POTENTIAL

RESPONSIBLE ARTIFICIAL INTELLIGENCE

GLOBAL SURVEY

CHALLENGES

FOR THE INDIAN JUSTICE SYSTEM

VIDHI | Centre for Legal Policy

tcg crest
Inventing Harmonious Future

APRIL 2021

ROADMAP

A STRATEGY PAPER

Responsible Artificial Intelligence for the Indian Justice System

A STRATEGY PAPER

This paper is an independent research study published by the **Vidhi Centre for Legal Policy**, in collaboration with **TCG-Crest**.

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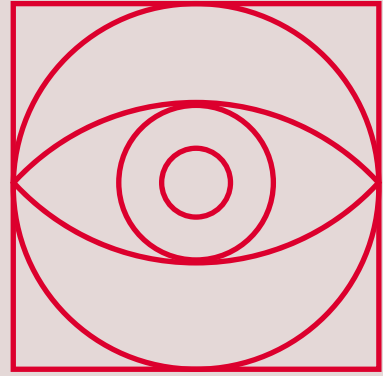
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Acknowledgements

INTRODUCTION

Can machine-learning tools assist in intelligent scheduling of cases?

Can AI-enabled programmes extract the accurate position of law from a mass of precedents?

Can robots decide questions of law?

Each of these questions may have appeared futuristic not so long ago. But today, there is a rapidly growing consensus that artificial intelligence can revolutionise human existence across spheres in an unprecedented manner, even greater than the rise of machines in the Industrial Age.[1] While there are disparities in how different people understand and define the term *artificial intelligence* (AI), there are some agreed features that such tools and technologies must manifest.[2] In a fundamental sense, AI responds to stimulation in a manner consistent with traditional human responses, given the human capacity for contemplation, judgment, and intention. The technology has evolved from obeying (executing) pre-designed and pre-configured codes, into a more sophisticated end product, imbued with human-like cognition. This is what gives it real potential to transform justice systems worldwide.

The Indian judiciary has been an early adopter of AI. Having laid the foundation for e-courts equipped with basic computing hardware through the eCourts Mission Mode Project (eCourts project), the Indian judiciary in the last two years has taken a quantum leap to fully harness the possibilities that cutting-edge AI technology has to offer. The Hon'ble Chief Justice of India, Justice Sharad Bobde has repeatedly emphasised the need to tap into AI driven technologies to improve institutional efficiency.[3] On 26 November 2019, the national Constitution Day, Justice Bobde launched the beta version of a neural translation tool called SUVAAS, which formally marked the advent of AI within Indian courts.[4] His interest is not alone—Justice L. Nageswara Rao, who heads the Supreme Court's AI Committee, stated last year that AI will be used for administrative purposes and expediting the process of justice.[5]

Globally, there have been many attempts to use algorithms and machine learning (ML) technologies in an attempt to improve procedural efficiency, aid decision-making processes, and even predict outcomes consistent with past precedent. Predictive justice tools[6] are perhaps the most advanced deployment of intelligent machines within the formal justice system, and aim to limit arbitrariness in human decision-making and judgement within the larger justice system.[7] In fact, an ongoing survey of legal scholars has demonstrated a strong opinion within the fraternity that AI will become integral to judicial decision-making processes over the next quarter of a century.[8]

In theory, AI in a justice system can be directed towards improving administrative efficiency in courts, and aiding in decision making processes for lawyers, judges and litigants. Its actual integration will require an understanding of the role AI is actually playing in different judicial systems and addressing key legal and ethical challenges that arise in this regard.[9] There must also be an engagement strategy with the Indian legal community and other stakeholders to ensure their support to this process of technological transformation of the justice system. The design and deployment require an implementation roadmap to allow for a phase-wise execution of proposed tech interventions. These are the themes that are the focus of this strategy paper. It is hoped that this paper will function as a conversation starter for the integration of AI in the Indian justice system and function as a primer for the stakeholders involved, such as judges, judicial officers and litigants.

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1 Allan Dafoe, 'AI Governance: A research agenda' (Centre for the Governance of AI, University of Oxford, 2018) <www.fhi.ox.ac.uk/wp-content/uploads/GovAI-Agenda.pdf> accessed on 12 March 2021

2 Darrell West and John Allen, 'How artificial intelligence is transforming the world' (Brookings, 24 April 2018) <www.brookings.edu/research/how-artificial-intelligence-is-transforming-the-world/> accessed on 12 March 2021

3 'AI can improve judicial system's efficiency — full text of CJI Bobde's Constitution Day speech' (ThePrint, 27 November 2019) <https://theprint.in/judiciary/ai-can-improve-judicial-systems-efficiency-full-text-of-cji-bobdes-constitution-day-speech/326893//> accessed on 12 March 2021

4 SUVAAS or the Supreme Court Vidhik Anuvaad Software, is a neural translation tool which has been trained using machine-learning processes. It has the capability of translating English judgments and daily orders into nine vernacular scripts, and vice-versa. See the Supreme Court of India's press release for information on SUVAAS. Supreme Court of India, 'Press Release' (25 November 2019) <https://main.sci.gov.in/pdf/Press/press%20release%20for%20law%20day%20celebratoin.pdf> accessed on 15 March 2021

5 Justice L.N. Rao, 'AI and the law', (Online webinar of Shyam Padman Associates, 6 August 2020) <https://www.youtube.com/watch?v=ZJsIQwP-n5AU> accessed on 15 March 2021

6 Predictive justice refers to technologies which aim to mimic the human adjudication process through the use of AI techniques. Ronsin, Lampos & Maîtrepierre, 'In depth study on the use of AI in judicial systems, notably AI applications processing judicial decisions and data' (Appendix I to the CEPEJ ethical charter on the use of AI in the judicial systems and their environment, European Commission for the Efficiency of Justice, 2018) <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c> accessed on 12 March 2021

7 For discussions on advanced artificial judicial intelligence see Winter (2020), 'The Challenges of Artificial Judicial Decision-Making for Liberal Democracy', in: Bystranowski/Janik/Próchnicki (edt.), Judicial decision-making: Integrating empirical and theoretical perspectives (forthcoming) <https://static1.squarespace.com/static/5bcbd68334c4e241e07a0467/t/60084e6d668aee6485252d83/1611157101819/Challenges+of+AAJI+for+Liberal+Democracy.pdf> accessed on 15 March 2021. For discussion on how effective predictive justice technologies can be, see Markou & Deakin, 'Ex machina lex: The limits of legal computability' (21 June 2019) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3407856> accessed on 15 March 2021

8 Martinez and Winter (2021), 'Artificial Intelligence in the Judiciary: A Survey of Expert Opinion', Manuscript in preparation. As of January 8th, 2021, 307 legal scholars based in the United Kingdom, India, New Zealand, Bangladesh, Australia, Canada, and South Africa have responded to the relevant questions of the survey.

9 European Commission For the Efficiency of Justice (CEPEJ), 'European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment' (3-4 December 2018) <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c> accessed on 12 March 2021

In this context, this paper is structured into the following main sections:

POTENTIAL

USE CASES
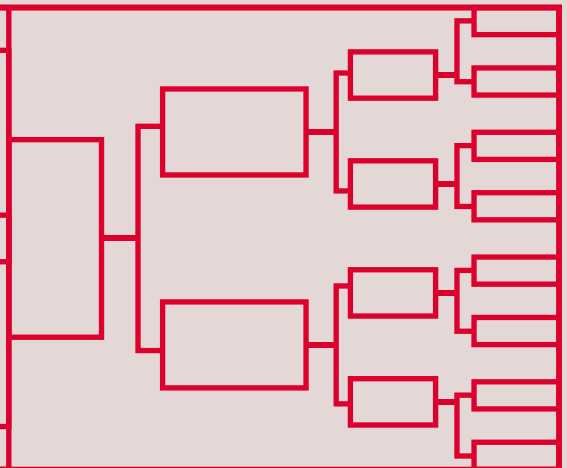
1	Improving administrative efficiency

2	Improving decision-making

Within India today, AI's exploitation is arguably linked to improving administrative efficiency and improving decision-making processes in the justice system.

For the former, developing task-specific narrow AI tools should be the first generation of AI innovation. These should potentially ease the general rigour of the registry, and also aid judges in spending lesser time on administrative responsibilities, in lieu of judicial work. Further, these will provide sophisticated automation for banal and time-consuming admin processes.[10]

With respect to the latter, the spectrum of possible AI can include tools for intelligent analytics and research, and even computational tools (and predictive justice in the longer run). These tools can provide comprehensive legal briefs on cases, encapsulating pertinent legal research, identifying crucial points of law and facts, and thereby expediting the judicial process. This can effectively supplement human judgment in adjudication. Furthermore, intelligent tools, like legal bots, can be designed to help potential litigants with better informed decision making concerning their legal rights, and easily and cost-effectively access basic legal services.[11]

Before venturing into the proposed use cases, it is pertinent to address a vital prerequisite for any prospective AI innovation for the justice system. Current ML and deep-learning techniques are heavily reliant on accessible data.[12] Once such datasets are readily available, AI driven technologies can be realised for augmenting administrative efficiency and the quality of decision-making.

Need for open access to judicial data

In India, the judiciary, as well as the larger justice system, openly accessible datasets are a far cry. For instance, judgments, which are public resources, are often not published in machine readable formats. This leads to there being technical hurdles in accessing basic legal databases. A recent study has identified how an open judiciary could spur some innovative tech solutions, including those driven by AI algorithms.[13] To harness the transformative potential of emerging technologies like AI for our justice system, it is critical for it to recognise the impediments in current data access, sharing and usability, and remedy them swiftly.[14] Openly accessible and machine-readable data is a sine qua non for the Indian justice system's digital transformation. The judiciary should create an open-access policy setting out what kind of non-sensitive data is to be made openly accessible, and laying out some broad rules to govern such data sharing. This is discussed in greater detail in the roadmap section of this paper.

IMPROVING ADMINISTRATIVE EFFICIENCY

Process re-engineering and automation

The pandemic has led to a surge in discussion around increasing digitisation through the eCourts Project[15], creation of virtual courts[16], and the potential of online dispute resolution[17]. Within this conversation, AI has also become an increasing talking point. For instance, administrative efficiency can be improved by using intelligent and sophisticated innovation to automate daily processes of the registry.[18] For this, task-specific, narrowly tailored algorithms, trained through ML, can be deployed to aid in run of the mill administrative functions, from something as simple as scheduling hearings and creating causelists, to more complex tasks like discovery and review of evidentiary

(continued overleaf)

10 See generally, Partha P. Chakrabarti and Ameen Jauhar, 'Bots in the law' (Outlook India, 1 March 2021) <https://magazine.outlookindia.com/story/india-news-bots-in-law/304275> accessed on 12 March 2021

11 Id.

12 Justice L.N. Rao, 'AI and the law', (Online webinar of Shyam Padman Associates, 6 August 2020) <https://www.youtube.com/watch?v=ZJsIQwP-n5AU> accessed on 15 March 2021

13 Prashant Reddy T. and others, 'Open Courts in the Digital Age: A Prescription for an Open Data Policy' (Vidhi Centre for Legal Policy 2019) <https://vidhilegalpolicy.in/wp-content/uploads/2019/11/OpenCourts_digital16dec.pdf > accessed on 14 March 2021

14 Ameen Jauhar, 'AI Innovation in Indian Judiciary a Distant Dream Without an Open Data Policy' (Vidhi Centre for Legal Policy, 14 April 2020) <https://vidhilegalpolicy.in/blog/ai-innovation-in-indian-judiciary-a-distant-dream-without-an-open-data-policy> accessed on 14 March 2021

15 Department of Justice, 'End of year review', (Ministry of Law & Justice, 31 December, 2020), <https://pib.gov.in/PressReleasePage.aspx?PRID=1684945> accessed on 15 March, 2021; and Justice D.Y. Chandrachud, 'Future of virtual courts and access to justice in India', (Nyaya Forum, NALSAR, online webinar 24 May, 2020) <https://www.youtube.com/watch?v=15nxZwNJsBM> accessed on 15 March, 2021.

16 Kinhal, Jauhar & et al., 'Virtual Courts in India: A Strategy Paper' (Vidhi Centre for Legal Policy, 1 May 2020) <https://vidhilegalpolicy.in/research/virtual-courts-in-india-a-strategy-paper/> accessed on 12 March 2021.

17 Kinhal, Jain, et al., 'ODR: the future of dispute resolution in India', (Vidhi Centre for Legal Policy, 28 July, 2020) <https://vidhilegalpolicy.in/research/the-future-of-dispute-resolution-in-india/> accessed on 15 March, 2021.

18 Kinhal, Jauhar & et al., 'Virtual Courts in India: A Strategy Paper' (Vidhi Centre for Legal Policy, 1 May 2020) <https://vidhilegalpolicy.in/research/virtual-courts-in-india-a-strategy-paper/> accessed on 12 March 2021

documents.[19] Other small tasks which can benefit with the use of AI include interventions at the level of smart e-filing, intelligent filtering/prioritization of cases or notifications and tracking of cases.

In India, the preliminary work in the use of AI has already commenced. SUVAAS was the pioneer of such task-specific algorithms, designed by the Supreme Court's AI Committee. It relies on natural language processing (an ML process), easing and expediting translation of judicial orders and rulings. Additionally, as was announced last year, the SC AI Committee is also working on a composite new tool named SUPACE (Supreme Court Portal for Assistance in Court Efficiency), which will target different processes like data mining, legal research, projecting case progress, etc.[20] There is also an in-house software being piloted in the 17 benches of the Supreme Court to make them paperless.[21]

While these pilots are promising, there is a need to identify steps for scaling these technologies and their adoption, which will be discussed in the last section of this paper. It is also pertinent to reiterate that the success of these pilots and further innovation, will be contingent on the availability of adequate training data corpuses, and capacity building of stakeholders through training and skill development.

IMPROVING DECISION MAKING

Tools for intelligent legal analytics and research

A significant amount of work for a lawyer or a judge involves legal research, analyses of factual propositions, determination of appropriate legal provisions and other similar mechanical skills. In the Indian justice system, any aid to save judicial or legal time by expediting these processes will be a significant value addition. To enable this, ML algorithms can be conceptualised, designed and deployed for intelligent analytics and research work.[22] Such usage is also witnessing deliberation and adoption in other jurisdictions where AI-driven tech is being integrated for aiding judicial decision-making processes.[23]

Beyond lawyers and judges, legal analytics and research tools that are commonly accessible by the public, can improve its engagement and understanding of the law. This engagement is vital for creating a better-informed citizenry, which is more proactive and educated about its legal rights and obligations. Such algorithms can be modelled into tools which can offer preliminary legal analyses, relevant case law, and basic legal advice to potential litigants. For instance, a person may be a victim of a cheque bouncing case and require some basic inputs on how to proceed legally. A bot could present interactive toolkits, prescribing next steps, including identifying facts for issuance of a legal notice, filing FIR, and even provide a prediction of success based on facts and established law.

Computational tools for justice delivery

In India, we have already experienced some amount of process automation in traffic challan cases through the establishment of online payment mechanisms.[24] In addition to expediting judicial processes through process automation, ML algorithms or deep-learning technologies can be used in more sophisticated ways such as developing tools which can help judges in arriving at decisions. For instance, motor vehicle compensation claims are largely calculated based on established principles and variables. The role of the claims' tribunal is limited and rarely involves legal interpretation. A possible tool could aid the judge in cataloguing the requisite documents for such a claim, and glean the relevant information that will allow the judge to determine if compensation is due, the party that is liable to pay, and the value of compensation. Assimilating learnings from such first generation of computational tools will be necessary before scaling them up for more controversial legal areas such as predictive criminal justice. While predictive justice may sound futuristic, there is growing evidence

19 For a general discussion on uses of AI in court's administrative functions, see Shubham Pandey & Uday Shankar, 'Balancing the scales of justice through AI', (IIT Kharaghpur, unpublished manuscript) <https://www.ucc.ie/en/media/academic/law/vnuconference2020/8.ShubhamPandey_BalancingtheScalesofJusticethroughArtificialIntelligence.docx> accessed on 15 March 2021. See also, Julia Brickell, 'AI-Enabled Processes: And You Thought E-Discovery Was a Headache!' (New York Journal 31 January, 2020) <https://www.law.com/newyorklawjournal/2020/01/31/ai-enabled-processes-and-you-thought-e-discovery-was-a-headache/?slreturn=20200911015817> accessed on 15 March 2021

20 Ajmer Singh, 'Supreme Court develops software to make all its 17 benches paperless', (Economic Times, 26 May, 2020) <https://economictimes.indiatimes.com/news/politics-and-nation/supreme-court-develops-software-to-make-all-its-17-benches-paperless/articleshow/75989143.cms> accessed on 15 March 2021. For more understanding of SUPACE see Justice L.N. Rao, 'AI and the law', (Online webinar of Shyam Padman Associates, 6 August 2020) <https://www.youtube.com/watch?v=ZJsIQwPn5AU> accessed on 15 March 2021

21 Id.

22 Daniel Faggella, 'AI in Law and Legal Practice – A Comprehensive View of 35 Current Applications' (Emerj, 14 March 2020) <https://emerj.com/ai-sector-overviews/ai-in-law-legal-practice-current-applications/> accessed on 12 March 2021.

23 Judge Herbert B. Dixon Jr. (Ret), 'What Judges and Lawyers Should Understand About Artificial Intelligence Technology' (American Bar Association, 3 February 2020) <www.americanbar.org/groups/judicial/publications/judges_journal/2020/winter/what-judges-and-lawyers-should-understand-about-artificial-intelligence-technology/> accessed on 12 March 2021.

24 Ministry of Road Transport & Highways, Government of India 'E-Challan – Digital Traffic/Transport Enforcement Solutions' <https://echallan.parivahan.gov.in/index/accused-challan> accessed on 16 March 2021.

of its use within justice systems. As Chief Justice Roberts of the US Supreme Court has famously said in response to AI assisting "even judicial decision making, *"...it's a day that's here and it's putting a significant strain on how the judiciary goes about doing things"*.[25]

That said, it is crucial to ensure the use of computational predictive justice is not devoid of human intervention. The idea underlying it must be to supplement, not supplant human actors like judges. Additionally, predictive justice experiments have also raised some legitimate concerns around perpetuation of societal biases, lack of transparency of decision making, curtailing judicial autonomy, etc. Ensuring that these issues are pre-emptively addressed will be key in adopting these efficiency increasing judicial decision-making support systems. Some of the issues that need to be addressed are discussed at greater length in the challenges section of this paper.

Legal robotics for improving access to justice

AI designed bots are becoming increasingly ubiquitous across different sectors like insurance, banking, e-commerce, etc. Bots are convenient and interactive tools for providing common information to a user in a conversational format. With respect to the justice system, legal robotics can play a crucial role in serving as intelligent and dynamic repositories of FAQs, which aids the public's understanding of laws. This would be extremely useful for common citizens and potential litigants in getting basic inputs on a prospective legal case, and making better informed decisions, inter alia whether litigation is needed or not.

In addition to providing better information, legal robotics can also improve access to legal services. For a common person, accessing these, or even grappling with a potential legal situation can be a daunting conundrum. Intelligent algorithms (or bots) can be useful in furnishing basic legal information to potential litigants and readily connecting them with legal aid services or pro-bono lawyers.[26] Basic legal services like drafting and conveyancing, legal analyses and interactive breakdown on laws, etc., can be some modes for mainstreaming access to such services, without the trouble of locating and paying for expensive lawyers.

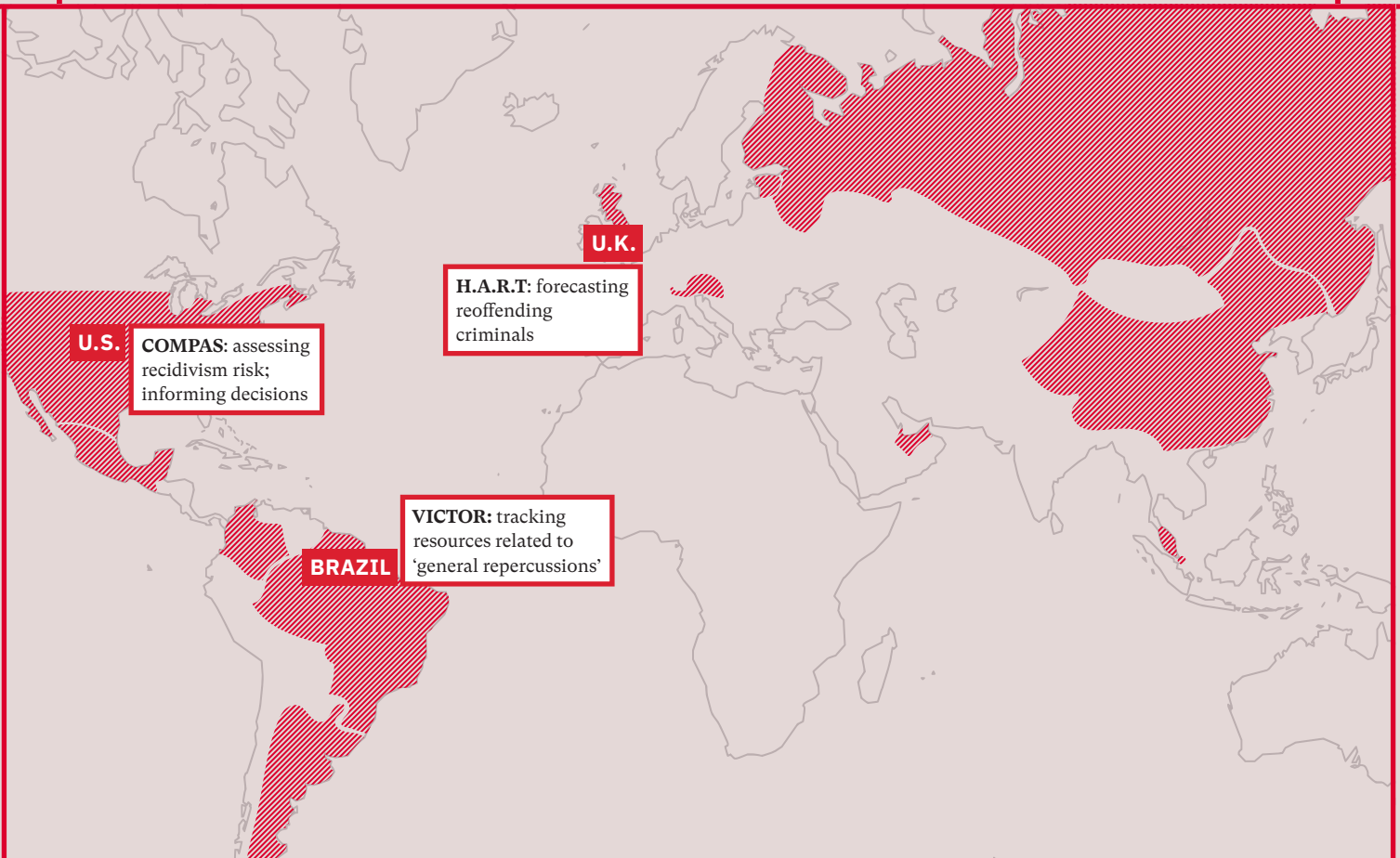25 Christopher Markou, 'Are We Ready for Robot Judges?' (Discover, 16 May 2017) <www.discovermagazine.com/technology/are-we-ready-for-robot-judges> accessed on 12 March 2021

26 Partha P. Chakrabarti and Ameen Jauhar, 'Bots in the law' (Outlook India, 1 March 2021) <https://magazine.outlookindia.com/story/india-news-bots-in-law/304275> accessed on 12 March 2021

GLOBAL

SURVEY

While the AI in the Indian judiciary might still be in its nascent stages of development, across the globe AI has found a lot of inroads within justice systems. A map with some of the use cases across the globe has been identified below.

U.K.
H.A.R.T: forecasting reoffending criminals

U.S.
COMPAS: assessing recidivism risk; informing decisions

VICTOR: tracking resources related to 'general repercussions'

BRAZIL

ESTONIA	adjudicating small claims (robot judge)
CHINA / RUSSIA / MEXICO	giving legal advice; approving pensions
MALAYSIA	supporting sentencing decisions
AUSTRIA	sophisticated document management
COLOMBIA / ARGENTINA	identifying urgent cases within minutes
ABU DHABI	predicting probability of settlement
SINGAPORE	transcribing court hearings in real-time

Pertinently, AI interventions are also being researched and looked into in other jurisdictions, particularly the European Union[27], the UK[28], and the USA[29]. For instance, in an ambitious use of AI, the Estonian Ministry of Justice has designed a 'robot judge' to adjudicate small claims' disputes of less than €7,000 (about $8,000).[30] The pilot was initiated to resolve contract disputes and is aimed at eventually expanding to other claims.

In the USA, AI has more prominently been used for designing risk assessment tools. For instance, the Strategic Subject List (S.S.L.) was introduced in Chicago to predict those individuals who are likely to be involved in gun violence.[31] A more controversial tool, COMPAS or Correctional Offender Management Profiling for Alternative Sanctions has been used to assess recidivism risk and thus, inform parole and sentencing decisions.[32] Some of the challenges regarding the use of COMPAS have been identified in the next chapter.

A similar tool called HART (Harm Assessment Risk Tool) has also been used by the UK to forecast which criminals are most likely to reoffend and suggest what kind of supervision a defendant should receive in prison.[33] The tool, which uses random forest forecasting (a ML technique), has been developed to aid decision-making by custody officers to predict whether suspects are at low, moderate or high risk of committing further crimes within a two-year period.[34] It does not decide whether the suspect should be kept in custody but is intended to help police officers pick if a person should be referred to a rehabilitation programme called Checkpoint.[35]

In Brazil, an AI tool called VICTOR is being used to conduct preliminary case analysis to reduce the burden on the court.[36] The tool supports the Brazilian Supreme Court by providing analysis of the cases that reach the court using document analysis and natural language processing tools.[37] The goal of this tool is to accurately and quickly track resources that deal with issues of 'general repercussions'.[38] This concept of general repercussion is intended to ensure that only questions that are truly relevant to the wider society are heard by the court and exclude appeals that reflect only the unsuccessful party's unwillingness to accept defeat.[39]

**The case of Brazil's VICTOR:
Net positive or negative?**

The use of VICTOR has been highly beneficial for the courts in Brazil. For instance, earlier the exercise was conducted by civil servants based on the binding precedents from the Justices and would take about 40 minutes for each lawsuit.[40] VICTOR can do this exercise in 5 seconds. Even the dataset used to train VICTOR was comprehensive and contains about three million case dockets extracted during the two-year period between 2017-2019.[41]

However, VICTOR's use has not come without problems. The results might lead to distortion because the AI analyses procedural documents and searches for certain terms that may mistakenly frame resources within the general

27 European Commission for the Efficiency of Justice, 'European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment' (3-4 December 2018) <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c> accessed on 3 March 2021

28 In the United Kingdom, the Lord Chief Justice of the UK Supreme Court has recently convened a ten-member expert committee to look into the 'likely impact of AI in the English Judiciary. <www.judiciary.uk/announcements/lord-chief-justice-sets-up-advisory-group-on-artificial-intelligence/> accessed on 14 March 2021

29 David Lat, 'How Artificial Intelligence Will Revolutionize eDiscovery' (Above The Law, 25 January 2017) <https://abovethelaw.com/2017/01/how-artificial-intelligence-will-revolutionize-ediscovery/?rf=1> accessed on 14 March 2021 and Ronsin, Lampos & Maîtrepierre, (2018), n 5.

30 Eric Nillier, 'Can AI Be a Fair Judge in Court? Estonia Thinks So' (Wired, 25 March 2019)
<www.wired.com/story/can-ai-be-fair-judge-court-estonia-thinks-so/> accessed on 14 March 2021

31 Jeff Asher and Rob Arthur, 'Inside the algorithm that tries to predict gun violence in Chicago' (New York Times, 13 June 2017) <www.nytimes.com/2017/06/13/upshot/what-an-algorithm-reveals-about-life-on-chicagos-high-risk-list.html> accessed on 14 March 2021

32 Adam Liptak, 'Sent to prison by a software program's secret algorithms' (New York Times, 1 May 2017) <www.nytimes.com/2017/05/01/us/politics/sent-to-prison-by-a-software-programs-secret-algorithms.html> accessed on 14 March 2021

33 Marion Oswald and others, 'Algorithmic risk assessment policing models: lessons from the Durham HART model and 'Experimental' proportionality' (2018) 2 Information & Communications Technology Law at 233 <www.tandfonline.com/doi/pdf/10.1080/13600834.2018.1458455> accessed on 14 March 2021

34 Matt Burges, 'UK police are using AI to inform custodial decisions – but it could be discriminating against the poor' (Wired, 1 March 2018) <www.wired.co.uk/article/police-ai-uk-durham-hart-checkpoint-algorithm-edit > accessed 14 March 2021.

35 'Checkpoint' (Durham Constabulary) <www.durham.police.uk/Information-and-advice/Pages/Checkpoint.aspx > accessed on 14 March 2021

36 Daniel Becker and Isabela Ferrari, 'VICTOR, the Brazilian Supreme Court's Artificial Intelligence: a beauty or a beast?' <https://sifocc.org/app/uploads/2020/06/Victor-Beauty-or-the-Beast.pdf> accessed on 14 March 2021

37 Maria Dymitruk, 'Ethical artificial intelligence in judiciary' (February 2019)
 <https://www.researchgate.net/publication/333995919_Ethical_artificial_intelligence_in_judiciary> accessed on 14 March 2021

38 Daniel Willian GRANADO, 'Artificial Intelligence Applied To The Legal Proceedings: The Brazilian Experience' (2019) 5 IMODEV <https://ojs.imodev.org/index.php/RIDDN/article/view/304/495> accessed on 14 March 2021

39 Maina Siqueira and Marcello Castro, 'Brazil: The Supreme Federal Tribunal And The "General Repercussion" Requirement' (Mondaq, 10 March 2008) <www.mondaq.com/brazil/constitutional-administrative-law/57864/the-supreme-federal-tribunal-and-the-general-repercussion-requirement#:~:text=The%20concept%20of%20general%20repercussion,party's%20unwillingness%20to%20accept%20defeat> accessed on 14 March 2021

40 Daniel Becker and Isabela Ferrari, 'VICTOR, the Brazilian Supreme Court's Artificial Intelligence: a beauty or a beast?' <https://sifocc.org/app/uploads/2020/06/Victor-Beauty-or-the-Beast.pdf> accessed on 14 March 2021

41 ibid

repercussion.[42] Further, appellants are not informed when VICTOR is used since its pilot version randomly picks up appeals to evaluate. This is in possible violation of the Brazilian Data Protection Law which demands that decision making should be fair, transparent and informed.[43] The decision-making process is also opaque, making it difficult to audit and explain it. Further, the costs associated with VICTOR are also not disclosed, leading to an issue of accountability.[44]

In Argentina[45] and Columbia[46], a tool called Prometea has been used by the Public Prosecutor's Office of Buenos Aires and the Constitutional Court of Columbia, respectively, to predict the outcome of cases. Its biggest milestone is to predict a solution of a court case in less than 20 seconds, with a 96% success rate.[47] Furthermore, it is able to identify urgent cases – within large volumes of files– in just 2 minutes, which would normally take a human being 96 days.[48] In the Middle East, in collaboration with the private sector, Abu Dhabi Judicial Department (AJDJ) as a part of their 'Justice Intelligence' Project, has been using technology to predict the possibility of settlement of cases.[49] The tools that are being used can predict the probability of settlement by up to 94% of the time.[50]

In Singapore, a speech translation system has been deployed by courts. The tool utilises neural networks trained with language models and domain-specific terms to transcribe court hearings in real-time, thus, allowing judges and parties to review oral testimonies in court instantaneously.[51] In countries like Russia[52], China[53] and Mexico[54], robots are providing services like legal advice to citizens and aiding judges to identify if pensions should be granted. In Austria, AI is being used for sophisticated document management such as anonymisation of court documents and as a digitisation assistant of existing analogue files.[55] In Malaysia, AI is being used to support sentencing decisions.[56]

While these use cases show the diversity of the application of AI in justice systems, there are concerns regarding its unchecked integration. It is for this reason that the use of AI should be carefully crafted with sufficient guardrails and oversight mechanisms. The following section identifies some considerations that need to be addressed before AI is integrated into justice systems.

42 Maina Siqueira and Marcello Castro, 'Brazil: The Supreme Federal Tribunal And The "General Repercussion" Requirement' (Mondaq, 10 March 2008) <www.mondaq.com/brazil/constitutional-administrative-law/57864/the-supreme-federal-tribunal-and-the-general-repercussion-require-ment#:~:text=The%20concept%20of%20general%20repercussion,party's%20unwillingness%20to%20accept%20defeat> accessed on 14 March 2021

43 Richie Koch, 'What is the LGPD? Brazil's version of the GDPR' (GDPR.EU) <https://gdpr.eu/gdpr-vs-lgpd/> accessed on 14 March 2021; Brazilian General Data Protection Law 2019 <https://iapp.org/media/pdf/resource_center/Brazilian_General_Data_Protection_Law.pdf> accessed on 14 March 2021

44 Maria Dymitruk, 'Ethical artificial intelligence in judiciary' (February 2019)
 <www.researchgate.net/publication/333995919_Ethical_artificial_intelligence_in_judiciary> accessed on 14 March 2021

45 Juan Corvalán and Enzo Cervini, 'Prometea experience. Using AI to optimize public institutions' (Ceridap, 1 May 2020)
<https://ceridap.eu/prometea-experience-using-ai-to-optimize-public-institutions/> accessed on 14 March 2021

46 Irma Isabel Rivera, 'The implementation of new technologies under Colombian law and incorporation of artificial intelligence in judicial proceedings' (International Bar Association, 5 November 2020) <www.ibanet.org/Article/NewDetail.aspx?ArticleUid=14AF564F-080C-4CA2-8DDB-7FA909E5C1F4> accessed on 14 March 2021

47 Ibid

48 Ibid

49 'ADJD leverages judicial insights to transform the justice delivery process' (Sas Institute)
<www.sas.com/en_ae/customers/adjd-judicial.html> accessed on 14 March 2021

50 Albawaba, 'Abu Dhabi to Harness Artificial Intelligence in Judicial System' (albawaba, 11 December 2017) <www.albawaba.com/business/pr/abu-dhabi-harness-ai-judicial-system-1059478> accessed on 14 March 2021

51 Michelle Chiang, 'State Courts and A*STAR's Institute for Infocomm Research (I²R) Collaborate to Develop Real-time Speech Transcription System for Use in Courts' (State Courts, Singapore, 14 December 2017) <www.a-star.edu.sg/docs/librariesprovider12/press-release-docs/media-release_state-courts-develop-speech-transcription-system-with-astar.pdf> accessed on 14 March 2021

52 Victoria Zavyalova, 'Save money on legal advice: AI is replacing lawyers in Russia' (Russia Beyond, 13 February 2018) <www.rbth.com/science-and-tech/327585-free-legal-advice-robolawyer> accessed on 25 June 2020

53 Briony Harris, 'Could an AI ever replace a judge in court?' World Government Summit (11 July 2018) <https://www.worldgovernmentsummit.org/observer/articles/2017/detail/could-an-ai-ever-replace-a-judge-in-court> accessed on 14 March 2021

54 Christoph Winter, 'The Challenges for Artificial Judicial Decision Making for Liberal Democracy' (17 January 2021) <https://static1.squarespace.com/static/5bcbd68334c4e241e07a0467/t/60084e6d668aee6485252d83/1611157101819/Challenges+of+AAJI+for+Liberal+Democracy.pdf> accessed on 14 March 2021

55 Georg Stawa, 'Artificial Intelligence - How is Austria approaching AI integration into judicial policies' (Federal Ministry of Constitutional Affairs, Reforms, Deregulation and Justice Wien, 22 June 2018) <https://rm.coe.int/how-is-austria-approaching-ai-integration-into-judicial-poli-cies-/16808e4d81> accessed on 14 March 2021

56 Olivia Miwil, 'Malaysian judiciary makes history, uses AI in sentencing' (New Straits Times, 19 February 2020) <www.nst.com.my/news/na-tion/2020/02/567024/malaysian-judiciary-makes-history-uses-ai-sentencing#:~:text=As%20of%20now%2C%20the%20AI,in%20three%20to%20six%20months.> accessed 14 March 2021

SHORT-TERM CHALLENGES
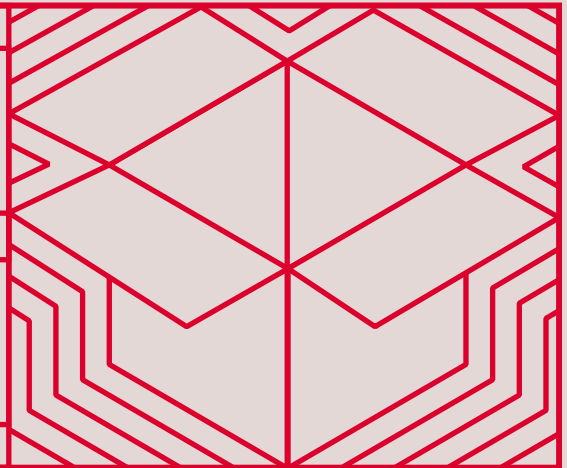
1	Ensuring transparency and explainability
2	Preventing data and design biases that may perpetuate social inequalities
3	Creating decision support systems that supplement and not supplant human judgment

The use of AI in a public institution, like the judiciary, must be mindful of the pre-existing, inextricable social contexts and dynamics that affect them.

Further, it is important to ensure that this process is concomitant with the constitutional and legal rights and values, which are vital to a democratic republic like India.[57] In some jurisdictions, the method of preserving these public interests and enabling the development of responsible AI has been pursued through the adoption of ethical charters.[58]

This section identifies some of the running and foreseeable challenges that have presented themselves across the globe where some of the use cases of AI have already been deployed. These challenges are often intertwined and must therefore be addressed through comprehensive frameworks, instead of standalone and piecemeal interventions.

Ensuring transparency and explainability

With AI-driven technologies there are instances where the inputs and outputs are known, but the system by which they are transformed to the other is unknown. This lack of transparency is also called the 'black box' problem.[59] As a result, the rationale and mathematical codes of these algorithms are usually kept a secret thereby making it difficult to question the basis of the algorithm. The involvement of the private sector furthers the opacity and complicates the problem. Given that private companies typically innovate such technology, they are often legally protected by trade secrets, thereby, leading to a situation of a legal black box.[60] Northpointe, which is a private sector company, as the developer of COMPAS is one such example.[61]

This problem of transparency leads to an allied problem of explainability. For instance, even if the algorithms were made available, the majority of the users are not trained to understand them and their operations. This leads to an asymmetry of information between the makers of the AI solutions and the users of the AI solutions.[62] This inhibits a user's capacity to scrutinise or question them.[63]

These twin challenges of transparency and explainability are even more detrimental in the case of the justice system. In the context of transparency, identifying possible biases that affect the outcome of the case due to the use of AI, is crucial. In the context of explainability, the existence of such black boxes is in direct contravention to the judicial norm of reasoned orders. This impedes the individual's opportunity to understand and contest any decisions that they are subject to. Hence, it is desirable that the twin requirements of ensuring disclosure and allowing external audits are undertaken to ensure greater transparency and explainability.

The problem with United State's use of COMPAS

COMPAS takes in 137 items of information, and comes up with a risk score from 1 to 10, which is classified into low, medium or high. However, since COMPAS is a product of the private sector, the procedure adopted is completely proprietary and therefore, does not permit public scrutiny. The NGO ProPublica analysed COMPAS assessments and published an investigative report arguing that the algorithm was racially biased.[64] It found that black offenders were seen almost twice as likely as white offenders to be flagged for posing a higher risk of recidivism but did not re-offend. It was also found that the software produced the opposite results with white offenders. Despite their criminal history displaying a higher probability of re-offending, white offenders were more likely to be labelled as a lower risk than black offenders. These results were biased against black defendants, despite race not being used as a predictor.

In 2017, a challenge was made to COMPAS, in Wisconsin, where Mr. Loomis was sentenced to a six-year prison term because of a rating on the COMPAS.[65] Given the proprietary nature of the algorithm, Mr. Loomis was not able to review the algorithm and make arguments about its validity as

57 In the Indian context, AI ethics would primarily flow from the Constitution. See for AI ethics in India, Anna Roy, Rohit Satish & Tanay Maindru, 'Responsible AI: Approach document for India - part I principles for responsible AI' (NITI Aayog, February 2021) <http://niti.gov.in/sites/default/files/2021-02/Responsible-AI-22022021.pdf> accessed on 14 March 2021.

58 See European Commission For the Efficiency of Justice (CEPEJ), 'European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment' (3-4 December 2018) <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c> accessed on 14 March 2021

59 Team Hungary, 'The AI is now in session – The impact of digitalization on courts' (EJTN Themis Semi-Final 2019) <www.ejtn.eu/PageFiles/17916/TEAM%20HUNGARY%20TH%202019%20D.pdf > accessed on 14 March 2021

60 Han-Wei Liu, Ching-Fu Lin and Yu-Jie Chen, 'Beyond State v. Loomis: Artificial Intelligence, Government Algorithmization, and Accountability' (2019) 27(2) International Journal of Law and Information Technology <www.researchgate.net/publication/332457303_Beyond_State_v_Loomis_Artificial_Intelligence_Government_Algorithmization_and_Accountability> accessed on 14 March 2021

61 'Practitioners Guide to COMPAS' (Northpointe, 17 August 2012) <http://www.northpointeinc.com/files/technical_documents/FieldGuide2_081412.pdf> accessed 14 March 2021

62 Bronwyn Howell, 'Regulating artificial intelligence: Transparency and disclosure' (AEI, 4 January 2019) <www.aei.org/technology-and-innovation/innovation/regulating-artificial-intelligence-transparency-and-disclosure/ > accessed on 14 March 2021

63 Sejuti Das, 'Trust Issues: Is AI Black Box Creating A Black Future?' (Analytics India Magazine, 19 December 2019) <https://analyticsindiamag.com/trust-issues-is-ai-black-box-creating-a-black-future/> accessed on 14 March 2021

64 Juia Angwin and others, 'Machine Bias' (ProPublica, 23 May 2016) <www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing > accessed on 14 March 2021

65 State of Wisconsin v Eric L. Loomis [2016] WI 68 <www.scotusblog.com/wp-content/uploads/2017/02/16-6387-op-bel-wis.pdf > accessed on 14 March 2021

part of his defence.[66] He also argued that the application also produced differing results in its application on men and women. Regardless of these claims, the judge, problematically[67] allowed sentencing judges to use COMPAS.[68] Further analysis on risk assessment software, conducted by Stevenson, on more than one million criminal cases concluded that pretrial risk assessments "led to neither the dramatic efficiency gains predicted by risk assessment's champions, nor the increase in racial disparities predicted by its critics".[69] Therefore, if the adoption of risk assessment tools is indeed to expand, there is first a need to study its effects and ramification before prematurely expanding it on a large scale basis.

However, on the other hand, increased disclosure and transparency come with their own posed risks. For instance, greater disclosure can allow explanations to be hacked, make AI vulnerable to attacks and make companies more susceptible to lawsuits and regulatory action.[70] This, therefore, presents an 'transparency paradox' while using AI technology solutions. In fact, two applications – LIME and SHAP, that can be used to explain black box, are susceptible to hacking.[71] Similarly, research has also found that entire algorithms can be stolen based simply on their explanations.[72]

In the context of the justice system, where databases may contain sensitive personal information, its divulgence will have serious ramifications on the informational privacy of individuals. Therefore, these competing interests of disclosure and security need to be balanced as AI is increasingly used in justice systems.

Preventing data and design biases that may perpetuate social inequalities

AI/ML systems can perpetuate biases either unintentionally or intentionally, endangering fairness in the justice system. Since these systems are often trained on large datasets, they tend to replicate the same biases that were present in the original datasets.[73] Similarly, personal biases of developers of algorithms may further add to this problem.[74] Unaddressed, the continued use of such technology can in the long term further lead to large scale discrimination of classes of communities. For instance, the use of postal codes to identify classes of defaulters and repeat offenders is an instance of not just perpetuating biases but ensuring the large-scale discrimination of whole classes of communities, that often cluster in neighbourhoods due to gentrification of cities.

As explained in the text box, this challenge has been pressingly faced in the case of HART or Harm Assessment Risk Tool – the AI-based technology created to help the UK police make custodial decisions based on the recidivism risk assessment. Similar problems have occurred with the use of risk assessment tools in the United States. The algorithms in such a case replicates its dataset and therefore ends up racially profiling people.[75]

66 Mitch Smith, 'In Wisconsin, a Backlash Against Using Data to Foretell Defendants' Futures' (The New York Times, 22 June 2016) <www.nytimes.com/2016/06/23/us/backlash-in-wisconsin-against-using-data-to-foretell-defendants-futures.html?login=email&auth=login-email> accessed on 14 March 2021

67 'Algorithms in the Criminal Justice System: Risk Assessment Tools' (Epic.org) <https://epic.org/algorithmic-transparency/crim-justice/ > accessed on 14 March 2021

68 Adam Liptok, 'Sent to Prison by a Software Program's Secret Algorithms' (The New York Times, 1 May 2017) <www.nytimes.com/2017/05/01/us/politics/sent-to-prison-by-a-software-programs-secret-algorithms.html> accessed on 14 March 2021

69 Megan T. Stevenson, 'Assessing Risk Assessment in Action' (2018) 103 Minnesota Law Review 376 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3016088> accessed on 14 March 2021

70 Andrew Burt, 'The AI Transparency Paradox' (Harvard Business Review, 13 December 2019) <https://hbr.org/2019/12/the-ai-transparency-paradox> accessed on 14 March 2021

71 Dylan Slack and others, 'Fooling LIME and SHAP: Adversarial Attacks on Post hoc Explanation Methods' (2020) <https://arxiv.org/pdf/1911.02508.pdf> accessed on 14 March 2021

72 Smitha Milli and others, 'Model Reconstruction from Model Explanations' (University of California, Berkeley, 2018) <https://arxiv.org/pdf/1807.05185.pdf > accessed on 14 March 2021

73 IJIS Technology and Architecture Committee, 'Artificial Intelligence in Justice and Public Safety' <https://cdn.ymaws.com/www.ijis.org/resource/collection/93F7DF36-8973-4B78-A190-0E786D87F74F/IJIS_White_Paper_Artificial_Intelligence_FINAL.pdf > accessed on 14 March 2021

74 Colin Lecher, 'The artificial intelligence field is too white and too male, researchers say' (The Verge, 16 April 2019) <www.theverge.com/2019/4/16/18410501/artificial-intelligence-ai-diversity-report-facial-recognition> accessed on 14 March 2021 and Karen Hao, 'AI is sending people to jail—and getting it wrong' (MIT technology Review, 21 January 2019) <www.technologyreview.com/2019/01/21/137783/algorithms-criminal-justice-ai/> accessed on 14 March 2021

75 Brian Resnick, 'How artificial intelligence learns to be racist' (Vox,17 April 2017) <www.vox.com/science-and-health/2017/4/17/15322378/how-artificial-intelligence-learns-how-to-be-racist> accessed on 14 March 2021 and Alex Wood, 'Understanding risk assessment instruments in criminal justice' (Brookings, 19 June 2020) <www.brookings.edu/research/understanding-risk-assessment-instruments-in-criminal-justice/> accessed on 14 March 2021

United Kingdom's HART's replication of social biases

HART was developed in collaboration with academics at Cambridge and is built on five years' worth of data on people taken into custody in Durham and whether they reoffended within two years of release. It makes predictions on the basis of 33 different metrics, 29 of which relate to past criminal history and the remainder of which relate to demographic data such as the individual's age, gender and postcode.[76] The usage of postcodes as a metric of analysis has garnered repeated criticism of this tool. Critics argue that such a situation amplifies existing patterns of offending.[77] The usage of the application has also shown clear difference in opinion between the human and algorithmic forecasts.[78] For instance, during the initial trials of the algorithm, members of the police force were asked to predict the risk profile of the offender and compared it with the algorithm. It was found that a substantial majority of officer predictions are for moderate risk behaviour (63.5%). The comparison in the use of the algorithm found that the model and officers agree only 56.2% of the time.[79] Since the use of AI and prediction based on human judgment is so disparate, the predictable models of behaviour have come into question.

Data biases have also affected other AI technologies like facial recognition tools. For instance, 'Rekognition' the facial recognition tool created by Amazon misidentified darker skinned women as men 31% of the times.[80] Infamously, it even misidentified Michelle Obama as a man. Similar technologies have also failed particularly for dark-skinned individuals—even mistaking members of Congress for convicted criminals.[81] Therefore, a key challenge in the integration of AI technology in the justice system will be to prevent the perpetuation of such systemic biases.

Creating decision support systems that supplement and not supplant human judgment

In principle, the manner in which AI can be used in the justice system is twofold. First, they can take the form of decision support systems and second, technology can be used to completely supplant human judgment. Recognising the challenges and even the potential of the latter, the Indian judiciary has repeatedly identified that AI cannot replace human judgment which is necessary for just decision making.[82] Therefore the manner in which AI is used by the justice system is primarily in the form of support systems and augmentation tools.

In practice, however, research has found that people tend to use computer systems to reduce the effort of the decision-making process rather than to increase the quality of their own decisions.[83] It is therefore possible that the use of decision support systems in the judiciary might not improve adjudication, but rather make it worse.[84] Given the high pressure of caseloads and insufficient resources, there is a danger that supporting systems based on artificial intelligence can be used by judges without applying their minds. This can de-facto result in delegation of judicial decision-making powers to such an algorithm.[85] Recognising this potential danger, the Wisconsin Supreme Court, in a case challenging the risk assessment of COMPAS noted that the judges should give reasons on how they use COMPAS.[86]

These fears are even more compelling in the current context as the technology innovation in AI in the Indian justice system is still in its very early stages of development. Therefore, technology that could potentially supplant human judgment just does not exist. The threat of sub-optimal technology replacing human judgement is far more

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76 Patricia Nilsson, 'UK Police test if computer can predict criminal behaviour' (Financial Times, 6 February 2019) <www.ft.com/content/9559efbe-2958-11e9-a5ab-ff8ef2b976c7> accessed on 5 February 2021

77 Alexander Babuta, Marion Oswald and Christine Rinik, 'Machine Learning Algorithms and Police Decision-Making Legal, Ethical and Regulatory Challenges' (Royal United Services Institute for Defence and Security Studies 2018) <https://rusi.org/sites/default/files/201809_whr_3-18_machine_learning_algorithms.pdf.pdf> accessed on 14 March 2021 ; 'Big Brother Watch Defending Civil Liberties, Protecting Privacy' (2018) <https://bigbrotherwatch.org.uk/wp-content/uploads/2018/07/Big-Brother-Watch-evidence-Policing-for-the-future-inquiry.pdf > accessed on 14 March 2021

78 Marion Oswald and others, 'Algorithmic risk assessment policing models: lessons from the Durham HART model and 'Experimental' proportionality' (2018) 2 Information & Communications Technology Law at 233 <www.tandfonline.com/doi/pdf/10.1080/13600834.2018.1458455> accessed on 14 March 2021

79 Ibid

80 Joy Buolamwini and Timnit Gebru, 'Gender shades: Intersectional accuracy disparities in commercial gender classification', (Conference on Fairness, Accountability, and Transparency, 2018) <http://proceedings.mlr.press/v81/buolamwini18a/buolamwini18a.pdf> accessed on April 30 2020.

81 Jacob Snow, 'Amazon's Face Recognition Falsely Matched 28 Members of Congress With Mugshots' (ACLU, 26 July 2018) <www.aclu.org/blog/privacy-technology/surveillance-technologies/amazons-face-recognition-falsely-matched-28 > accessed on 14 March 2021.

82 Artificial Intelligence Is Useful For Judicial Process But Can't Replace Humans: Chief Justice Of India' (Bloomberg Quint, 24 January 2020) <www.bloombergquint.com/law-and-policy/ai-can-be-used-in-judicial-process-but-cannot-replace-human-discretion-cji> accessed on 14 March 2021

83 Todd and Benbasat, 'The influence of Decision Aids on Choice Strategies: An Experimental Analysis of the role of cognitive Effort, Organizational Behavior and Human Decision Processes' [1994] 60(1) Organisation Behaviour and Human Decision Process 36 <www.sciencedirect.com/science/article/abs/pii/S0749597884710740> accessed on 14 March 2021

84 Maria Dymitruk, 'Ethical artificial intelligence in judiciary' (February 2019)
 <www.researchgate.net/publication/333995919_Ethical_artificial_intelligence_in_judiciary > accessed on 14 March 2021

85 Ibid

86 Loomis v Wisconsin [2016] WI 68

probable in the Indian context. Hence, it is essential that the users (like judges) have meaningful autonomy so as to be able to deviate from the outcome of the algorithm without difficulty.[87]

An excessive reliance on such systems may result in legal issues being decided by computer programs despite there being an impression that all principles of human adjudicating process are obeyed. As a result, AI driven technology can completely alter the very nature of how we identify judicial processes. These tools have the capacity to become prescriptive, potentially overshadowing case specific reasoning, and instead reduce judicial decisions to purely statistical and algorithmic outcomes.

87 Filippo Santoni de Sio and Jeroen van den Hoven 'Meaningful Human Control over Autonomous Systems: A Philosophical Account' (Frontiers, 28 February 2018) <www.frontiersin.org/articles/10.3389/frobt.2018.00015/full > accessed on 14 March 2021

LONG-TERM CHALLENGES
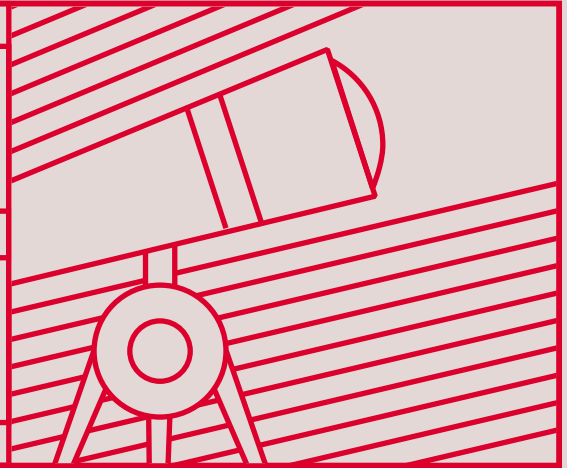
1	Value lock-ins and stagnation in the law

2	Constitutional role of judges and separation of powers

In addition to the aforementioned short-term challenges, there are two significant issues with a pervasive integration of AI within the justice system, specifically with the judiciary. These are value lock-ins which can stagnate legal and jurisprudential evolution; and the alteration of the judiciary's constitutional role under the doctrine of separation of powers.

Value lock-ins and stagnation in the law

First, there is the question of preventing a value lock-in, which in turn causes a stagnation in legal and jurisprudential evolution.[88] Value lock-in can be described as a scenario where consistent upholding of precedents can cause the legal status quo to become permanent and rigid, limiting the possibility of necessary change in legal disposition to align it with evolving values and beliefs of society.[89]

Regarding value lock-in, there is only limited literature which currently examines this issue in the context of an AI-centric judicial system. The idea of lock-ins is of particular interest to long-term discussions, where a particular state of existence is perpetuated, eventually making it permanent, and thus "locking-in" society to that status quo.[90] While not all lock-ins imply negative consequences, in the context of the judiciary and its interpretation of the law, locking in with the status quo can be antithetical to ideas of justice.

For instance, the Indian Constitution is a "living document" which evolves with the changes in societal values, beliefs, and dynamics.[91] In an AI-centric judiciary, while fostering the rule of stare decisis, in pursuit of consistency, it is a plausible fall-out that the precedents become stagnant. For instance, the right to privacy has been read into Article 21 of the Indian Constitution, after almost three decades of conflicting jurisprudence.[92] Had the same case been decided by an AI adjudicatory tool, designed and trained on the same conflicting jurisprudence, it would have foreseeably reinforced the same principle and legal disposition.

Therefore, as AI increasingly becomes enmeshed within the justice system, and even aids in the judicial decision-making process, it is vital to retain humans within the loop. Human oversight, and discretion are needed to complement the efficiency of intelligent decision-making tools, to prevent any unfavourable value lock-ins.

Constitutional role of judges and separation of powers

Second, there is also some literature examining how an algorithmic or AI driven judiciary may fundamentally alter its constitutional role, especially as an institutional check and balance against executive and legislative overreach.[93] It is a legitimate question whether an algorithmic decision-making tool can accomplish the complex functions that human judges of constitutional courts are tasked to perform.[94]

While an AI tool may be capable of authoring judgments, the role of a constitutional judge is more complex, requiring a weighing of law and facts, tempered with reasoned discretion, to balance competing interests. Often, in cases of legislative *ultra vires*, or executive overreach, the judiciary may have to resort to innovative thinking to balance the scales. This ability comes from the human judge's experience on the bench over the years, wherein she is continuously engaging with the law. This engagement in turn shapes her ability to pay attention to how the law evolves, and be mindful of potentially far reaching harms in a seemingly innocuous legislation, or executive action.[95]

For AI, to possess such complex ability would require a far more sophisticated degree of deep learning, and intelligence at parity or superior to human cognition. This is commonly referred to as General AI[96], which at present, has not appeared in any tangible form of existing AI technology. A complete transference of judicial functions over to AI will certainly face the challenge of how this technology will perform the entire spectrum of roles and obligations that are presently required of human judges.

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88 See Crootof R (2019) "Cyborg Justice" and the Risk of Technological-Legal Lock-In. Columbia Law Review Forum 119:233–251; and Winter (2020), 'The Challenges of Artificial Judicial Decision-Making for Liberal Democracy'.

89 Christoph Winter, Nick Hollman & Ameen Jauhar, 'Long-term challenges of AI in the Judiciary', (unpublished manuscript).

90 Hilary Greaves and William MacAskill, 'The case for strong long termism' (Global Priorities Institute September 2019) Global Priorities Institute Paper no. 7-2019 <https://globalprioritiesinstitute.org/wp-content/uploads/2020/Greaves_MacAskill_strong_longtermism.pdf> accessed on 14 March 2021; Ross Gruetzemacher and Jess Whittlestone, 'The Transformative Potential of Artificial Intelligence' <https://arxiv.org/ftp/arxiv/papers/1912/1912.00747.pdf> accessed on 14 March 2021; and Winter, Schuett, et. al. (2021), 'Legal priorities research: A research agenda', (Legal Priorities Project, January 2021) at pp. 24-26 <https://www.legalpriorities.org/research_agenda.pdf> accessed on 15 March 2021

91 For a general discussion on the evolving and dynamic nature of the Indian Constitution, see Zoya Hasan, E. Sridharan & R. Sudarshan (Eds.), 'India's living constitution: Ideas, practices, controversies', (Anthem Press, London, 2002).

92 Justice K.S. Puttaswamy v Union of India [2017] 10 SCC 1 (SC)

93 Michaels A.C. (2019), 'AI, legal change and separation of powers', 88 University of Cincinnati Law Review 1083 (2020); and Winter (2020) n 6.

94 Id.

95 See Michaels A.C. (2019), n 19. Also see John M. Golden, Redundancy: When Law Repeats Itself, 94 TEX. L. REV. 629, 629 (2016); and John M. Golden, Redundancy: When Law Repeats Itself, 94 TEX. L. REV. 629, 629 (2016)

96 See Nick Bostrom, 'Superintelligence: Paths, dangers, strategies' (Oxford University Press, 2014).

ROADMAP
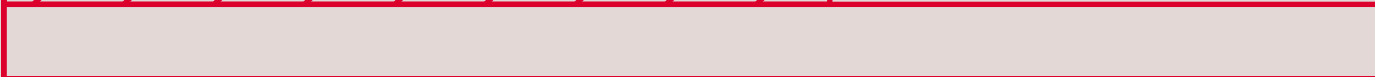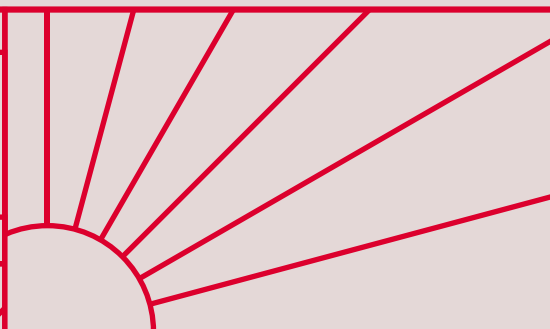
1	Conceptualising the integration of AI in the justice system
2	Setting up operational support to enable integration
3	Phase-wise deployment of AI in the Indian justice system

The preceding sections present a lay of the land in terms of the potential that AI possesses in transforming the Indian justice system. They also highlight potential use cases for integrating such technology in a calibrated manner as well as their challenges. However, this endeavour requires a clear roadmap, *inter alia*, establishing the ground rules for such technologies, identifying and undertaking stakeholder engagement and forging partnerships to aid in the development of such technologies.

Given that the foundations of an ecosystem are currently being laid, it is desirable that the Supreme Court should ideally steer the deliberations over such a roadmap. Without such oversight, its development might be haphazard and uncoordinated. Recognising this objective, and to aid the judiciary's efforts in this pursuit, this section enumerates a broad agenda under three broad categories namely, conceptualising the integration of AI in the justice system; setting up operational support to enable such integration; and deploying AI in the justice system.

Conceptualising the integration of AI in the justice system

The foremost exercise that must be initiated by the AI committee of the Supreme Court is to determine the short, medium and long-term usage of AI. This exercise must establish clear ground ethical rules for the responsible design and deployment of AI. In parallel, it must also ascertain the logistical capacity of the judiciary to integrate such technologies (for instance, how can judicial data be archived and made more openly accessible). The conceptualization stage must include, inter alia:

a. **Adopt a governing charter** establishing key principles to safeguard due process, constitutional and legal rights, and address concerns of transparency, bias, and lack of accountability in AI driven technologies. For instance, the Institute of Electrical and Electronic Engineers (IEEE) has come up with Four Principles for the Trustworthy Adoption of AI in Legal Systems.[97] Even the European Commission For the Efficiency of Justice (CEPEJ) has come up with an ethical Charter on the use of Artificial Intelligence in judicial systems.[98] A draft of such a charter, for the Indian context, is appended to this paper as Annexure-A.

b. **Undertake extensive stakeholder consultation** to ensure transparency and confidence of the legal fraternity in this entire process. It is pertinent that lessons from the COVID-19 pandemic guide future digitisation endeavours of the judiciary, and the justice system at large. Crucially, the buy-in of different stakeholders is vital and inputs must be solicited on the scope, potential uses, and challenges that will be faced in this process of AI integration. The AI Committee, in its expanded form as mentioned below, can be responsible for establishing these channels of engagement. The first document for consultation can be the AI Charter.

c. **Promote research on governance** of AI for the justice system, to address critical challenges that AI presents. There is a need for high quality, interdisciplinary research evidence to facilitate better informed policy decisions on the integration and use of such emerging technologies. The AI Committee can incentivise and commission independent research studies in this regard, with a focus on the Indian context, and grassroot realities. While there is some international literature that exists on similar questions, India's own social and cultural settings are subjective, requiring indigenous research inputs.

d. **Plan for capacity building** through adequate training and skill development. A key deficiency that typically impedes scalability of automation is the absence of accompanying capacity building. Lack of adequate training can also foster suspicions about the tech intervention, and erode confidence in it even before its implementation. AI for all its sophistication, is advanced technology. In a country like India, it is crucial to not merely train the users of such technology, but also the recipients. This multi-stakeholder educational undertaking will be complex and would require adequate planning which must be executed prior to actually deploying such technologies.

Setting up operational support to enable integration

The actual development of AI driven technologies for the justice system will require careful planning. Particularly, there are three main action points for the judiciary to initiate:

a. **Expand the Supreme Court's AI Committee** to oversee the integration of AI within the justice system. This expanded AI Committee should ideally consist of a core-group of sitting or retired judges of the Supreme Court or High Courts. It should be headed as it currently is, by a sitting Supreme Court Judge. Critically, expert members like technologists (with specialisation in AI design and innovation), ethicists, policy researchers and academics, should be inducted on a professional basis. Though some such members are a part of the committee today, they are neither multi-dimensional nor fully engaged. The rules of their engagement, including eligibility, remuneration, tenure, number of expert members etc., should be determined by the core group of judges. The objective is to have a permanent entity that is working singularly

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97 'Law' (The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems) <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/ead1e_law.pdf> accessed on 14 March 2021.

98 European Commission For the Efficiency of Justice (CEPEJ), 'European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment' (3-4 December 2018) <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c> accessed on 14 March 2021

on the task of this AI integration, in lieu of a body that periodically meets to discuss this agenda.

b. **Publish openly accessible datasets** as they are sine qua non for any meaningful AI innovation. As discussed earlier in this paper, presently, both the judiciary and other wings of the justice system collate and archive a huge amount of data. However, there are no overarching protocols which dictate the sharing and usage of these. The AI committee can consider a data trust created by the Supreme Court for the collection, storage, and sharing of non-sensitive judicial data which can aid innovation of ML algorithms, while safeguarding public interest.[99] The data trusts should subscribe to the data protection laws that have and will be introduced in India. In order to establish such a trust, the core group of the AI committee will need to decide the institutional framework including the potential board of trustees and the terms of licence for use of its datasets. The data trust can be set up in different institutional formats, say as a non-profit company. Incorporation must be determined on which institution is ideally suited to perform their core functions while maintaining a fiduciary responsibility towards public interest.

In addition, the judiciary should consider evolving an open data policy regarding access to its data, in a manner which protects personal privacy, while allowing technologists to harness the potential of existing datasets. The creation of viable open datasets requires the judiciary to find trustworthy partners that can facilitate this process. This should be done by the e-Courts Committee of the Supreme Court in consultation with the AI Committee.

c. **Harness public private partnerships (PPPs)** to design and deploy AI tech interventions. A PPP model, which engages private social corporations, can ensure oversight of the State, while tapping into the resources and expertise of the private sector. Until now, the NIC has been the foremost institution responsible for the overall digitisation of public sector entities in India, over the past two decades. However, design and development of public centric AI, as in the case of developing AI for the justice system, will be a costly and logistically complex endeavour. It is common knowledge that ecosystems like these are not created proprietorially—they need a coordinated public-private partnership to build a platform on top of which innovators can create various products. Expressions of interest from suitable private players to build the AI use cases listed in Section I of this paper should be sought.

Phase-wise deployment of AI in the Indian justice system

To accomplish the twin-pronged objectives of improving administrative efficiency and decision-making processes, the actual deployment of AI must be done in a phased manner. This will include piloting AI interventions, reviewing their progress, and building on these first-generation technologies in an iterative manner. There needs to be a planned and incremental expansion of the deployment of AI, instead of its haphazard and piecemeal usage. Key points that need to be implemented for this phased design and deployment are as follows:

a. **The first generation of AI pilots** are already in progress with both SUVAAS and SUPACE (an AI tool to assist judges in legal research) being tested in different courts under the auspices of the AI committee. Further AI innovation can build on this to create more ML and deep learning algorithms for greater process automation. The focus of the first-gen AI tech interventions can be on improving administrative efficiency, as has been discussed before in section I of this paper. This would crucially require identification of the different administrative processes in the entire life-cycle of a case, and prioritising which of these can either be completely automated (like scheduling hearings), or which are proving to be bottlenecks (like issuing summons). Once identified, such proceedings can benefit from the use of narrow, ML algorithms to automate, streamline and make basic court processes more efficient.

b. **Creating feedback loops and impact evaluation frameworks** to understand what works and what does not. Vital in improving the future generations of AI for the justice system, is to ensure that pilots and first-generation AI interventions are independently evaluated. The impact evaluation, while being conducted under the auspices of the AI committee, must be undertaken by expert technology auditors. Furthermore, such scrutiny must be periodic and not a one-time occurrence, to ensure that the quality of technology deployed, meets the highest standards, and conforms with ethical best practices as they emerge and evolve within the broader discourse on governance of AI.

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99 Trishi Jindal & Aniruddh Nigam, 'Data Stewardship for non-personal data in India: A position paper on data trusts', (Vidhi Centre for Legal Policy, IIIT Delhi, Cyril Amarchand Mangaldas & Omidyar Network India, 20 November, 2020) <https://vidhilegalpolicy.in/research/data-stewardship-for-non-personal-data-in-india/> accessed on 16 March 2021

c. The second generation of AI tools can target decision making processes by inducting more sophisticated AI technologies like case query tools, intelligent analytics, research augmentation, computational tools directly aiding in judicial decisions, and legal robotics. As discussed earlier in this paper, improving decision making is a key objective behind the ongoing interest in use of AI. For judges, intelligent case query tools, or algorithms that collate and analyse case-law and theoretical legal research, can be an immense aid. These tools would not only expedite judicial decisions but arguably, also ensure a comprehensive review of existing jurisprudence which is more time consuming and laborious as a manual process. In addition to lawyers and judges, this phase of AI development will also directly benefit litigants by providing them easier access to basic legal services, and an interactive repository of rudimentary legal information. It is pertinent to mention here that the second generation of AI innovation for the justice system will benefit from the constantly evolving field of AI, and may arguably even rely on more advanced techniques than ML.

This phase will have two parallel programmes - one, to aid judges and lawyers, and two for the general public and potential litigants. As also discussed earlier, some of these "narrower" computational tools will also aid in the development of more complex and accurate tools for aiding predictive justice. This kind of integration of advanced artificial judicial intelligence, will be pivotal in transforming the justice system in India.

Within the judiciary itself, the easier use cases could focus on task-specific ML algorithms through pilot programmes aiming to determine their efficacy, ease of usage, and potential shortcomings which need to be addressed before scaling or branching into other use cases.

While attaining the twin objectives can commence the Indian justice system's journey with AI, the potential that AI possesses to bring about change is transformative. In the medium to long term (3 years), it will be necessary for the AI committee to revisit this roadmap and identify a renewed set of next steps that cater to and are responsive to the evolving needs of India's justice system. At its core however the development of the AI ecosystem in India must remain open to all innovators in the Indian start-up ecosystem based on development of a set of standards customised to the Indian justice system.

Annexure - A
Charter for Responsible AI in the Indian Justice System

➡ A Charter along these lines with suitable modifications and adaptations may be adopted by the AI Committee of the Supreme Court of India to guide the responsible development and deployment of AI in India's justice system.

PREAMBLE

Given the growing interest of governments and public institutions globally, to harness the transformative powers of *artificial intelligence*, its application and governance have become a crucial talking point. The integration of AI driven technology in the Indian justice system requires a comprehensive legal, regulatory, and ethical framework to establish trust in these technologies. This Charter enshrines key tenets and underlying principles as basic and inviolable norms in this process of transitioning towards greater and more sophisticated automation.

PRINCIPLE 1

Amplifying justice delivery

- **Supplementing, not supplanting, human variables in judicial processes** Judicial AI must be deployed in courts to afford judges more time to focus on their constitutional and adjudicatory functions. Algorithmic decision-making tools cannot displace judges.

- **Improving efficiency and eliminating backlog** The use of Judicial AI must focus on eliminating the longstanding problem of judicial backlog in Indian courts. Novel interventions must be deployed to streamline, automate, and expedite repetitive processes which currently cause significant delays in litigation.

PRINCIPLE 2

Securing rights of individuals

- **Preservation of fundamental, constitutional, and legal rights** The advent of Judicial AI must operate within established legal and constitutional parameters, including safeguarding fundamental and human rights. Basic notions of fairness and due process must be upheld.

- **Right to explanation** The right to explanation, allowing people subjected to this technology to gain adequate understanding of its functionality and consequences, must be protected and adhered to in the deployment of all Judicial AI.

- **Algorithmic transparency** The Judicial AI algorithms and design models must be made available for independent and transparently conducted, periodic technical audits.

- **Technology neutral principles** To keep up with a rapidly morphing AI technology, all governance frameworks and standards must lean towards technology neutral principles in lieu of rigidly defined parameters.

PRINCIPLE 3

A dynamic and iterative ecosystem

- **Training and knowledge accumulation** Technical training and know-how about the use and impact of AI, must be constantly provided to judges, registry and court staff to ensure adequate understanding of this technology.

- **Comprehensive integration into the justice ecosystem** AI must become the driving engine for the entire justice system. In time, prisons, legal aid cells, and the police, to the extent they interact with the criminal justice system must utilise AI to enhance their interoperability.
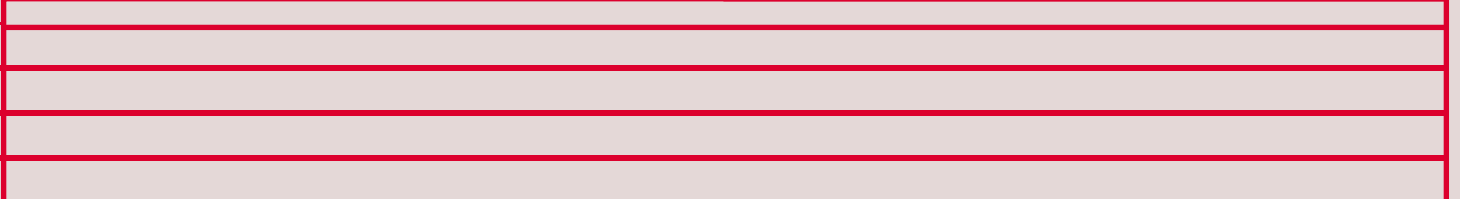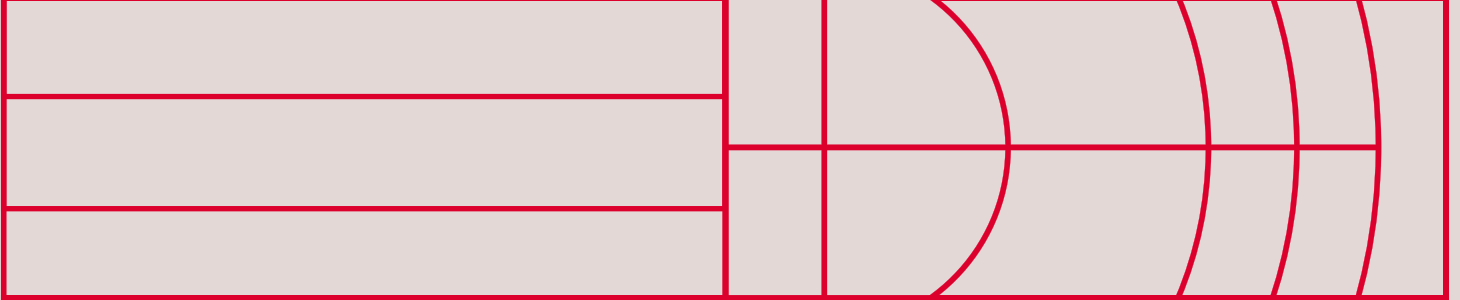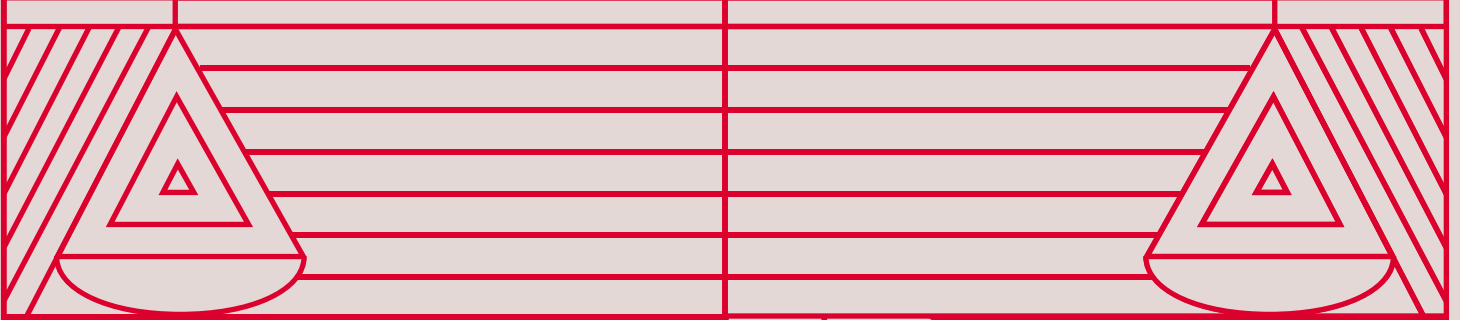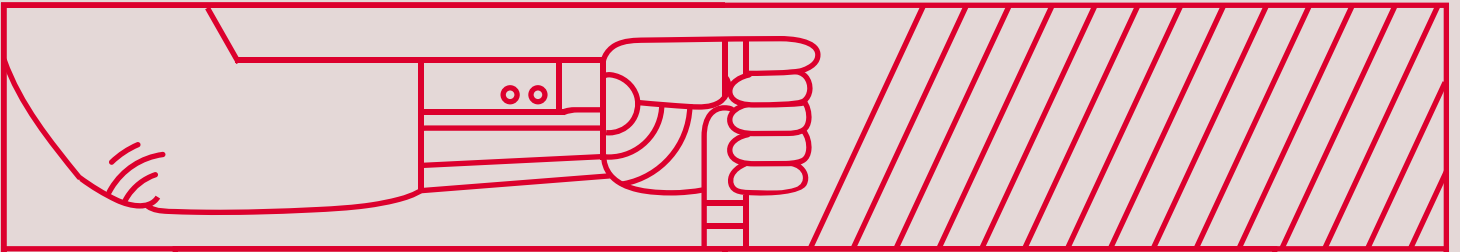
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