justice system, notions of procedural justice and participatory justice concepts and values.

In relation to the overarching purpose, the OECD specifically also mentions 'well-being'. Well-being is increasingly noted as relevant in terms of the objectives and purpose of the justice system, as well as ethical frameworks in respect of AI. There is an emerging literature relating to the meaning of 'well-being',[93] and more specifically in the context of government policy.[94] That literature suggests that although well-being is a subjective matter, it includes positive attitudinal factors,[95] life and health satisfaction,[96] confidence and a sense of fairness,[97] and may also refer to sustainability.[98] In contrast, eco-

---

[92] Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019).

[93] Rachel Dodge, Anette Daly, Jan Huyton and Lalage Sanders 'The Challenge of Defining Wellbeing' (2012) 2(3) *International Journal of Wellbeing* 222.

[94] See, for example: Olivia Shillabeer, David Cartwright, Kim Engel and William Barnes, *The Implications of Wellbeing Research on Government Policy* (Report, Hertford Business and Economics Society, 18 December 2015); Phillip Booth (ed), '… and the Pursuit of Happiness – Wellbeing and the Role of Government' (Working Paper No 12-25, George Mason University Department of Economics, 16 January 2012).

[95] See Phillip Booth (ed), '… and the Pursuit of Happiness – Wellbeing and the Role of Government' (Working Paper No 12-25, George Mason University Department of Economics, 16 January 2012); Thomas Hills, Eugenio Proto and Danial Sgroi, 'Historical Analysis of National Subjective Wellbeing Using Millions of Digitized Books' (Working Paper No 5906, CESifo, April 2019).

[96] Angus Deaton, 'Income, Aging, Health and Wellbeing Around the World: Evidence from the Gallup World Poll' (Working Paper No w13317, NBER, August 2007).

[97] Kong Weng Ho, 'Which Class and What Squeezes? Relationships with Wellbeing, National Pride, and Inequality (Working Paper, 16 July 2015).

[98] Necati Aydin, 'Subjective Well-Being and Sustainable Consumption' (2010) 6(5) *The International Journal of Environmental, Cultural, Economic and Social*

nomic and financial well-being are perceived to be a subset of 'well-being' and are linked to financial effectiveness and wealth expenditure.[99] For example, as the Australian Productivity Commission noted in its 2014 Report on Access to Justice Arrangements, policy decisions about justice require consideration of the core overriding objective of the justice system, which is 'to enhance community wellbeing'.[100]

A number of writers have noted that 'well-being' is a multidimensional concept and the use of the term by many governments[101] is indicative of a changed way of thinking in that '… the wellbeing of citizens, not the wellbeing of their bank accounts, was considered to be the end goal of government'.[102] As a result of the varying emphasis in different countries on well-being, it is perhaps not surprising that, in some AI ethical frameworks, such concepts are more strongly emphasized.

For example, in Australia, after a lengthy consultation process with the CSIRO, key principles of AI and ethics were promulgated by the Australian Government Department of Industry, Science, Energy and Resources. The overarching principles have a greater emphasis on well-being throughout the 'lifecycle of AI' and are noted below:

- Human, social and environmental wellbeing: Throughout their lifecycle, AI systems should benefit individuals, society and the environment.
- Human-centred values: Throughout their lifecycle, AI systems should respect human rights, diversity, and the autonomy of individuals.
- Fairness: Throughout their lifecycle, AI systems should be inclusive and accessible, and should not involve or result in unfair discrimination against individuals, communities or groups.
- Privacy protection and security: Throughout their lifecycle, AI systems should respect and uphold privacy rights and data protection, and ensure the security of data.
- Reliability and safety: Throughout their lifecycle, AI systems should reliably operate in accordance with their intended purpose.

Sustainability 133.

[99] See John Tatom, 'Financial Wellbeing and Some Problems in Assessing its Link to Financial Education' (Working Paper 2010-WP-03, Networks Financial Institute, 1 October 2010).

[100] Productivity Commission, Parliament of Australia, *Access to Justice Arrangements* (Inquiry Report No 72, 5 September 2014) 7.

[101] Marie Forgeard, Eranda Jayawickreme, Margaret Kern and Martin Seligman, 'Doing the Right Thing: Measuring Wellbeing for Public Policy' (2011) 1(1) *International Journal of Wellbeing* 79.

[102] Marie Forgeard, Eranda Jayawickreme, Margaret Kern and Martin Seligman, 'Doing the Right Thing: Measuring Wellbeing for Public Policy' (2011) 1(1) *International Journal of Wellbeing* 79, 79.

- Transparency and explainability: There should be transparency and responsible disclosure to ensure people know when they are being significantly impacted by an AI system, and can find out when an AI system is engaging with them.
- Contestability: When an AI system significantly impacts a person, community, group or environment, there should be a timely process to allow people to challenge the use or output of the AI system.
- Accountability: Those responsible for the different phases of the AI system life-cycle should be identifiable and accountable for the outcomes of the AI systems, and human oversight of AI systems should be enabled.[103]

Perhaps one of the most relevant documents in relation to Judge AI was formulated in December 2018 by the CEPEJ. The CEPEJ developed the 'European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment'.[104] The five key principles adopted by the CEPEJ are largely focused on the matters outlined above in relation to more general ethical principles:

1. **Principle of respect for fundamental rights:** ensure that the design and implementation of artificial intelligence tools and services are compatible with fundamental rights.
2. **Principle of non-discrimination:** specifically prevent the development or intensification of any discrimination between individuals or groups of individuals.
3. **Principle of quality and security:** with regard to the processing of judicial decisions and data, use certified sources and intangible data with models elaborated in a multi-disciplinary manner, in a secure technological environment.
4. **Principle of transparency, impartiality and fairness:** make data processing methods accessible and understandable, authorise external audits.
5. **Principle 'under user control':** preclude a prescriptive approach and ensure that users are informed actors and in control of the choices made.[105]

Each principle is underpinned by statements relating to its interpretation in a judicial setting. For example, in relation to Principle One, it is noted that:

> … When artificial intelligence tools are used to resolve a dispute or as a tool to assist in judicial decision-making or to give guidance to the public, it is essential to ensure

---

[103] 'AI Ethics Principles', *Australian Government Department of Industry, Science, Energy and Resources* (Web Page) <https://www.industry.gov.au/data-and-publications/building-australias-artificial-intelligence-capability/ai-ethics-framework/ai-ethics-principles> accessed 19 August 2020.
[104] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment (entered into force on 3–4 December 2018).
[105] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment (entered into force on 3–4 December 2018).

that they do not undermine the guarantees of the *right of access to the judge and the right to a fair trial* (equality of arms and respect for the adversarial process).

They should also be used with due respect for the principles of the rule of law and judges' independence in their decision-making process.

Preference should therefore be given to ethical-by-design or human-rights-by-design approaches. This means that right from the design and learning phases, rules prohibiting direct or indirect violations of the fundamental values protected by the conventions are fully integrated.[106]

As the Charter has been designed in Europe, it is not surprising that it includes many references to both human rights and the underpinning value systems that are in place in Europe. Of particular interest is material noted in relation to Principle 4 which suggests that the EU may support a 'certification' scheme. In Chapter 10, the potential for judicial involvement in such a scheme (which may of course differ depending on the 'location' of activity) is discussed:

A balance must be struck between the intellectual property of certain processing methods and the need for transparency (access to the design process), impartiality (absence of bias), fairness and intellectual integrity (prioritising the interests of justice) when tools are used that may have legal consequences or may significantly affect people's lives. It should be made clear that these measures apply to the whole design and operating chain as the selection process and the quality and organisation of data directly influence the learning phase.

The first option is complete technical transparency (for example, open source code and documentation), which is sometimes restricted by the protection of trade secrets. The system could also be explained in clear and familiar language (to describe how results are produced) by communicating, for example, the nature of the services offered, the tools that have been developed, performance and the risks of error. Independent authorities or experts could be tasked with certifying and auditing processing methods or providing advice beforehand. Public authorities could grant certification, to be regularly reviewed.[107]

In Table 9.2, a potential ethics approach is suggested based on the discussion above. In Table 9.3, a situational ethics approach is suggested, to enable consideration of ethical issues that may arise as more AI tools are developed that impact directly on the judicial role. These can be considered using ethical principles that are relevant in each jurisdiction (see discussion above and below), which may incorporate the justice objectives outlined in Chapter 6 that may, in turn, be amended and extended according to jurisdictional differences.

---

[106] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment (entered into force on 3–4 December 2018) 8 (emphasis added).

[107] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment (entered into force on 3–4 December 2018) 11 (citations omitted).

Table 9.2   Ethical Principles for Judge AI

		Application to Judge AI
Ethical Principle	**Human, social, environmental well-being and sustainability**	Throughout their lifecycle, Judge AI systems should benefit individuals, society and the environment. They should promote well-being, support justice system objectives and the sustainability of the justice system
	Human-centred values	Throughout their lifecycle, Judge AI systems should respect human rights, diversity and the dignity and autonomy of individuals. They should also promote trust in, and the independence of, the judicial system
	Fairness	Throughout their lifecycle, Judge AI systems should be inclusive and accessible, and should not involve or result in unfair discrimination against individuals, communities or groups
	Privacy protection and security	Throughout their lifecycle, Judge AI systems should respect and uphold privacy rights and data protection, and ensure the security of data
	Reliability and safety	Throughout their lifecycle, Judge AI systems should reliably operate in accordance with their intended purpose
	Transparency and explainability	There should be transparency and responsible disclosure to ensure people know when they are being significantly impacted by a Judge AI system, and so that they can find out how to engage with a Judge AI system. Decisions produced as a result of Judge AI should explain not only how the decision was reached in terms of the evidence and the law but also how the AI system developed the decision
	Contestability	When an AI system significantly impacts a person, community, group or environment, there should be a timely process to allow people to challenge the use or output of the Judge AI system. This requires that simple review processes be developed so that a Judge AI decision is not binding if any person objects to this within a set timeframe and so that referral to a human judge can take place
	Accountability	Those responsible for the different phases of the Judge AI system lifecycle should be identifiable and accountable for the outcomes of the Judge AI system. Human judicial oversight of the systems should be enabled and supported

Source: These principles are amalgamated and adapted from 'AI Ethics Principles', *Australian Government Department of Industry, Science, Energy and Resources* (Web Page) accessed 6 September 2020 together with other ethical material as noted above.

For example, procedural justice may have a much broader meaning than the definition proposed by Susskind and may incorporate notions of participatory justice in some jurisdictions. Similarly, enforcement may be extended to include notions of compliance in many jurisdictions.

In terms of the formulation of an ethical framework for judges, the CEPEJ material provides useful guidance. However, the author suggests that the following principles – which present an amalgam of the material discussed above and in the literature – may be useful.

In the medical area, there has been much discussion and action relating to the development of ethical principles about AI use. There has also been some discussion about whether AI can support moral decision making.[108] The growing field of literature in the medical area that is focused on ethics and AI includes a recent literature review that organized this material into themes (similar to those noted above by the OECD) and also by levels of abstraction.[109] The consideration of ethical issues in terms of levels of abstraction (LoAs) is intended to invite a review by all those who may be impacted by AI in the health care sector at individual, interpersonal, group, institutional, sectoral and societal levels.

Table 9.3 indicates the thematic areas and LoAs that could be used in the justice sector and is adapted from the approach used in the medical AI area. That is, ethical issues regarding the judicial use of AI need to be considered from a range of perspectives. This approach is also relevant in the context of human-centred design approaches discussed in Chapter 10.

It is suggested that this approach can assist in the development of jurisdiction-specific ethical frameworks to guide Judge AI and judicial technology use. The suggested overarching ethical framework that is noted in Table 9.2 is based on overarching ethical principles,[110] while the more specific ethical tenets that have been developed in relation to Judge AI are explored from a range of perspectives in Table 9.3.

---

[108] Catrin Misselhorn, 'Artificial Morality. Concepts, Issues and Challenges' (2018) 55 *Social Science and Public Policy* 161, 161–169.

[109] Jessica Morley, Caio CV Machado, Christopher Burr, Josh Cowls, Indra Joshi, Mariarosaria Taddeo and Luciano Floridi, 'The Ethics of AI in Health Care: A Mapping Review' (2020) 260 *Social Science & Medicine* 113.

[110] Notably in the USA, the National Center for State Courts has produced guidance relating to technology use by courts. It does refer to more generic standards in relation to AI, see: Joint Technology Committee, *Introduction to AI for Courts* (JTW Resource Bulletin Version 1.0, 27 March 2020).

Table 9.3   *Abstracted ethical implications of Judge AI and judicial technology use*

Thematic Ethical Considerations and Concerns	Levels of Abstraction					
	Individual	Interpersonal	Group	Institutional	Sectoral	Societal
Technical Concerns (inaccurate, biased, distorted or inappropriate underlying algorithmic processes)	Erroneous or inappropriate judgment (or other legal decision, such as an administrative decision) could take place.	There could be a loss of trust in the judge/litigant or judge/advocate relationship and the justice system more broadly; dehumanization of justice process.[1]	There could be an erroneous or inappropriate application of precedent to a particular group of people, cases or a particular area of law.[ii]	There could be an inappropriate use of funds or circumstances where resources are not directed to courts and organizations that are established to assist people in exercising their rights. This could, in turn, cause negative impacts on the most vulnerable.[iii]	Judge AI and AI tools could be used in areas of law where there are clearly expressed concerns[iv] or where precedent is required.	Poorer provision of justice services throughout society and either a magnification of the delays and backlogs that plague many legal systems[v] or a decline in trust in government and justice arrangements.

Thematic Ethical Considerations and Concerns	Levels of Abstraction					
	Individual	**Interpersonal**	**Group**	**Institutional**	**Sectoral**	**Societal**
Process, Outcome and Purpose Concerns (notions of fairness, privacy and security, transparency and explainability, and contestability and accountability)	Individuals may be unable to access or assess the information used by an AI Judge to make a decision,[vi] and their ability to appeal a decision could be lost or made more difficult.[vii] See also 'Sectoral'.	There could be an overreliance on AI systems and their ability to make the 'right' decision, leading to the usurpation of the judicial role.[viii]	Throughout their lifecycle, AI systems may not be built to be inclusive or accessible and could involve (or result in) discrimination against certain groups.[ix]	AI actors may not provide meaningful information to authorize external audits[x] or ensure stakeholders are aware of their 'interactions' with AI tools, including in the workplace.[xi]	Private data (such as social surveillance data)[xii] may be used in the making of judicial decisions.[xiii] Data protection may be inadequate or principles relating to 'open' justice may not be maintained.	Societal inequalities in process, outcome and purpose.[xiv]

Thematic Ethical Considerations and Concerns	Levels of Abstraction					
	Individual	Interpersonal	Group	Institutional	Sectoral	Societal
Human-Centred Concerns (well-being and human-centred values)	The design and implementation of AI tools and Judge AI could be fundamentally incompatible with human rights (such as due process rights or the right to appeal a decision).[xv] In addition, the tools may not support human well-being and dignity.	Preference may not be given to a 'human-right-by-design' approach'. Thus the 'rules' prohibiting direct or indirect discrimination between individuals, groups or a sector of society may not be 'fully integrated'.[xvi]	The systems may promote unfairness or injustice. This could, in turn, lead to a loss of human dignity and a reduction in societal well-being. See also 'Interpersonal'.	The autonomy, respect and independence of large-scale institutions including the courts may be lost as the development of Judge AI tools impacts on the role and function of the judiciary.[xvii]	The systems may be replicated across the sector with little regard for broader impacts on human well-being. See also 'Interpersonal'.	Societal respect for justice process, democratic values, the rule of law and the judge's independence in the decision-making process (viz. the exercise of discretion)[xviii] may be lost.[xix]

Notes: 'The 'dehumanization' of justice processes as a result of the infiltration of AI tools or Judge AI has been raised as a point of concern in the literature, see e.g.: Tania Sourdin, Bin Li and Tony Burke, 'Just, Quick and Cheap? Civil Dispute Resolution and Technology' (2019) 19 *Macquarie Law Journal* 17, 18; Michael Kirby, 'The Future of Courts: Do They Have One?' (1999) 8 *Journal of Judicial Administration* 185, 191; Belinda Smyth and Bruce Fehlberg, 'Australian Post-Separation Parenting on the Smartphone: What's 'App-ening?' (2019) 41(1) *Journal of Social Welfare and Family Law* 53, 62; Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 131–132.

[ii] Indeed there is concern that using data from previous cases may lead to the making of incorrect decisions because many civil cases that proceed to judgment are likely to be anomalous or 'aberrant': Naomi Burstyner, Tania Sourdin, Chinthaka Liyanage, Bahadorreza Ofoghi and John Zeleznikow, 'Using Technology to Discover More about the Justice System' (2018) 44(1) *Rutgers Computer & Technology Law Journal* 1. Similarly, Surden notes that where an AI tool is asked to make a decision about a case where no like decisions exist or where the sample of 'past examples' are 'too few', then the AI 'may not be able to detect patterns that are reliable predictors': Harry Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87, 105–106.

iii This is of especial concern in the context of COVID-19, see e.g.: Law Council of Australia, *Principles for Facilitating Access to Justice for Marginalised and Vulnerable Groups as a Result of the COVID-19 Pandemic* (Report, May 2020).

iv The literature reveals two principal areas where the use of AI is arguably unsuitable or inappropriate: criminal and family law. McKay, for example, argues that the criminal law setting is unsuitable for automation because it is a sector 'which is focussed on human behaviours': Carolyn McKay, 'Predicting Risk in Criminal Procedure: Actuarial Tools, Algorithms, AI and Judicial Decision-Making' (Research Paper No 19/67, University of Sydney Law School, November 2019). See also: MM Plesničar and K Šugman Stubbs, 'Subjectivity, Algorithms and the Courtroom' in Aleš Završnik (ed), *Big Data, Crime and Social Control* (Routledge, 2018); Monika Zalnieriute and Felicity Bell, 'Technology and Judicial Role' in Gabrielle Appleby and Andrew Lynch (eds), *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia* (Cambridge University Press, 2020). Similarly, some commentators have argued that Judge AI is inappropriate for the family law domain by virtue of the high levels of emotion that are present in such matters: Felicity Bell, 'Family Law, Access to Justice, and Automation' (2019) 19 *Macquarie Law Journal* 103, 131–132. It is noted, however, that there are some persuasive arguments for the use of AI in family law, see e.g.: Melissa Conley Tyler and Mark McPherson, 'Online Dispute Resolution and Family Disputes' (2006) 12(2) *Journal of Family Studies* 165, 170; Tania Sourdin and Chinthaka Liyanage, 'The Promise and Reality of Online Dispute Resolution in Australia' in Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (eds), *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (Eleven International Publishing, 2012) 483.

v For a report on the backlogs and delays that plague the Australian family law system, see: Australian Law Reform Commission, *Family Law for the Future – An Inquiry into the Family Law System: Final Report* (Report No 135, March 2019).

vi Ashley Deeks, 'The Judicial Demand for Explainable Artificial Intelligence' (2019) 119 *Columbia Law Review* 1829, 1832–1834.

vii Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019) [1.3]; Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision‑Making' (2019) 82(3) *Modern Law Review* 425, 449; Lord Sales, 'Algorithms, Artificial Intelligence and the Law' (Speech, Sir Henry Brooke Lecture for BAILII, Freshfields Bruckhaus Deringer, London, 12 November 2019) 10.

viii Deeks argues that one of the main concerns regarding the use or development of Judge AI is that an 'overreliance on machines' may be 'at the expense of human expertise': Ashley Deeks, 'High-Tech International Law' (2020) 88(3) *The George Washington Law Review* 574, 641. Indeed Chief Justice Bathurst of Australia has argued that 'judges have "explanatory" accountability in their obligation to provide open, public justice and reasons explaining their decisions, "content" accountability in terms of the appellate process and "probity" accountability in terms of their use of public resources': Thomas Bathurst, 'Who Judges the Judges, and How Should They Be Judged?' (Speech, Law Society Opening of Law Term Dinner, 30 January 2019) 8 [24], cited in Pamela Stewart and Anita Stuhmcke, 'Judicial Analytics and Australian Courts: A Call for National Ethical Guidelines' (2020) 45(2) *Alternative Law Journal* 82, 85. In circumstances where Judge AI is relied on to make judgments, the author notes that this form of human 'accountability' may be lost.

ix *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018) 9; Asaf Tzachor et al., 'Artificial Intelligence in a Crisis Needs Ethics with Urgency' (2020) 2 *Nature Machine Intelligence* 365, 365.

x *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018) 11.

xi Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019) [1.3]. For discussion on the importance of AI explainability for external stakeholders, see: Umang Bhatt, McKane Andrus, Adrian Weller and Alice Xiang, 'Machine Learning Explainability for External Stakeholders' (Workshop Paper, ICML Workshop on Extending Explainable AI, 2020).

xii Such issues have been the subject of much commentary in China, see e.g.: Ali Dukakis, 'China Rolls Out Software Surveillance for the COVID-19 Pandemic, Alarming Human Rights Advocates', *ABC News* (Online, 14 April 2020) <https://abcnews.go.com/International/china-rolls-software -surveillance-covid-19-pandemic-alarming/story?id=70131355>; James Leibold, 'Surveillance in China's Xinjiang Region: Ethnic Sorting, Coercion, and Inducement' (2020) 29(121) *Journal of Contemporary China* 46; Larry Backer, 'And an Algorithm to Entangle them All? Social Credit, Data Driven Governance, and Legal Entanglement in Post-Law Legal Orders' (Research Paper No 05, Penn State Law, 1 January 2020) 14.

xiii It has also been noted that this is of particular concern in the context of COVID-19. Tzachor et al., for example, have argued that 'there is growing concern that the use of AI and data in response to COVID-19 may compromise privacy and civil liberties by incentivizing the collection and processing of large amounts of data, which may often be private or personal': Asaf Tzachor et al., 'Artificial Intelligence in a Crisis Needs Ethics with Urgency' (2020) 2 *Nature Machine Intelligence* 365, 365.

xiv See e.g. Will Bateman, 'Automated Discretionary Decision-Making in the Public Sector – Legal Dimensions' (Research Paper No 20.10, ANU College of Law, 2019) 6–15; Marshall McLuhan, 'The Medium is the Message' in Marshall McLuhan (ed), *Understanding Media: Extensions of Man* (MIT Press, 1994).

xv *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018) 8; Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 449; Heather Scheiwe Kulp, 'Future Justice? Online Dispute Resolution and Access to Justice', *Just Court ADR* (Blog Post, 8 August 2011) <http://blog.aboutrsi.org/2011/policy/future-justice-online-dispute-resolution-and-access-to-justice/>.

xvi *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018) 8.

xvii For example, Stewart and Stuhmcke note that 'the research-scape concerning judicial behaviour in the US is today dominated by three principal commercial providers of legal analytic services': Pamela Stewart and Anita Stuhmcke, 'Judicial Analytics and Australian Courts: A Call For National Ethical Guidelines' (2020) 45(2) *Alternative Law Journal* 82, 83.

xviii Will Bateman, 'Automated Discretionary Decision-Making in the Public Sector – Legal Dimensions' (Research Paper No 20.10, ANU College of Law, 2019) 3–5.

xix For a discussion on how Judge AI may undermine the rule of law, see: Pamela Stewart and Anita Stuhmcke, 'Judicial Analytics and Australian Courts: A Call for National Ethical Guidelines' (2020) 45(2) *Alternative Law Journal* 82, 85–86. Such aspects of human well-being were also identified as of especial importance in the Organisation for Economic Co-operation and Development (OECD)'s Recommendation of the Council on Artificial Intelligence: Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019) [1.2]. See also: *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018) 8.

Source: This table is adapted from Jessica Morley, Caio CV Machado, Christopher Burr, Josh Cowls, Indra Joshi, Mariarosaria Taddeo and Luciano Floridi, 'The Ethics of AI in Health Care: A Mapping Review' (2020) 260 *Social Science & Medicine* 113, 132. The author notes that the levels of abstraction and thematic ethical concerns are not discrete and may overlap.

CONCLUSIONS

As noted earlier in this chapter, the development of ethical frameworks to guide general decisions about the use of Judge AI and also to support judicial consideration of AI in individual matters is a complex task. On the one hand, complexities arise as jurisdictional differences will be reflected in relation to core ethical principles and underlying values. However, on the other hand, many general AI ethical frameworks can provide some guidance in terms of Judge AI use and can be adapted where appropriate.

There are also overarching questions about whether fully automated Judge AI is *ever* appropriate. As discussed in previous chapters, it is likely that supportive forms of AI that augment judicial decision making will be introduced before fully automated Judge AI is adopted. There are, however, examples discussed above where fully automated Judge AI systems are being developed and trialled. Whilst such systems are at an early developmental stage, given the rapid development of AI over the past five years, it is logical to assume that Judge AI will continue to be developed and extended in some jurisdictions.

In the context of such Judge AI systems, there is a need to consider how human judicial review and decision making will be maintained, and what types of cases might be appropriate for Judge AI. For example, as noted above, simple regulatory matters might be appropriately dealt with by Judge AI. If, however, an initial decision was made by a form of AI and the issues relate to a review of that decision, then it may be more appropriate to ensure that a human judge is involved in that review (perhaps using supportive Judge AI). The literature suggests some clear delineations. For example, it has been suggested that in substantive criminal and family law decision making, Judge AI would not be appropriate because a human judge is required. This does not mean that Judge AI might not be useful in such cases. However, it is suggested that the actual process of judging will require a human being.

In contract and debt matters, there is perhaps a more potent argument for the development of Judge AI. However, such developments need to be subject to clear and accessible judicial review processes and may require consideration of how people can be supported in terms of access to a human judge. In relation to these and other disputes, clearly decisions will need to be made following a careful consideration of the ethical framework and key principles, as well as the impacts in terms of what is referred to in the medical ethics literature as 'levels of abstraction' (see Table 9.3). In order to do this, the author notes that a first step might be to better understand who uses court systems and this will require the collection of data about litigants as well as those who are underrepresented in court systems.

In relation to the use of AI in the justice system more generally, there are also issues about the extent to which judges may play a role in developing and maintaining a healthy justice system. For example, questions arise as to whether judicial input should be required or preferred where algorithmic tools are being developed that enable people to bypass more formal and regulated judicial systems by consulting apps or online databases. Unlike the medical system, it seems likely that judicial views would not be sought, at least in the design stage. However, where such tools are the subject of judicial attention as the result of a court case, judges will undoubtedly play a role. A critical question is whether this is appropriate and what harm may be done if judges have such a restricted function. The EU certification process is clearly designed to reduce harm and possibly enable judges to play some more significant role. The potential place of judges in the design of the justice system of the future is explored in the next chapter.

10. Future justice

INTRODUCTION

As discussed throughout this book, technological change has the potential to significantly reshape the judicial role in the coming years and also to fundamentally alter how courts operate. These changes will be the result of technological shifts as well as the social and political changes that will accompany such shifts. Some changes will prompt structural change and there are already issues emerging about the role of courts and whether online courts, or some part of an online court, should be managed by judges or an executive arm of government. In addition, there are issues linked to judicial independence and impartiality that emerge from a consideration of how data are used and how court cases progress, together with important issues that are linked to the way in which judges work with (or are potentially replaced by) newer AI systems. Some changes to the justice system will take place quickly and others more slowly according to whether they are driven by those who might adopt an 'incremental'[1] or more 'radical'[2] approach to justice reform.

There is considerable promise in terms of how newer technologies will support justice system reform. For example, there is good evidence that newer technologies can help to reduce both cost and delay and may also assist to secure 'just' outcomes. The likelihood of achieving such outcomes is dependent on many factors, including ensuring that risks are appropriately managed and that changes are considered from a human user perspective. In this regard, there is, in many jurisdictions and perhaps amongst the judiciary itself, a lack of clarity concerning how judges will be involved in the significant reform of the justice system and to what extent reformist and responsive judicial leadership will play a role in such reforms.

---

[1] For an example see the approach set out in John Greacen, Institute for the Advancement of the American Legal System, *Eighteen Ways Courts Should Use Technology to Better Serve their Customers* (Report, October 18).

[2] Notably, Richard Susskind describes himself as a 'radical' rather than an incrementalist: see Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019).

There are also ongoing differences that arise within and between jurisdictions with regard to perceptions of the scope of the justice system and the role of judges and courts within it. Some jurisdictions for example support extensive External Dispute Resolution (EDR) and e-justice arrangements, whereas others are more focused on how courts may deliver the justice system of the future. At present, there is a growing number of apps and bots that have been developed in the justice sector and that 'sit outside' traditional courts.[3] However, this is not the situation in all jurisdictions. In some countries such as China, such tools have largely been developed within an existing court infrastructure.[4] Justice apps and bots can provide support, may lead to changed professional and judicial arrangements (partly through the potential for the earlier disposal of civil disputes) and as a result of their broad impact, could significantly disrupt activities in the civil justice system.

Internationally, much of the app and bot development in the justice sector is currently taking place in the private sector and is unregulated. Many professional legal associations are in the process of considering how such developments will relate to existing legal professional services, with a continuing focus on the 'unbundling' of the legal services market. In terms of future regulation, as discussed in Chapter 9, the CEPEJ has noted that there may be scope for both certification and regulation of these types of supportive tools.[5] However, where newer technologies exist outside of courts there may be issues about how any regulatory approach might work, and also a concern about the potential negative impacts (in terms of stifling innovation) that might follow any introduction of an overly heavy-handed regulatory approach.[6]

There are related issues that concern how judges might be involved in technological developments oriented towards lawyers and others that take place outside courts. Many judges might conclude that these developments operate in the pre-litigation or pre-filing area, or relate to legal (or other) advice and are accordingly not within the judicial purview. Other judges may however wish to consider whether they, as significant stakeholders within the justice sector, could contribute to either defining or refining evaluation criteria that might

---

[3]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Justice and Technology: Justice Apps* (Routledge, 2020).

[4]   See generally: Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019).

[5]   *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018).

[6]   Marc Lauristen, 'Liberty, Justice, and Legal Automata' (2013) 88(3) *Chicago-Kent Law Review* 945.

apply to the use of these new technologies,[7] or, could enter into a discussion about the extent to which regulatory arrangements may be appropriate.

It seems that judges in some jurisdictions have been more active or concerned about technological developments that arise 'outside' courts. For example, as discussed in Chapter 3, Judges in France[8] have voiced concerns about the development of judicial analytical tools and have played a role in the introduction of a 2019 regulatory regime that is intended to 'turn off the data spigot by banning the use of public information to "assess, analyze, compare or predict" how judges make decisions'.[9] In contrast, in other jurisdictions such as the USA where judicial analytical tools are well developed, there may be much more widespread acceptance of these developments.[10]

Other 'supportive' technological developments outside of courts have the capacity to improve legislation by highlighting where reform can take place,[11] supporting research that can inform judges about what litigants and others experience,[12] and indicating how and to what extent therapeutic and other

---

[7]   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

[8]   In 2019, the French Government enacted new legislation preventing the publication of statistical information about judges' behaviour in relation to court decisions. While the legislation is aimed at anyone who seeks to publish such information, it is noted that legal tech companies focused on litigation prediction and analytics are 'most likely to suffer'. In particular, the legislation provides that 'the identity data of magistrates and members of the judiciary cannot be reused with the purpose or effect of evaluating, analysing, comparing or predicting their actual or alleged professional practices': see 'France Bans Judge Analytics, 5 Years in Prison for Rule Breakers', *Artificial Lawyer* (Blog Post, 4 June 2019) <https://www.artificiallawyer.com/2019/06/04/france-bans-judge-analytics-5-years-in-prison-for-rule-breakers/#:~:text=In%20a%20startling%20intervention%20that,who%20breaks%20the%20new%20law> accessed 13 August 2020.

[9]   See generally Jena McGill and Amy Salyzyn, 'Judging by Numbers: How Will Judicial Analytics Impact the Justice System and its Stakeholders?' (2021) 44(1) *Dalhousie Law Journal* (forthcoming), citing Michael Livermore and Dan Rockmore, 'France Kicks Data Scientists Out of its Courts', *Slate* (Online, 21 June 2019) <https://slate.com/technology/2019/06/france-has-banned-judicial-analytics-to-analyze-the-courts.html>.

[10]   Daniel Chen, 'Judicial Analytics and the Great Transformation of American Law' (2019) 27 *Artificial Intelligence and Law* 15.

[11]   See Justin Hendry, 'NSW Runs AI Over Legislation to Find Reform Opportunities', *ITNews* (Online, 28 July 2020) <https://www.itnews.com.au/news/nsw-runs-ai-over-legislation-to-find-reform-opportunities-550925> accessed 19 August 2020.

[12]   Halima Rafi, Rancois Bogacz, David Sander and Olga Klikecki, 'Impact of Couple Conflict and Mediation on How Romantic Partners Are Seen: An fMRI Study' (2020) 130 *Cortex* 302.

judicial interventions may be effective.[13] Each of these developments may impact on the work that judges do, as well as the way in which that work is undertaken.

This chapter is focused on exploring how judges may be involved in the design of the justice system of the future and the extent to which some reforms may involve little judicial attention while others may require much more specific input and leadership. This involves considering some developments that arise 'outside' courts as well as those that occur within courts and are more directly related to the judicial role and function. In addition, questions about judicial adaptability in the context of how reform can take place and what ethical guidance is needed, are considered, with a focus on active judicial engagement.

APPROACHES TO FUTURE COURT REFORM

In respect of arrangements within courts, previous chapters have explored how technological changes might impact on work undertaken by courts. There are currently four types of 'online court' arrangements that are relevant and involve varying levels of judicial engagement:

1. Online courts may not be courts at all but be comprised of external 'tribunals' or EDR schemes, ODR arrangements or commissions. These approaches are designed to divert cases away from courts and to reduce the cost and time taken to finalize a dispute. Examples of such arrangements include the Civil Resolution Tribunal (CRT) in Canada, discussed previously in this book, as well as the numerous EDR schemes that operate in Australia.[14] These initiatives can be supported by e-justice arrangements that have developed in many jurisdictions. Such arrangements do not preclude the development of more specific technologically enabled 'in court' reforms (see points 3 and 4 below) and may support innovation.
2. Online 'courts' may be developed without judges being involved at all. In most jurisdictions this approach raises issues about what a court is and whether judges must supervise and manage courts in order for those entities to be called 'courts'. This approach is proposed by Susskind where Tier One and Tier Two court arrangements are managed by the executive

---

[13] Jim McMillan, 'A New Data Systems Approach for Drug and Treatment Courts' (2020) *Trends in State Courts* 26. The author notes that there is considerable potential for additional research into litigants and their experiences that can be supported by newer technologies.

[14] See, for example: 'Australian Financial Complaints Authority', *AFCA* (Web Page) <https://www.afca.org.au/> accessed 19 August 2020.

rather than the judiciary (see Chapters 4 and 7).[15] In terms of this model, there are risks that development could be undertaken by the executive arm of government, technological giants or other commercially oriented developers with a greater focus on cost and time reduction than on justice, and there are also potential impacts on the judicial function.

3. Online courts may be developed through more gradual, iterative processes that are linked to case management reform. This approach is essentially the approach adopted by IAALS and discussed in some detail in Chapter 4. Iterative developments that are generated by local judiciary may result in more widespread innovation and experimentation. However, the lack of a centralized approach may also mean that development costs can increase and there is a greater risk of uncertainty and confusion as each jurisdiction creates its own systems and rules. In addition, as Susskind has suggested, an 'incremental' approach may not enable courts to be reformed so that they meet the needs of an increasingly tech savvy and tech reliant population.

4. Online courts may be developed with existing judges managing and developing the courts together with apps and bots that are developed that relate to court processes. Such work could be led by the judiciary at a centralized level. To some extent, this is what is already occurring in China's 'smart court' system,[16] although it could be argued that it is in fact the executive arm of government embedded within the court infrastructure that is leading such developments. However, in other courts, there are developments that suggest that the judiciary may take a more substantive role in the creation of an online court.[17]

In relation to each of these arrangements there are clearly varying roles that judges may play. In the first two models, judges would likely play a very limited role and may in fact not have any engagement or involvement in such reforms. This approach resembles mandatory pre-action ADR requirements that may also be introduced with little judicial input (which could be regarded as appropriate where, for example, they are the result of government

---

15   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019).

16   See generally: Supreme People's Court of China, *Chinese Courts and Internet Judiciary* (White Paper, 4 December 2019).

17   This might include, for instance, some proposed developments in Europe. See, for example: Council of Europe European Commission for the Efficiency of Justice, 'Toolkit for Supporting the Implementation of the Guidelines on How to Drive Change Towards Cyberjustice' (Plenary Meeting Paper, Strasbourg, 14 June 2019).

support for contractual provisions between disputants that require that certain pre-action steps be undertaken).

The third and fourth online court approaches noted above require extensive judicial input and tech savvy judges will need to be engaged in the development of the system and the reforms that are undertaken. This, in turn, may require judges to consider modern technological design processes and human-centred design principles. These approaches are discussed later in this chapter.

Technological processes will also change the judicial role in other ways. Aside from online court developments, the use of technology to enable remote hearings via, for example, Teams or Zoom, have already had an impact on judges in the COVID-19 era.[18] In this regard there are questions about whether such approaches should be monitored or evaluated by the judiciary or by some other agency (see the discussion in Chapter 6 relating to the UK evaluations already undertaken).[19]

There are also questions that relate to what should be retained in a post COVID-19 era,[20] and what further work is required to modernize courts. In this regard, additional changes could be considered that enable people to lodge material through user-friendly portals using 'nudging' technologies that can help people to fill out forms and develop material for use in courts. There is also the potential for asynchronous courts processes that still enable people to express their views orally. All of these developments require that judges consider evidence about what has worked in the COVID-19 era (see Chapter 2), what has not, and, what could be retained or improved (which may require judges to commission or support ongoing research about current and future court arrangements).

There are also issues about more immediate decisions in terms of case management reform. In this regard, there are many examples of case management systems that use both supportive and replacement technologies. However, to modernize courts, much more will be required in some courts so that additional user data is available to enable courts to better understand their users and how they experience court processes and outcomes. Additional user data will also enable a better understanding about how people can be referred to other human professional services or supported by apps and bots where required so that externally facing case management processes can be developed. In many areas, including the travel, retail and government sectors, there are already examples

---

[18] Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[19] See, for example: Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21).

[20] Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21).

of supportive apps and bots that can be used to enhance user understanding and also enable data to be collected. This type of data, if used by courts, could provide useful information about the difficulties that more vulnerable people may face in the court system. Already, in the justice sector, there are a number of apps and bots that are assisting people, yet, at present, most courts have not used such technologies.[21]

As noted in Chapter 4, there are issues with courts and judges developing technological systems which simply replicate existing paper-based approaches that may have existed for decades. For example, even at the simplest level, the benefits that may flow from the use of enhanced technologies will be very limited if there is no adoption of a plain language approach to reform that might enable people to complete an online form or understand what is required once court proceedings are commenced. Again, such changes require input by judges and close attention to newer ways of design that explore what is useful for both judges and litigants in terms of defining and exploring a legal issue. Such reforms can take considerable work in terms of piloting, trialling and developing new approaches, and there may be many benefits in terms of greater jurisdictional consistency if such developments take place at national levels.

There are, of course, continuing digital divide issues. Whilst so much of the population is online, this does not necessarily equate to digital literacy, and the evaluation of some COVID-19 arrangements have shown that there is a proportion of the population that will require additional human support to commence proceedings, defend themselves and to continue with proceedings.[22] There are also related questions about the role of physical courts that were raised and discussed in Chapters 4 and 7. Essentially such issues mean that there may be strong reasons to maintain some physical courts that include ensuring that the status of the judiciary as the third arm of government in many countries is retained and supported. At the same time, the author notes that both Susskind and Genn have remarked that physical courts in the UK may currently be 'far from majestic' and in a 'sorry state', suggesting that, in some jurisdictions, there is no longer an option to 'do nothing'.[23]

---

21   Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

22   See, for example: Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020); Justice Committee, *Coronavirus (COVID-19): The Impact on Courts* (House of Commons Paper No 519, Session 2019–21).

23   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 208, referring to Dame Hazel Genn.

Nevertheless, and despite concerns relating to the digital divide (see Chapter 6), there is now ample evidence that many people would prefer to use online services to deal with legal issues and also to access courts and judges. In terms of how such access takes place, the author notes that in 2019 there were 204 billion mobile app downloads.[24] Some surveys suggest that people are now spending more time on apps than other forms of media. A 2017 survey of American consumers found that 50 per cent of all digital media time was spent on apps, compared to just 34 per cent on desktops.[25] On average, the consumers spent 2.3 hours a day on apps, with 18–24 year olds being the most frequent users.[26] Indeed there is recent discourse suggesting that the impact of COVID-19 has caused a significant increase in mobile app downloads and usage.[27] Such results yield the inevitable conclusion that courts, to remain relevant, must consider how apps can be developed that enable people to engage with them. In many places there is a thriving new industry that is focused on justice app and bot development which is oriented towards: the provision of cheaper and faster legal advice; the triaging of disputes to lawyers, mediators and others; the finalization of disputes via ODR; the preparation and filing of court documents; furnishing advice relating to potential courts outcomes; interpreting financial records; and even the setting up of day-to-day arrangements relating to how and where children have contact with parents.[28] However, it must be noted that some digital divide issues remain much more

---

[24]   J Clement, 'Annual Number of Global Mobile App Downloads 2016–2019', *Statistica* (Web Page, 17 January 2020) <https://www.statista.com/statistics/271644/worldwide-free-and-paid-mobile-app-store-downloads/> accessed 6 September 2020. See also: Kungpo Tao and Paulette Edmunds, 'Mobile Apps and Global Markets' (2018) 8 *Theoretical Economics Letters* 1510, 1511.

[25]   Comscore, *The 2017 US Mobile App Report* (Report, 2017).

[26]   Comscore, *The 2017 US Mobile App Report* (Report, 2017) 7.

[27]   'Coronavirus impact sends app downloads, usage and consumer spending to record highs in Q2', *Tech Investor News* (Online, 9 July 2020) <https://www.techinvestornews.com/Mobile/Latest-Mobile-News/coronavirus-impact-sends-app-downloads-usage-and-consumer-spending-to-recor> accessed 19 August 2020.

[28]   Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming). Also see, for example: 'Robot Lawyer Lisa', *LISA* (2019) <https://robotlawyerlisa.com/> accessed 19 August 2020; 'Adieu', *Adieu: Elegant Parting* (Web Page, 2020) <https://www.adieu.ai/> accessed 19 August 2020; 'Gideon', *Gideon* (online) <https://www.gideon.legal/> accessed 19 August 2020; Jon Porter, 'Robot Lawyer DoNotPay Now Lets You "Sue Anyone" via an App', *The Verge* (Blog Post, 10 October 2018) <https://www.theverge.com/2018/10/10/17959874/donotpay-do-not-pay-robot-lawyer-ios-app-joshua-browder> accessed 19 August 2020. For an in-depth discussion of these (and other) justice apps, see: Tania Sourdin, Jacqueline Meredith and Bin Li, *Digital Technology and Justice: Justice Apps* (Routledge, 2020).

significant in developing countries, and the approach taken will need to depend on local conditions and an informed understanding of local community needs.

The courts of the future that will rely on newer technologies raise specific privacy and security concerns that differ from arrangements that apply to the paper-based courts of the past. In this regard, there are many risks with court information that can be both confidential and sensitive. Existing document handling arrangements may already lack adequate security safeguards, and ensuring that online court material and personal privacy is protected will involve additional security measures. Preventing inappropriate access to data is critical in ensuring that the justice system of the future is supported (see the discussion in Chapter 9) and to ensure that there is trust in newer court systems. Related to this concern are the significant cyber security threats by foreign or domestic entities, and effective privacy and security measures are critical in protecting those involved in court actions while enhancing the reputation of courts.

There are also issues relating to how courts might consider other data such as social surveillance material and social credit rankings. For example, as discussed in Chapter 8, social credit systems in China may be supervised by the court and it may be expected that courts contribute their data to the running of such systems. In other countries, questions may be more likely to emerge relating to how courts interpret material that is produced as a result of technological developments (for example, see the discussion relating to *COMPAS* in Chapters 4 and 8).

The developments discussed above suggest that both judges and courts will need to consider their approach to reform and technology use by using ethical decision-making frameworks that were discussed in Chapter 9. Issues may arise at an individual judicial level in response to the issues of a particular case,[29] as well as at a collective judicial level when considering overarching responses to reform. As a result, enhanced judicial education in respect of technological approaches as well as clearer ethical decision-making frameworks are necessary in the context of issues that may emerge in both online judging and Judge AI. These issues are discussed further below.

---

[29]   The author notes that there are a number of court decisions dealing with technological and justice issues raised by COVID-19 including, for example: *R v Macdonald; R v Edward Obeid; R v Moses Obeid (No 11)* [2020] NSWSC 382; *Capic v Ford Motor Company of Australia Limited (Adjournment)* [2020] FCA 486; *Re A (Children) (Remote Hearing: Care and Placement Orders)* [2020] EWCA Civ 583; *ASIC v GetSwift Ltd* [2020] FCA 504.

REFORM AND ONLINE JUDGES

As noted in Chapter 2, the COVID-19 pandemic has resulted in many courts adopting an online approach, at least in relation to some hearings, and also implementing (and in some cases further developing) case management and online filing tools.[30] Future developments are likely to incorporate case management shifts that support the allocation of judicial work (as discussed in Chapter 4) and also the retention of some approaches that were introduced for the first time in response to the COVID-19 pandemic. For example, some judges have indicated that both non-jury and jury trials may take place differently in the future, that some virtual court hearings will be retained and that interlocutory processes may shift to take advantage of both videoconferencing approaches and also simpler email-based listing arrangements.

In addition, for some judges and courts, the changed arrangements have meant that court processes have been more 'open'. In some instances, court hearings and judgment processes have been livestreamed or audio recordings have been made available.[31] These approaches may have generated more public interest in both judge and court activities and are aligned with justice objectives relating to transparency and open justice. In other instances, the lack of a physical open court has meant that proceedings have been conducted with no public exposure and this has led to the 'closure' of some courts in terms of public access. As discussed in Chapter 7, this remains a serious issue in terms of how courts and judges may operate remotely.

The author notes that there are risks in televising court processes that have been considered by various commentators for more than three decades.[32] There has also been some judicial hostility towards developments in this

---

[30] Tania Sourdin and John Zeleznikow, 'Courts, Mediation and COVID-19' (2020) 48 *Australian Business Law Review* 138.

[31] See, for example: Kathleen Arberg, 'Media Advisory Regarding May Teleconference Argument Audio' (Press Release, Supreme Court of the United States, 30 April 2020) <https://www.supremecourt.gov/publicinfo/press/pressreleases/pr_04 -30-20> accessed 19 August 2020.

[32] Paul Raymond, 'The Impact of a Televised Trial on Individuals' Information and Attitudes' (1992) 75(4) *Judicature* 204; Brandon Smith, 'The Least Televised Branch: A Separation of Powers Analysis of Legislation to Televise the Supreme Court' (2009) 97 *Georgetown Law Journal* 1409; Ronald Goldfarb, *TV or Not TV: Television, Justice, and the Courts* (New York University Press, 1998); Susanna Barber, 'Televised Trials: Weighing Advantages Against Disadvantages' (1985) 10 *Justice System Journal* 279; Audrey Maness, 'Does the First Amendment's "Right of Access" Require Court Proceedings to be Televised? A Constitutional and Practical Discussion' (2007) 34 *Pepperdine Law Review* 123.

area.[33] Despite this, some jurisdictions have implemented court TV and online arrangements and, in other jurisdictions, judges have considered limited televised hearings (although such consideration has often been focused on access to televised court proceedings by the media rather than the public).[34] These developments have meant that in some jurisdictions, judges have attained an almost 'movie-star'-like status with some commentators suggesting that such shifts have supported the role of courts and the rule of law within a democracy,[35] while others have suggested that televised judicial quarrels and the development of a 'cult of personality' have had negative impacts on the judiciary.[36] The author notes that whilst some courts have moved to livestreamed approaches,[37] posted material on YouTube,[38] or added website audio or live audio facilities, there is currently no uniformity in terms of court approaches (see Table 2.1 in Chapter 2).

Despite discussion to date about televising or streaming judicial hearings, the COVID-19 arrangements that have been introduced have mainly relied on commercial videoconferencing platforms. This has meant that many courts are closed to public scrutiny and raises questions about how judicial hearings can be 'open' in a modern technological age. There may be some benefit in all courts within a jurisdiction creating dedicated services to ensure that public access to courts via the internet remains available. The author notes that, in some courts, rather than visual material, audio (only) material is made availa-

---

[33]   Kyu Ho Youm, 'Cameras in the Courtroom in the Twenty-First Century: The U.S. Supreme Court Learning from Abroad' (2012) 6 *Brigham Young University Law Review* 1989.

[34]   Joseph Bolton and Christopher Kromphardt, 'Black Robes in the Limelight: New Values and Requests to Televise Oral Arguments in the Ninth Circuit Court of Appeals, 1991–2005' in Rorie Solberg, Jennifer Diascro and Eric Waltenburg (eds), *Open Judicial Politics* (Oregon State University, 2020).

[35]   Gregory Michener and Carlos Pereira, 'A Great Leap Forward for Democracy *and* the Rule of Law? Brazil's Mensalão Trial' (2016) 48(3) *Journal of Latin American Studies* 477.

[36]   Paula Góes, 'Brazil: Judges Quarrel Live on TV and Scandalize the Country', *GlobalVoices* (Blog Post, 25 April 2009) <https://globalvoices.org/2009/04/25/brazil-judges-quarrel-live-on-tv-and-scandalize-the-country/> accessed 19 August 2020.

[37]   Kathleen Arberg, 'Media Advisory Regarding May Teleconference Argument Audio' (Press Release, Supreme Court of the United States, 30 April 2020) <https://www.supremecourt.gov/publicinfo/press/pressreleases/pr_04-30-20> accessed 19 August 2020.

[38]   See for example: Texas Court of Criminal Appeals, 'PD-1096-19 – Ex Parte Christopher Rion' (YouTube, 17 June 2020) <https://www.youtube.com/watch?v=6qRBhOcqwj8> accessed 19 August 2020.

ble on court websites and this material is often only available for a restricted period.[39]

Online judging also requires judges to consider the arrangements that surround videoconferencing and remote hearings. This may call for a consideration of the virtual backgrounds that might be used and also the impacts on those who may be present or who may be observing a hearing. For example, there have been concerns expressed in the UK that children may have unintentionally been exposed to parental conflict while adults have given evidence in court proceedings.[40] Ideally, protocols could be developed on a national basis to ensure that there is some consistency between courts. There are also issues relating to which court cases should never be the subject of a videoconferencing process and require either face-to-face judicial attention or some modified broader access to public arrangements.[41] Supportive arrangements for court users, in view of digital divide issues, also require attention and the author notes that some courts have been investing in alternative support mechanisms (see Chapter 6).[42]

DEVELOPING JUDGE AI

Recent developments in AI will continue to have an impact on judges and judging into the future. As such, society and judges must reconsider the role of the judge and have strategies in place to deal with the ethical and other issues raised by Judge AI.[43] At present, much of the discussion assumes that the only role that judges play within society involves the adjudication of disputes (see

---

[39] See for example: 'Supreme Court Sentences and Judgments Video Portal', *Supreme Court of Victoria* (Web Page) <http://www.scvwebcast.com/sentences/> accessed 19 August 2020.

[40] Tania Sourdin, Bin Li, Stephanie Simm and Alexander Connolly, 'COVID-19, Technology and Family Dispute Resolution' (2020) 30 *Australasian Dispute Resolution Journal* (forthcoming).

[41] Milena Heinsch, Tania Sourdin, Caragh Brosnan and Hannah Cootes, 'Death Sentencing by Zoom: An Actor-Network Theory Analysis' (2020) *Alternative Law Journal* (forthcoming).

[42] See for example, the article in the *Brooklyn Daily Eagle*, 2 September 2020, 'Chief Judge Highlights Technology in the Courts as Jury Trials Resume this Month' available at <https://brooklyneagle.com/articles/2020/09/02/chief-judge-highlights -technology-in-the-courts-as-jury-trials-resume-this-month/> accessed 9 September 2020.

[43] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1115–1116. See also the discussion in Shang Li, Hongli Zhang, Lin Ye, Xiading Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for Legal Judgment Prediction' (2019) 7(1) *IEEE Access* 151144.

Chapter 2). This assumption is problematic not only because it erroneously fails to recognize the judicial role in terms of readying cases for hearing but also because it is based on a lack of understanding regarding the various meanings of justice and the important role that responsive judges play in individual courts and within a broader social context. Judges not only educate and assist in developing social structures and norms but play a critical role in relation to the governance arrangements in most countries.[44]

Questions remain, however, as to whether and when some judges will completely be replaced by technology and, if so, whether this will be accepted as some type of social inevitability. As the author has previously noted, it is unlikely that a complete replacement of judges will occur in many courts in the near future in view of the multitude of factors that impact on judicial decision making.[45] It is also likely that it will take considerable work and associated cost for AI systems to not only make decisions that might otherwise be made by a judge but also to explain such decision making. However, while there will initially be some limited replacement of judges (as discussed below), for the most part, over the next decade, AI will simply *support* decision making by, for instance, producing a draft or template judgment that can then be considered by a human judge (supportive Judge AI).[46] On the other hand, the author has noted that a number of theorists disagree with this perspective, suggesting that the complete replacement of judges is possible and that time frames may be much shorter. Huq, for example, has argued that, in the future, there will simply be no right to a human decision. Others have suggested that a countervailing 'right to a well-calibrated machine decision' is ultimately more normatively well-grounded.[47] Developments in some jurisdictions such as China and Estonia also suggest that Judge AI is likely to be operational within a shorter time frame.

As to whether or not societies are likely to accept a move toward Judge AI, Volokh has argued that such acceptance will occur in light of the deficiencies of the current legal system:

> There is a great deal of public hostility to the current legal system because it is perceived as far too expensive for ordinary citizens who cannot afford to hire the

---

[44] See Tania Sourdin and Richard Cornes, 'Do Judges Need to be Human? The Implications of Technology for Responsive Judging' in Tania Sourdin and Archie Zariski (eds), *The Responsive Judge: International Perspectives* (Springer, 2018).

[45] Select Committee on Artificial Intelligence, *AI in the UK: Ready, Willing and Able?* (House of Lords Paper No 100, Session 2017-19).

[46] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1123–1124.

[47] Aziz Z Huq, 'A Right to a Human Decision' (2020) 105 *Virginia Law Review* (forthcoming).

best lawyers, or even any lawyers at all. The system is thus perceived as biased in favor of rich people and institutions. And it is also perceived as very slow. If AI judging solves these problems, that should give it a big advantage, both in reality and in the minds of many observers – and I suspect that this real-world advantage will overcome any conceptual unease that people might have with such a system.[48]

Commentators have also discussed the key characteristics of a judicial system with AI judges and it has been widely noted that future justice of this kind could be more consistent.[49] As noted by McKay, the public, media and academics frequently express frustration with inconsistency or leniency in sentencing decisions.[50] Brennan-Marquez and Henderson have similarly noted that machines are 'impeccably consistent' and in a world of 'decentralised human judging', the 'like cases should be treated alike' ideal can be finally vindicated.[51]

Against this perspective are the already well known instances where AI has produced outcomes that are biased. As AI approaches move from rule-based (prescriptive) reasoning, which involves the application of a pre-defined set of rules (or patterns) with an algorithm,[52] to case-based reasoning, which requires an analysis of previous experiences to ascertain the solution to a new problem,[53] and eventually to forms of AI that involve machine learning where algorithms that learn through experience and are able to quickly and more accurately

---

[48]   Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1171.
[49]   The development of AI systems in China is well advanced in the criminal area with fairly sophisticated Judge AI modelling in place. See Shang Li, Hongli Zhang, Lin Ye, Xiaoding Guo and Binxing Fang, 'MANN: A Multichannel Attentive Neural Network for Legal Judgment Prediction' (2019) *IEEE Access*, vol. 7, 151144–151155, available at <https://ieeexplore.ieee.org/document/8861054> accessed 23 September 2020.
[50]   Carolyn McKay, 'Predicting Risk in Criminal Procedure: Actuarial Tools, Algorithms, AI and Judicial Decision-Making' (Research Paper No 19/67, Legal Studies, University of Sydney Law School, November 2019).
[51]   Kiel Brennan-Marquez and Stephen E Henderson, 'Artificial Intelligence and Role-Reversible Judgment' (2019) 109(2) *Journal of Criminal Law and Criminology* 137, 139.
[52]   John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency in Courts', 2017 8(2) *International Journal for Court Administration* 30, 36; Abhishek Mishra, *Machine Learning in the AWS Cloud: Add Intelligence to Applications with Amazon SageMaker and Amazon Rekognition* (John Wiley & Sons, 2019) 4.
[53]   John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency in Courts' (2017) 8(2) *International Journal for Court Administration* 30, 36.

predict results,[54] realistic fears about bias may emerge. As discussed in Chapter 3 and demonstrated by the unfortunate outcomes linked to the Microsoft Tay bot,[55] the outcomes that are achieved are only as useful as the data that is fed to the AI. As many justice systems are considered to reach outcomes that are not 'colour blind',[56] or which are criticized in terms of bias, it would be expected that any Judge AI that is developed by such a system would also be defective simply because the AI system has learned from a system that is already biased.

It is also likely that future justice will be *different* as AI is increasingly involved in judicial decision making. As outlined by Susskind, the 'AI fallacy' refers to an assumption that the only way for machines to do the work of humans is for them to mimic humans. However, 'outcome thinking' 'urges us to focus instead on outputs and benefits, rather than on *how* a result is reached'. In other words, the focus will be not on whether an AI judge can *replicate* human thinking, but on how it uses its *own* distinctive capabilities.[57]

As noted above, there are clearly a number of persuasive reasons why the move towards Judge AI would be a welcome one. These have been considered in greater detail in the previous chapters of this book. First and foremost, Judge AI has the potential to increase access to justice.[58] Further, it also has the

---

[54]   Harsha Vishnukumar, Bjorn Butting, Christian Muller and Ing Eric Sax, 'Machine Learning and Deep Neural Network – Artificial Intelligence Core for Lab and Real-World Test and Validation for ADAS and Autonomous Vehicles' (Conference Paper, Intelligent Systems Conference, 7–8 September 2017) 715; Abhishek Mishra, *Machine Learning in the AWS Cloud: Add Intelligence to Applications with Amazon SageMaker and Amazon Rekognition* (John Wiley & Sons, 2019) 3; John Zeleznikow, 'Can Artificial Intelligence and Online Dispute Resolution Enhance Efficiency in Courts' (2017) 8(2) *International Journal for Court Administration* 30, 36.

[55]   See Tomas Zemčík, 'Failure of Chatbot Tay: Was Evil, Ugliness and Uselessness in its Nature or Do We Judge it through Cognitive Shortcuts and Biases?' (2020) *AI & Soc*, available online at <https://link.springer.com/article/10.1007/s00146-020-01053-4#citeas> accessed 15 September 2020. See also Hope Reese, 'Why Microsoft's "Tay" AI Bot Went Wrong', *TechRepublic* (Blog Post, 24 March 2016) <https://www.techrepublic.com/article/why-microsofts-tay-ai-bot-went-wrong/> accessed 19 August 2020.

[56]   Amy Dale, 'Breaking Down Barriers: Will our Courts Ever be Colour-Blind', *LSJ Online* (Blog Post, 29 July 2020) <https://lsj.com.au/articles/breaking-down-barriers-will-our-courts-ever-be-colour-blind/> accessed 19 August 2020.

[57]   Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019) 280.

[58]   See, for example: Justice Marilyn Warren, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227; Justice Melissa Perry, 'iDecide: Administrative Decision-Making in the Digital World' (2017) 91 *Australian Law Journal* 29, 34; Lord Hodge, 'Law and Technological Change' (Speech, British Irish Commercial Bar Association, Edinburgh, 4 April 2019) 9.

potential to provide a higher quality of justice,[59] and enhance the rule of law.[60] Automation could make decision making more accurate, efficient and fair, and also has the potential to improve transparency and accountability in decision making.[61]

However, for every academic or judicial proponent of Judge AI, there is also a more cautious observer who highlights the challenges and potential disadvantages that will likely flow from the automation of judicial decision making. Despite these challenges, it may be that the shortcomings of the current system will eventually persuade some societies to embrace forms of Judge AI.[62] Indeed, this push towards embracing the benefits that AI can bring to the justice system has, to some extent, been led by some members of the judiciary,[63] who have urged consideration of the new opportunities that such changes may bring, although this can be directed more at the profession rather than the judiciary[64] or is coupled with 'grave reservations'.[65]

In terms of the application of Judge AI, it is likely that initial forays will relate to limited categories of matters (see the discussion in Chapter 9). Much Judge AI discussion suggests that it is likely to be confined to simple, low-value matters where cost and convenience will be decisive factors. Such low-value cases may include disputes that, in some countries, are already dealt with by tribunals, such as: landlord/tenant disputes, fines and penalties, debt matters, simple property damage and lower level personal injury disputes. Initially it is expected that Judge AI at such levels will be 'supervised' by judges until the AI replaces them altogether. Judge AI is unlikely to stop there. After testing and trialling such methods,[66] an expansion of Judge AI to other

---

[59] Justice Marilyn Warren, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227.

[60] See, for example: Chief Justice Helen Murrell, 'Turn and Face the Change – New Technology and the Internationalised Judiciary' (Speech, Supreme Court of the Australian Capital Territory, 1 February 2016) [2].

[61] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) 82(3) *Modern Law Review* 425, 425.

[62] Eugene Volokh, 'Chief Justice Robots' (2019) 68 *Duke Law Journal* 1134, 1171.

[63] See speech by Judge Abdulleh (Singapore) at <https://www.singaporelawreview .com/juris-illuminae-entries/2018/singapore-law-review-annual-lecture-2018-the -obsolescent-judge> (accessed 21 September 2020).

[64] See Chief Justice Beverley McLachlin, 'The Legal Profession in the 21st Century' (Speech, Canadian Bar Association Plenary, Calgary, 14 August 2015).

[65] See James Allsop, 'Technology and the Future of the Courts' (Speech, TC Beirne School of Law, University of Queensland, 26 March 2019).

[66] This may include establishing 'machine readable' decisions as this will aid Judge AI development. In itself, this may be objectionable (see previous discussion relating to dissent and storyteller judges in Chapter 8) and Jameson Dempsey and Gabriel

dispute areas seems likely. In this regard, potential Judge AI use requires the use of ethical decision-making tools (see Chapter 9) as well as consideration of triage systems that may not be dependent only on cost and time considerations (see sample triage questions in Chapter 9). As noted above, where Judge AI does not replace judges or tribunal members, it will be used to 'assist' or aid judges in terms of their decision making. The concerns with each of these likely development areas are numerous, partly because they invoke concerns about the dehumanization of the justice system and also because even where judicial 'supervision' takes place, it may not be effective (see for example, the discussion relating to anchoring bias in Chapter 5).

In order for Judge AI to be developed in a way that values human input and reduces inappropriate control by tech giants or the executive, judges need to not only be responsive but also proactive in terms of their protection of the justice system. Judges as guardians of the justice system play a vital role in ensuring that 'human *in* the loop' as well as 'human *on* the loop' processes are maintained and strengthened in the justice system of the future (see Chapter 9). In addition, the articulation of clear areas where human engagement, supervision and decision making is essential, requires both judicial leadership and collaboration.

JUDICIAL ADAPTABILITY AND HUMAN-CENTRED DESIGN

As noted by Marilyn Warren (former Chief Justice in Victoria, Australia), judges will lose relevance in society if they do not adapt to technological change.[67] It is currently unclear, however, precisely what such adaptation will involve. As noted above, it seems unlikely, at least initially, that in most jurisdictions, human judges will be completely removed from most decision-making processes. Rather, it is more likely that some role for human judicial decision makers will be retained, although in the shorter term, judges may need to work as part of a team with machines as supportive Judge AI develops and expands.[68] Initially, this change may not be completely removed from what judges currently do when they rely on earlier precedent that they

---

Teninbaum, 'May it Please the Bot?', Paper, MIT 15 August 2020, <https://law.mit .edu/pub/mayitpleasethebot/release/1> accessed 20 September 2020.

[67]   Justice Marilyn Warren, 'Embracing Technology: The Way Forward for the Courts' (2015) 24 *Journal of Judicial Administration* 227, 235.

[68]   Saul Levmore and Frank Fagan, 'The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion' (2019) 93(1) *Southern California Law Review* 1.

may overrule where appropriate.[69] Where a team approach is adopted, human judges may be required to play a more dominant role in 'hard' or 'aberrant' cases where their AI teammate lacks the ability to understand context or nuance, struggles to properly balance conflicting values, or is unable to discover patterns due to an inadequate sample size of cases.[70] Adaptation may also involve judges 'giving up' certain types of cases, such as small claims, entirely to an AI Judge.[71]

Most courts have shown that they are generally willing to embrace technological innovation and change.[72] However, the future justice system requires more than an acceptance of technological innovation. It requires leadership and if judges fail to be proactive there is a risk that another arm of government may step in and further narrow the areas where judges might operate, or that public respect for the judiciary may be reduced as judges are considered to be 'less relevant'. Declining courts budgets that are likely to follow economic upheaval in the post-COVID era may mean that courts and judges will be particularly vulnerable to change that may not be well thought out in the coming years. In addition, there is also the reality that, in some countries, judges have backgrounds as advocates and, in others, as career judges. This means that they may not be attuned to collaborative design engagement or interested in innovation, and may also be more inclined to preserve systems that they have developed and become immersed in, despite the fact that such systems may no longer work well.

'User-centred design' or 'human-centred legal design' are approaches that can be used to reform the justice system. Such design approaches can be guided by ethical principles using the 'levels of abstraction' approach noted in Chapter 9. In addition, articulating the core values and objectives of the justice system in each jurisdiction is important as these must underpin any ethical design approach (see Chapter 6). The author notes that user-centred design that

---

[69] See Saul Levmore and Frank Fagan, 'The impact of artificial intelligence on rules, standards, and judicial discretion' (2019) 93(1) *Southern California Law Review* 1.

[70] Tim Wu, 'Will Artificial Intelligence Eat the Law? The Rise of Hybrid Social-Ordering Systems' (2019) 119 *Columbia Law Review* 2001, 2023.

[71] Richard M Re and Alicia Solow-Niederman, 'Developing Artificially Intelligent Justice' (2019) 22 *Stanford Technology Law Review* 242, 282–283.

[72] Frederika De Wilde, 'Courtroom Technology in Australian Courts: An Exploration into its Availability, Use and Acceptance' (2006) 26 *Queensland Lawyer* 303, 304.

is based on ethical approaches will require significant judicial adaptability and shifts in the judicial role. For example, it has been stated that:

> ... a critical feature of Legal Design theory is that it cannot be started without the end user in mind. The process requires a genuine understanding of the end user(s), placing an emphasis on practitioners immersing themselves in that user's world so they can design interventions based on end user perspectives, rather than from a pre-determined solution.[73]

Essentially, this type of approach requires judges to engage with litigants and other stakeholders about how courts and judicial approaches could be reformed and improved. Whilst there are some issues in terms of how this can be achieved, including a general lack of information about who currently uses courts, newer technologies may support improved understandings about how courts and judges can be reformed so that they work more effectively. In terms of the approach, some commentators have noted:

> It would be unthinkable to design a utilitarian object such as a chair without regard for the consumer, the end user for whom it is intended that the object will become a part of their daily lives. If the chair was intended to serve as a piece of assistive technology to help a physically frail person to stand up and sit down with greater ease, but the chair was actually more cumbersome to use than a regular chair, then it would be considered an outrageous failure. To those who approach the world from a design perspective, civil litigation would have to be considered an outrageous failure – while its expressed aim is to allow ordinary people to vindicate their rights, the system is designed to be used primarily by highly-skilled experts whose services are out of reach of the intended beneficiary of the system. There is thus a great deal of work to be done to ensure that the civil justice system is redesigned with the end user in mind.[74]

The redesign of the justice system in terms of human-centred approaches therefore requires judges at every stage of reform to consider litigant perspectives. It also requires courts and judges to be adaptable and to evaluate changes from a litigant perspective so that the justice system is 'fit for purpose.' However, a litigant perspective, in itself, is not sufficient, as the role and function of a judge, as discussed throughout this book, has implications that extend beyond individual litigants. Therefore, in the justice sector, a 'level of abstraction approach' (as set out in Chapter 9) is necessary. This requires that reforms

---

[73]   Lisa Toohey, Monique Moore, Katelane Dart and Dan Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 154.

[74]   Lisa Toohey, Monique Moore, Katelane Dart and Dan Toohey, 'Meeting the Access to Civil Justice Challenge: Digital Inclusion, Algorithmic Justice, and Human-Centred Design' (2019) 19 *Macquarie Law Journal* 133, 152.

be developed and evaluated from an individual (user-centred), interpersonal, group, institutional, sectoral and societal perspective. This approach ensures that the various perspectives discussed throughout this book can be weighed and adequately considered.

IMAGINING FUTURE JUSTICE

Whilst the COVID-19 pandemic has resulted in 'significant and rapid changes in the operation of the civil justice system',[75] in many counties it has also highlighted how some courts and judges have struggled to adopt new technologies – often where existing court infrastructure and sophisticated judicial understandings about technology did not previously exist. In addition, many lawyers and other experts within the sector have grappled with potential justice system changes as they continue to use outmoded methods of working often established decades ago. As technology changes the way that lawyers work and AI tools, bots and apps divert clients to a range of services,[76] so too must courts and judges change. Technological change will continue to raise questions related to equitable access to courts and judges, the need for physical courts and how judges undertake work, as well as how the justice system can be improved.

In many specialist courts, the judicial role and function has changed significantly in recent years, although not in response to technology but rather to social need. Such changes have led to the establishment of many problem-solving courts where judges may work with non-judicial specialists. Most would agree that these developments have had positive impacts in reducing future court contact as well as significant return on investment benefits that include a reduction in public costs (police, health and other) and an increase in public trust in the courts as a result of a greater focus on procedural fairness and human dignity. Clearly, some judges may be more 'responsive' than others, and others may show more emotion and compassion or be oriented towards therapeutic justice interventions focused on procedural justice that emphasizes 'voice' and 'respect' (see also Chapter 6).[77] To some extent, courts and judges that adopt such approaches are much less likely to be replaced by Judge AI (although the development of other technological tools remains rel-

---

[75] Natalie Byrom, Sarah Beardon and Abby Kenrick, Civil Justice Council, *The Impact of COVID-19 Measures on the Civil Justice System* (Report, May 2020).

[76] See for example Tania Sourdin, *Adieu Intelligent Divorce App and Family Dispute Resolution Project* (Final Report, The University of Newcastle Law School, 2020) (forthcoming).

[77] For a broader discussion of the judicial role and responsiveness see: Tania Sourdin and Archie Zariski (eds), *The Responsive Judge* (Springer, 2018).

evant) partly because AI, at present, cannot adequately replicate human social skills and empathy.

However, many changes that arise in the justice system of the future will be the result of developments in AI that can be regarded as supportive, replacement or disruptive (or a combination of all three – see Chapter 1). In this regard, as AI is increasingly being used to enable judgments to be made about a range of situations, so too will there be an expectation that AI will be used in some parts of the justice system. From automated cars determining whether to sacrifice the occupant or pedestrians in a crash situation, to AI being used in sporting competitions such as gymnastics where performance is converted into a numerical outcome, AI is being used to judge situations involving humans. Regarding human resource decision making, performance and recruitment areas, AI acceptance is already well advanced. In view of these circumstances, there is a greater likelihood that Judge AI will be supported in many jurisdictions and there are a range of complex ethical difficulties and philosophical problems rooted in the development of Judge AI in terms of what justice values a society holds as important.

The shift to increasing use of AI in the form of predictive coding,[78] predictive analytics[79] and machine learning[80] suggests that law firm use of AI is already changing how material is presented to judges and how client risk is assessed. Apart from these shifts which are largely related to what judges are presented with, there are changes relating to the use of AI as an adjunct to decision making and also indications that some judicial decision making will be replaced by AI. It is also clear that some judges will be resistant to this approach amid concerns that developments in the justice sector may have little regard to societal good or the deeper implications of AI innovation.[81]

However, is it realistic that AI will replace anything other than simplistic judicial decision making? My response is yes, although it may take some time

---

[78] This is used in the e-discovery area.

[79] The author notes that predictive analytics is more focused on predicting outcomes.

[80] Ian Lopez, 'The Early Years Begin for AI's Transformation of Law', *Legaltech News* (online, 5 October 2016) <http://www.legaltechnews.com/id=1202769286334/ The-Early-Years-Begin-for-AIs-Transformation-of-Law?cmp=share_twitter&slreturn =20160912054113> accessed 19 August 2020. See also: Kevin Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge University Press, 2017) for a more complete description of these processes and systems.

[81] See: Jena McGill and Amy Salyzyn, 'Judging by Numbers: How Will Judicial Analytics Impact the Justice System and its Stakeholders?' (2021) 44(1) *Dalhousie Law Journal* (forthcoming); Corinne Cath, Sandra Wachter, Brent Mittelstadt, Mariarosaria Taddeo and Luciano Floridi, 'Artificial Intelligence and the "Good Society": The US, EU and UK Approach' (2017) 24(2) *Science Engineering and Ethics* 505.

and there are many hurdles to overcome and then also questions about why we would want to do so.[82] At present, AI can clearly support decision making (by, for example, enabling more accurate potential outcome identification by participants), play an increasing role in some forms of dispute resolution (particularly in the family area),[83] and support judicial processes and the making of decisions. Such changes raise issues about the role of courts and judges in the future as well as broaching challenging issues about how data is managed and categorized, as well as where and how executive and judicial functions are carried out and separated.[84] In addition, as has been the case in the USA, there are issues about intellectual property and who may have control over and input into outsourced Judge AI and how transparent algorithms are used and developed, as well as critical issues raised in other jurisdictions that are linked to data security, confidentiality and privacy.

There are also issues relating to technological hype in that some technologists may consider that AI can replace humans already and the reality may not live up to this promise (at least not yet). For example, the author experimented with one AI writer program in August 2020, to evaluate how a simple commercial AI writing tool would explore the topic of 'Judges, AI and Technology'. The results are noted in the Preface to this book. It seems clear that, although some concepts are expressed, many are not, and the result on any reading could be regarded as defective. Judge AI, even when trained with court decisions and opinions, may produce similarly disappointing outcomes (although most would suggest that these would be improved over time). However, it is anticipated that some improvements in this area will be relatively rapid, with significant developments in 2020 in relation to GPT processes developed by Open AI producing much more human-like written responses.[85]

---

[82]   There are many reasons to retain judges, which are explored in Chapter 7, including maintaining democratic governance arrangements. However, the author notes that a number of scholars consider that at some point it will be possible to upload a human brain into a computer thereby creating a form of superintelligence – see also the brief discussion on transhumanism in Chapter 5. This could theoretically mean that 'old' judges might not need to retire (although this of itself raises other ethical and moral questions). See also Yana B Feygin, Kelly Morris and Roman V Yampolskiy, 'Uploading Brain into Computer: Whom to Upload First?' available at <https://arxiv.org/ftp/arxiv/papers/1811/1811.03009.pdf> accessed 18 September 2020.

[83]   See 'Separation, Divorce & Family Matters', *MyLawBC* (Web Page, 2018) <http://mylawbc.com/paths/family/> accessed 19 August 2020.

[84]   Emily Berman, 'A Government of Laws and Not of Machines' (2018) 98 *Boston University Law Review* 1277.

[85]   See an in-depth discussion about GPT and Open AI available at <http://dailynous.com/2020/07/30/philosophers-gpt-3/> accessed 10 September 2020.

Other issues related to more fully developed Judge AI concern ethical, moral and political issues that are linked to a consideration of what a 'judge' or a 'court' is within a society, as well as questions relating to the replacement of critical forms of human decision making by AI. To date, there has been some exploration of these issues, mainly within Europe in the context of judges and courts.[86] Here, ethical guidance in respect of more general AI is relevant, and in this regard there is a substantial body of literature and institutions focused on ethics and AI (see the discussion in Chapter 9).[87] In this regard, the development of national- and jurisdiction-specific guidelines about AI will also continue to be relevant.[88] Newer ethical guidelines that promote the notion that AI should be sustainable and note that sustainability may invoke references to governance and trust building,[89] together with guidelines that consider ethical and justice design principles from a range of perspective (or levels of abstraction – see Chapter 9) will help support a 'just' system. However, as discussed in Chapter 9, there is a need to develop more relatable and judge-specific ethical material about judges, technology and AI which can assist judges to respond to issues that arise in particular case circumstances as well as in the context of future justice design (the guidelines noted in Table 9.2 are intended to reflect the academic and judicial discourse to date on these issues).

In respect of the political issues that are explored in Chapter 7, the maintenance and support of an independent well-functioning judiciary is critical in countries where the rule of law is a central concept. Human judges can clearly play a role in shaping and interpreting political decision making, correcting government actions and preventing the abuse of power. There are significant issues with Judge AI ever being able to perform such functions, particularly where it is developed in countries where there may be little regard for the importance of the independence of the third arm of government. Notably, the

---

[86] See *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* (entered into force on 3–4 December 2018).

[87] See for example: Organisation for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence* (OECD Legal Instruments 0449, May 2019).

[88] New Zealand Government, *Algorithm Charter for Aotearoa New Zealand* (July 2020).

[89] For some literature review material in this rapidly developing area see: Stefan Larsson, Mikael Anneroth, Anna Felländer, Li Felländer-Tsai, Feredrik Heintz and Rebecka Cedering Ångström, *Sustainable AI: An Inventory of the State of Knowledge of Ethical, Social, and Legal Challenges Related to Artificial Intelligence* (Report, Lund University, 2019); Daniel Greene, Anna Hoffman and Luke Stark, 'Better, Nicer, Clearer, Fairer: A Critical Assessment of the Movement for Ethical Artificial Intelligence and Machine Learning' (Conference Paper, Hawaii International Conference on System Sciences, 2019).

development of Judge AI may necessarily involve accepting the view that judges play a limited role in the development of the law, as it requires the adoption of a 'formalist' approach to the judicial role rather than a responsive approach to the law (see Chapter 2).

Even if the impact of Judge AI is relatively minor in terms of application (at least initially in most countries), developments in AI will change the way that judges hear cases and make determinations and will also have other more significant impacts on the judicial role. It has been said that:

> Artificial intelligence will shape our future more powerfully than any other innovation this century. Anyone who does not understand it will soon find themselves feeling left behind, waking up in a world full of technology that feels more and more like magic.[90]

These developments mean that judges must not only acquire foundational knowledge and understandings about AI, but they must also consider the implications of its use on both the justice system and the judiciary. As such, judges must have strategies in place to deal with the ethical and other issues raised by Judge AI.[91] In particular, they must reconsider their role and to what extent it incorporates broader activism in the design of the justice system of the future, whilst remembering, in terms of technology and justice system reform, that just because we *can do* something, it does not always mean that we *should*.

---

[90] Erica Southgate, *Artificial Intelligence, Ethics, Equity and Higher Education: A 'Beginning-of-the-Discussion' Paper* (Report, National Centre for Student Equity in Higher Education, Curtin University and the University of Newcastle, 2020) 1–2, citing Vishal Maini and Samer Sabri, *Machine Learning for Humans* (Report, 2017) 3.

[91] Tania Sourdin, 'Judge v Robot? Artificial Intelligence and Judicial Decision-Making' (2018) 41(4) *UNSW Law Journal* 1114, 1115–1116.

Index