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DESIGNING AI FOR COURTS

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ABSTRACT

Artificial Intelligence (AI) is developing at an incredible pace and society has subsequently gone through rapid changes, but courts have been left behind due to the delay in utilizing AI technology. This delay in the implementation of advancing AI technology inhibits courts from improving the speed and quality of legal services. This Article introduces how AI is currently used in courts and discusses its benefits and risks, controversies, and the issues surrounding the utilization of private vendor products. Further, this Article shows how AI can help courts improve their legal services and argues that to anticipate the risks and controversies associated with using AI, courts must engage in each of the four implementation phases: designing, developing, deploying, and monitoring. Focusing on the designing phase of AI, this Article suggests that courts not limit discussion surrounding AI to a small number of executives and experts but invite all judges and court clerks who handle cases at the forefront to join such discourse. To lower the hurdles for judges and court clerks who usually do not have expertise in technology, this Article presents a framework that can be useful when thinking and discussing ideas for designing AI for courts.

I. INTRODUCTION

[1] In the last few decades, Artificial Intelligence has developed at an incredibly fast pace. Society has changed as AI evolved. For instance, e-commerce is using AI for targeted advertisements, AI chatbots address customers' questions and claims, autonomous vehicles are driven by AI, doctors' surgeries are supported by AI, and even farmers are using AI to manage their agriculture.[1] But the judiciary, a fundamental part of the societal infrastructure that ought to develop in tandem, has been left behind due to its delay in adopting AI. However, courts are quickly approaching an inflection point.

[2] Presently, judges and court clerks spend their working hours handling a variety of tasks. Some of these are unique and by necessity handled by humans but others are simple, repetitive tasks. The more time these professionals spend on simple tasks, the less time can be allocated to tasks that require their unique skills and expertise. This waste of resources leads to delays and the deterioration of the quality of legal services.[2] AI has the potential to change this norm.

[3] The first section of this Article will consider the AI currently used in courts of different jurisdictions and analyze how far the judiciary has advanced in the use of the latest technologies. The second section will review AI used in courts and discusses the benefits and risks of incorporating AI in the court, ultimately showing that while AI can bring huge benefits, courts must carefully structure certain systems to mitigate the risks. The third section discusses how controversial some technologies can be: even if a particular AI is successfully utilized in one jurisdiction, it may

[1] *See* George Socha, *What Will AI Mean for You*, 101 JUDICATURE 6, 7 (2017).

[2] *See Strategic Plan for Federal Judiciary - Issue 3: The Effective and Efficient Management of Public Resources*, U.S. COURTS (2020), https://www.uscourts.gov/statistics-reports/issue-3-effective-and-efficient-management-public-resources [https://perma.cc/6VP4-EBUP]; European Commission for the Efficiency of Justice, *Measuring the Quality of Justice*, COUNCIL OF EUROPE, https://rm.coe.int/1680747548 [https://perma.cc/A4XU-593U].

not work as well in another. The fourth section will discuss whether courts should purchase or license AI from commercial companies or create their own AI systems and warns that relying too much on commercial products will harm courts' accountability and responsiveness. The last section focuses on the design phase and argues that the discussion of how to incorporate AI should be led not only by the limited members of the executive branch and experts but every judge and court clerk who handle cases in the forefront. To lower the hurdles for those who may not have expertise in technologies, this last section will suggest a brief framework that can be useful when thinking and discussing ideas for designing AI for courts.

II. AI CURRENTLY USED IN COURTS

[4] Because AI is a relatively new technology, the discussions surrounding it can easily become groundless or resemble science fiction. To avoid unsupported and empty arguments, this Article will first review the actual usage of AI by courts and show how far the judiciary has advanced. For the purposes of this Article, AI can be defined as a "machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments."[3]

A. List of AI: Categorized by Functions

[5] This section introduces AI currently used in courts and provides the name, basic function, date of implementation, issues addressed, technology used, and how courts have set the AI up. AI systems are categorized by function and organized by the litigation procedure phase they work most within: the pre-trial phase, the filing phase, the research phase, the hearing phase, and the decision phase. AI used in two or more phases is introduced under the category that most matches its function.

[3] Organisation for Economic Co-Operation and Development [OECD], *Recommendation of the Council on Artificial Intelligence*, OECD/LEGAL/0449 7 (May 21, 2019), https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449 [https://perma.cc/ZAK8-2HF2].

1. The Pre-Trial Phase: Providing Legal Information

[6] "The Solution Explorer," used in British Columbia, Canada, is AI that provides legal information to potential litigants in the pre-trial phase.[4] It has been accessible on the website of the Civil Resolution Tribunal (CRT) since 2016 and provides users with customized plain-language legal information and some self-help tools, such as templates of letters directed to an opposing party.[5] The Solution Explorer helps people better understand their legal issues and options, and may even resolve issues before a claim is actually filed.[6] For instance, the Solution Explorer was used 37,903 times during one year and only 14% of explorations resulted in actual claims.[7] The Solution Explorer uses a basic form of AI called Expert Systems, a type of program that simulates the logic and knowledge of experts (in this case,

[4] *Solution Explorer*, CIV. RESOL. TRIBUNAL, https://civilresolutionbc.ca/solution-explorer/ [https://perma.cc/49YZ-B27H] (explaining that Solution Explorer covers four types of claims: small claims under $5,000, vehicle accidents, strata property, and societies and cooperatives).

[5] Shannon Salter, *What is the Solution Explorer?*, CANADIAN BAR ASS'N: BARTALK (Apr. 2018), https://www.cbabc.org/BarTalk/Articles/2018/April/Features/What-is-the-Solution-Explorer [https://perma.cc/6EJW-AB9V]; Tanja Rosteck, *2017: Happy First Birthday, Strata Solution Explorer!*, CIV. RESOL. TRIBUNAL (Jun 30, 2017), https://civilresolutionbc.ca/blog/happy-first-birthday-strata-solution-explorer/ [https://perma.cc/DXF5-FCXJ] (discussing the year that the CRT, a part of the British Columbia court system but technically an administrative tribunal, implemented the Solution Explorer).

[6] CIVIL RESOLUTION TRIBUNAL, 2021/2022 ANNUAL REPORT 1 (2022), https://civilresolutionbc.ca/wp-content/uploads/CRT-Annual-Report-2021-2022.pdf [https://perma.cc/X3TE-FBGM].

[7] *Id.* (discussing the statistics that cover the period of April 1, 2021, through March 31, 2022).

lawyers) to solve problems.[8] CRT collaborated with engineers and lawyers to build and install the Solution Explorer.[9]

[7] China has utilized a similar AI program. "Xiao Fa" is an AI-powered robot that provides legal information to people in the pre-trial phase and litigants involved in ongoing cases.[10] It has been installed in the lobbies of over one hundred courts throughout China since 2017 and the database is also accessible online.[11] Xiao Fa provides users with legal information such as how to file a lawsuit, outlines of relevant statutes, brief explanations of legal terms, useful material for each stage of litigation, successful claim percentages, estimated cost in time and money, and risk of harm to relationships and reputations, as well as litigant's case history and verdicts.[12] Xiao Fa was created to help people access authorized legal information without hiring a lawyer, resolve disputes before filing a lawsuit, reduce the courts' workload, and improve the efficiency of court procedures.[13] It was designed and manufactured by commercial robotics companies using court decision data.[14] Courts have then purchased Xiao Fa

[8] *See* Salter, *supra* note 5; ITISHA GUPTA & GARIMA NAGPAL, ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS 71–72 (Mercury Learning & Info. 2020).

[9] *See* Salter, *supra* note 5 (explaining that CRT made a mind map of legal information in a language that is understandable to all users, after consulting lawyers).

[10] *See* Cao Yin, *Courts embrace AI to improve efficiency*, CHINA DAILY (Nov. 16, 2017, 7:55 AM), http://www.chinadaily.com.cn/china/2017-11/16/content_34595221.htm [https://perma.cc/8DL9-K328].

[11] *See id.*

[12] *See id.*; *see also* Benjamin Minhao Chen & Zhiyu Li, *How Will Technology Change the Face of Chinese Justice?*, 34 COLUM. J. ASIAN L. 1, 9–11 (2020); Shitong Qiao et al., *How Technology is Changing Justice in China* 3 JUDICATURE INT'L (2022), https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1002&context=judicature_intl [https://perma.cc/A6TM-6GMY].

[13] Yin, *supra* note 10.

[14] *See* Yin, *supra* note 10; *see also* Chen & Li, *supra* note 12, at 9–11; *Public Service*, SANBOT, http://en.sanbot.com/industrial/public-service [https://perma.cc/57AB-DDAA].

from this company for 50,000 yuan to 150,000 yuan (approximately $7,150 to $21,500[15]) per machine.[16]

[8] Similarly to the other two systems, "Gina" used in Los Angeles, California is an AI-powered automated online assistant.[17] Gina helps people with traffic transactions such as paying tickets, scheduling court dates, and signing up for traffic school.[18] It has been available on the Los Angeles Superior Court website since 2016.[19] Gina, which can utilize six languages, assists users by asking questions and navigating through the appropriate traffic court webpages, and consequently improves accessibility to courts and reduces court officials' workload.[20] Since Gina's implementation, there have been approximately 200,000 interactions per year, and as a result, wait times at courthouses have fallen from 2.5 hours to 8–12 minutes.[21] To create Gina, the Los Angeles Superior Court contracted with a commercial

[15] *Foreign Exchange Rates - G.5*, FED. RSRV. SYS., https://www.federalreserve.gov/releases/g5/current [https://perma.cc/8YTE-D728].

[16] Yin, *supra* note 10.

[17] Cristina Llop, *News: Gina - LA's Online Traffic Avatar Radically Changes Customer Experience (Los Angeles 2016)*, SELF-REPRESENTED LITIG. NETWORK (2016), https://www.srln.org/node/1186/gina-las-online-traffic-avatar-radically-changes-customer-experience-news-2016 [https://perma.cc/5DU7-HQH8].

[18] *Id.*; *Traffic*, L.A. CT., https://www.lacourt.org/division/traffic/traffic2.aspx [https://perma.cc/Z8TV-ZPT3].

[19] SUPER. CT. OF CAL., CNTY. OF L.A., SELF-HELP AT THE SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES 37 (2022) https://lascpubstorage.blob.core.windows.net/cpw/LIBSVCCommunications-3-SelfHelpReportWithLetter.pdf [https://perma.cc/J9UA-8W47].

[20] *Online Automated Traffic Case Assistant - Los Angeles Superior Court*, CAL. CTS., https://www.courts.ca.gov/35076.htm (stating that the six languages are English, Armenian, Chinese, Korean, Spanish, and Vietnamese); Llop, *supra* note 17.

[21] *See* Llop, *supra* note 17.

technology company to use the SitePal software.[22] It took approximately 240 programming hours and costs $2,500 annually to run.[23]

2. The Filing Phase: Filtering Erroneous e-Filed Documents

[9] "Intellidact AI" automates courts' document workflows.[24] It has been used in Arkansas and a few counties in Florida since 2018.[25] The program aims to accelerate document workflows and eliminate human errors by automatically inspecting electronically filed documents for flaws.[26] Flagged documents are returned to the filer with directions on how to correct the errors.[27] Intellidact AI uses machine learning, which is technology that enables computers to train themselves with data, find patterns without explicitly being programmed, and prescribe what action to

[22] *Id.*

[23] *Id.*

[24] *Intellidact AI™ Process Automation – Robotic Process Automation for Courts*, COMPUTING SYS. INNOVATIONS, https://csisoft.com/courts/rpa [https://perma.cc/JCG9-F9UP] [hereinafter *Intellidact AI*].

[25] *CSI Intellidact® selected for Redaction*, ARK. JUDICIARY, https://www.arcourts.gov/administration/acap/redactioncontract [https://perma.cc/9TD9-V72T]; *Okaloosa County, FL Selects Intellidact Artificial Intelligence*, BUS. WIRE (Sept. 12, 2017, 6:06 PM), https://www.businesswire.com/news/home/20170912006879/en/Okaloosa-County-FL-Selects-Intellidact-Artificial-Intelligence [https://perma.cc/YFS5-77R4].

[26] *Okaloosa County, FL Selects Intellidact Artificial Intelligence*, *supra* note 25.

[27] *See id.*

take next.[28] Intellidact AI was created and is licensed by a commercial company.[29]

3. The Research Phase: Research Assistance for Judges

[10] "Supreme Court Portal for Assistance in Court's Efficiency" (SUPACE) is an AI tool that assists judges with legal research.[30] It was launched by the Supreme Court of India in 2021.[31] SUPACE retrieves facts and issues from documents submitted by litigants, finds relevant laws, and presents them to judges, subsequently speeding up the legal process and reducing the number of pending cases.[32]

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[28] *Solutions for Courts*, COMPUTING SYS. INNOVATIONS, https://csisoft.com/courts [https://perma.cc/TU6L-RA4M]; *Intellidact AI*, PDF ASS'N, https://www.pdfa.org/product/intellidact-ai/ [https://perma.cc/B86U-28BU]; Sara Brown, *Machine learning, explained*, MIT MGMT. SLOAN SCH. (Apr. 21, 2021), https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained [https://perma.cc/NP45-RDDC].

[29] *Intellidact AI*, *supra* note 24.

[30] Tulika Tandon, *SUPACE Portal: Use of Artificial Intelligence (AI) in Indian Judiciary*, JAGRAN JOSH (Apr. 13, 2021, 6:17 PM), https://www.jagranjosh.com/general-knowledge/supace-portal-use-of-artificial-intelligence-ai-in-indian-judiciary-1618316032-1 [https://perma.cc/C5D5-Z9UY].

[31] *Id.*; SUP. CT. OF INDIA, INDIAN JUDICIARY ANNUAL REPORT 2020–21 158 (2021), https://main.sci.gov.in/pdf/AnnualReports/12012022_114003.pdf [https://perma.cc/NR8F-VLBS].

[32] Snehanshu Shekhar, *Supreme Court embraces Artificial Intellegence, CJI Bobde says won't let AI spill over to decision-making*, INDIA TODAY (Apr 7, 2021) https://www.indiatoday.in/india/story/supreme-court-india-sc-ai-artificial-intellegence-portal-supace-launch-1788098-2021-04-07 [https:perma.cc/XUS2-8M6U]; Express News Service, *CJI launches top court's AI-driven research portal*, THE INDIAN EXPRESS (Apr 7, 2021) https://indianexpress.com/article/india/cji-launches-top-courts-ai-driven-research-portal-7261821/ [https:perma.cc/Q66D-VSZ4].

[11] "Socrates" is another AI tool that assists judges with legal research.[33] It was developed by the Superior Tribunal of Justice (STJ) in Brazil in 2019.[34] Socrates automatically examines cases, submits legislative references, lists similar cases, and suggests a decision.[35] It is also expected to reduce the time for judges to decide individual cases.[36] Socrates uses machine learning and was initially trained with over 300,000 court decisions.[37]

4. The Hearing Phase

[12] Automatic and real-time transcription of testimonies and oral arguments is one typical way of utilizing AI. Courts in the U.S., China, Australia, and beyond are implementing AI that generates transcription

[33] SUPERIOR TRIBUNAL DE JUSTIÇA, Relatório do 1º Ano de Gestão 4, 17 (2019), https://www.stj.jus.br/sites/portalp/SiteAssets/documentos/noticias/Relat%C3%B3rio%20de%20gest%C3%A3o.pdf [https://perma.cc/GMN2-4PAY].

[34] *Projeto-piloto do Sócrates, programa de inteligência artificial do STJ, é esperado para agosto*, MIGALHAS (Apr. 6, 2019, 7:32 PM), https://www.migalhas.com.br/quentes/299820/projeto-piloto-do-socrates--programa-de-inteligencia-artificial-do-stj--e-esperado-para-agosto [https://perma.cc/PAT7-47NP][hereinafter *Projeto-piloto do Sócrates*].

[35] *Id.*; KATIE BREHM ET AL., THE FUTURE OF AI IN THE BRAZILIAN JUDICIAL SYSTEM 13 (2020), https://itsrio.org/wp-content/uploads/2020/06/SIPA-Capstone-The-Future-of-AI-in-the-Brazilian-Judicial-System-1.pdf [https://perma.cc/P8AT-YCZM].

[36] *Projeto-piloto do Sócrates*, *supra* note 34.

[37] Flávio Ferreira, *Artificial Intelligence Makes its Mark in the Brazilian Judicial System*, FOLHA DE S.PAULO (Mar. 10, 2020, 1:44 PM), https://www1.folha.uol.com.br/internacional/en/brazil/2020/03/artificial-intelligence-makes-its-mark-in-the-brazilian-judicial-system.shtml [https://perma.cc/9C5C-Y7AA].

automatically.[38] For example, the Liaoning High Court in China uses an automated transcription system that not only creates transcripts synchronously, but also corrects errors automatically.[39] This system is expected to speed up trials and improve the court's ability to efficiently handle cases.[40] It was created by a commercial company.[41]

5. The Decision Phase

a. Risk Assessment in Criminal Cases

[13] "Risk assessment instruments" (RAIs) are algorithmic tools that assess criminal defendants' future risk for misconduct.[42] There are several

[38] *See* Sarah Roberts, *How 3 States are Embracing Digital Court Reporting*, VERBIT, https://verbit.ai/how-3-states-are-embracing-digital-court-reporting/ [https://perma.cc/KX66-WF7H]; Chen & Li, *supra* note 12, at 16; THE AUSTRALASIAN INST. OF JUD. ADMIN., AI DECISION-MAKING AND THE COURTS 28 (2022), https://aija.org.au/wp-content/uploads/woocommerce_uploads/2022/06/AI-DECISION-MAKING-AND-THE-COURTS_Report_V5-2022-06-20-1lzkls.pdf [https://perma.cc/AR7P-ZD97].

[39] Liaoning Zhihui Fayuan (辽宁智慧法院) [Liaoning Smart Courts], Quansheng 128jia Fayuan Shixian Zhineng Yuyin Yingyong Quanfugai, Chuangzhao Liaoning Zhihui Fayuan Xingaodu (全省 128 家法院实现智能语音应用全覆盖，创造辽宁"智慧法院"新高度) [All 128 Courts in the Province Have Achieved Full Coverage of AI Voice Applications, Bringing Liaoning "Smart Courts" to a New Height] (Jan. 20, 2020, 4:07 AM), https://mp.weixin.qq.com/s/fZYa9Zivu7yk0JmbaxoicQ [https://perma.cc/8ZT8-38Z9].

[40] *Id.*

[41] Chen & Li, *supra* note 12, at 16.

[42] Alex Chohlas-Wood, *Understanding risk assessment instruments in criminal justice*, BROOKINGS (June 19, 2020), https://www.brookings.edu/research/understanding-risk-assessment-instruments-in-criminal-justice/ [https://perma.cc/H3JJ-L9MY].

types of RAIs, and many U.S. state courts use one or more of them.[43] RAIs conduct an objective and statistical assessment of criminal defendants' risk factors and provide judges with risk scores.[44] They are expected to improve the consistency, fairness, accuracy, and transparency of judicial decisions and enhance the efficiency of criminal procedures.[45]

[14] "Correctional Offender Management Profiling for Alternative Sanctions" (COMPAS) is one of the most widely used RAIs in the United States. It was developed in 1998 and is currently used statewide in Florida, New York, Massachusetts, Michigan, and Wisconsin, as well as in one or more counties in other states.[46] This RAI assesses the risk that the defendant will fail to appear for trial, commit another offense, or commit a violent act in the future.[47] Judges use COMPAS's assessments to decide whether or not to release the criminal defendant, the amount of bail, and in some jurisdictions, the length of the jail sentence.[48] The algorithm is not revealed,

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[43] ELEC. PRIV. INFO. CTR., LIBERTY AT RISK: PRE-TRIAL RISK ASSESSMENT TOOLS IN THE U.S. 2–8 (2020) [hereinafter EPIC]; *COMPAS*, WISC. DEP'T OF CORR., https://doc.wi.gov/Pages/AboutDOC/COMPAS.aspx [https://perma.cc/3TLH-LC5W].

[44] Chohlas-Wood, *supra* note 42.

[45] *Id.*; EQUIVANT, PRACTITIONER'S GUIDE TO COMPAS CORE 18 (2019), https://www.equivant.com/wp-content/uploads/Practitioners-Guide-to-COMPAS-Core-040419.pdf [https://perma.cc/44YS-8UZ5]); State v. Loomis, 2016 WI 68, ¶ 130–38, 371 Wis. 2d 235, 286–87, 881 N.W.2d 749, 774–75 (2016) (Abrahamson, J., concurring); Malenchik v. State, 928 N.E.2d 564, 572 (Ind. 2010); KATHERINE B. FORREST, WHEN MACHINES CAN BE JUDGE, JURY, AND EXECUTIONER 50 (2021) (describing how judicial practices that use technologies like RAIs are called "Evidence-Based Decision Making" (EBDM) and they are expected to create a justice system that is efficient in its use of resources, consistent in policies and practices, and effective in its outcomes); *see* NAT'L INST. OF CORR., EVIDENCE-BASED DECISION MAKING: A GUIDE FOR JUDGES 27 (2017), https://info.nicic.gov/ebdm/sites/info.nicic.gov.ebdm/files/ebdm-users-guide-judges.pdf [https://perma.cc/7K2E-D99Q].

[46] *EPIC*, *supra* note 43, at 5–8.

[47] *Id.* at 1.

[48] *Id.*

even to prosecutors and judges.[49] COMPAS is a product of a commercial company.[50]

[15] "Public Safety Assessment" (PSA) is another type of RAI that is currently used in Arizona, Hawaii, Kentucky, New Jersey, Rhode Island, Utah, and one or more counties in other states.[51] PSA has basically the same functionality as COMPAS.[52] Alaska,[53] Arkansas, Connecticut, Delaware, Florida, Georgia, Idaho,[54] Kansas, Maryland, Missouri, Nevada, New York, South Carolina, and Washington D.C.[55] have developed their own RAIs.[56]

[49] *Id.*

[50] EQUIVANT, *supra* note 45; Jeff Larson et al., *How We Analyzed the COMPAS Recidivism Algorithm*, PROPUBLICA (May 23, 2016), https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm [https://perma.cc/6LN6-6C35].

[51] *EPIC*, *supra* note 43, at 5–8.

[52] *Id.* at 1–4.

[53] *Id.* at 3 (referencing Alaska's Pretrial Tool assesses the risk an accused may fly or commit another crime).

[54] *Id.* (stating Idaho Level of Service Inventory-Revised (LSI-R), which was created in 1995 and tailed for use in Idaho afterward, assesses the risk of recidivism, the need for detention, and the admissibility for parole).

[55] *Id.* at 2–8 (stating DC Risk Assessment Instrument (DC RA) assesses the risk of flight and recidivism).

[56] *EPIC*, *supra* note 43, at 2–8.

b. Advising Judges and Court Clerks in Family Court Cases

[16] "EXPERTIUS" is AI that advises family court judges and court clerks in Mexico on how to decide pension claims.[57] Pension is a claim based on Mexican family law that obliges parents to provide food, clothes, and education to their children.[58] Those who are divorced can request a pension from their former spouse under certain circumstances.[59] State supreme courts in Mexico City and Tabasco collaborated with the National Autonomous University of Mexico (UNAM) to create EXPERTIUS.[60]

c. Examining Requirements for Appeals Cases

[17] "VICTOR" is AI used in Brazil that reviews appellate cases and examines whether the requirement for General Repercussion is met.[61] The General Repercussion is a requirement for appellate cases to be heard and requires the petition to contain issues that are truly relevant to Brazilian society from an economic, political, social, or legal point of view.[62]

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[57] Enrique Cáceres, *EXPERTIUS: A Mexican Judicial Decision-Support System in the Field of Family Law*, *in* 189 LEGAL KNOWLEDGE AND INFORMATIONAL SYS. 78, 78 (2008); UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO, https://www.unam.mx/ [https://perma.cc/E3KB-T67W].

[58] *Id*.

[59] *Id.*

[60] *Id.*

[61] Daniel Becker & Isabela Ferrari, *VICTOR, the Brazilian Supreme Court's Artificial Intelligence: a beauty or a beast?*, STANDING INT'L F. COM. CT., 1–2, 7–8 (June 2020), https://sifocc.org/app/uploads/2020/06/Victor-Beauty-or-the-Beast.pdf [https://perma.cc/3V6D-WZ5N].

[62] Maina Novello Siqueira & Marcello Castro, *Brazil: The Supreme Federal Tribunal And The "General Repercussion" Requirement*, MONDAQ (Mar 10, 2008), https://www.mondaq.com/brazil/constitutional-administrative-law/57864/the-supreme-federal-tribunal-and-the-general-repercussion-requirement [https://perma.cc/3L65-7GB6].

VICTOR was created to resolve the huge case backlog Brazilian courts were facing.[63] Since its implementation, VICTOR has reduced the initial analysis time of the General Repercussion from 44 minutes to 5 seconds.[64] The AI was designed through a partnership of the Superior Tribunal of Justice (STJ) in Brazil and the University of Brasilia.[65] VICTOR was trained with more than 100,000 lawsuits and almost 3,000,000 case dockets over a two-year period.[66] To input the enormous amount of text files of past cases that were produced in various formats, STJ used Optical Character Recognition (OCR).[67]

d. AI Judge or AI Assistant for Human Judges

[18] In China, the Beijing Internet Court launched "AI Judge" in 2019.[68] Despite its name, Beijing's AI Judge does not adjudicate cases, but assists

[63] Becker & Ferrari, *supra* note 61, at 1 (discussing how case backlog reached 80 million in 2019).

[64] *Id.* at 5.

[65] BREHM ET AL., *supra* note 35.

[66] *Id*; Becker & Ferrari, *supra* note 61, at 5.

[67] Becker & Ferrari, *supra* note 61 (describing how OCR technology extracts data from files of all formats such as pdf, jpeg, typed or handwritten, etc., recognizes characters as words and sentences, and enables access to the original context); *see* IBM Cloud Educ., *What Is Optical Character Recognition (OCR)?* (Jan. 5, 2022), https://www.ibm.com/cloud/blog/optical-character-recognition [https://perma.cc/A4JC-XEYJ] (explaining further how the process of OCR works); *see also* Hmrishav Bandyopadhyay, *Optical Character Recognition: What is It and How Does it Work [Guide]*, V7LABS (Mar. 2, 2023), https://www.v7labs.com/blog/ocr-guide [https://perma.cc/UEN7-JCV5] (exemplifying OCR technology in the legal field by detecting text and classifying documents into groups, making access infinitely easier and faster).

[68] *Beijing Internet court launches AI judge*, SUP. PEOPLE'S CT. OF THE PEOPLE'S REPUBLIC OF CHINA (June 28, 2019), https://english.court.gov.cn/2019-06/28/c_766675.htm [https://perma.cc/KP8U-G6U8].

judges by substituting repetitive basic work.[69] Beijing's AI Judge is expected to improve the quality and efficiency of judicial work.[70] Other local courts in China also use AI to assist judges. For instance, the Zhejiang High People's Court implemented AI called "Xiao Zhi," which does not adjudicate cases either, but instead supports judges by analyzing case filings, summarizing contentious points, evaluating evidence, calculating awards, and even drafting judicial documents.[71]

[19] There have been several publications that introduced Estonia as another leading country in the development of an "AI Judge"[72], but recently, this information was officially denied.[73]

B. Analysis: How Far Courts Have Come

[20] AI has been created for and deployed in various phases of court proceedings. In the pre-trial phase, AI systems provide users with authorized legal information, help courts improve access to justice, and reduce courts' workloads. In the filing phase, AI is automating and accelerating document workflows and reducing human error. In the research phase, AI is examining cases and providing judges with relevant information. In the hearing phase, AI is automatically generating transcriptions. Finally, in the decision phase, AI is providing essential information or advice to judges and court clerks. In the most advanced

[69] *Id.*

[70] *Id.*

[71] Chen & Li, *supra* note 12.

[72] Eric Niiler, *Can AI Be a Fair Judge in Court? Estonia Thinks So*, WIRED (Mar 25, 2019) https://www.wired.com/story/can-ai-be-fair-judge-court-estonia-thinks-so/ [https://perma.cc/7YVR-WXNR] (reporting that Estonia is another leading country in the development of AI judges).

[73] Republic of Estonia Ministry of Justice, *Estonia does not develop AI Judge* (Feb 16, 2022) https://www.just.ee/en/news/estonia-does-not-develop-ai-judge [https://perma.cc/GV4W-MC6Q].

jurisdictions, AI is suggesting conclusions and drafting legal documents for judges.

II. THE BENEFITS AND THE RISKS OF AI IN COURTS

[21] Based on the previous discussion of AI currently used in courts, this section will consider the benefits and risks of using AI in the judicial system. It shows that AI can offer huge benefits to courts, but courts must also be aware and structure systems to mitigate the associated risks.

A. Accessibility of Courts

1. Benefits: Enhancing Access to Justice

[22] One of the significant benefits AI offers is to improve access to justice. In recent years, the excessive time and money required to fight a lawsuit have been a huge hurdle for people to bring their cases to court.[74] AI can lower these hurdles for litigants in the pre-trial phase and provide easier access to justice.

[23] For example, the Solution Explorer in Canada provides people with validated legal information and can help individuals resolve their legal issues before bringing a case to court.[75] Xiao Fa in China is another example of AI that provides authorized legal information, allowing individuals to examine their legal issues without hiring a lawyer.[76] California's Gina helps

[74] Robert W. Gordon, *Lawyers, The Legal Profession & Access to Justice in the United States: A Brief History*, 103 JUDICATURE 35, 35 (2019), https://judicature.duke.edu/wp-content/uploads/2019/11/LawyerstheLegal_Fall2019.pdf [https://perma.cc/9UP5-3XJ5]; Gregory E. Mize & Thomas A. Balmer, *Rebuild our Courts: State Chief Justices Call for Action to Achieve Civil Justice for All*, 101 JUDICATURE 17, 17–18 (2019).

[75] *See Solution Explorer*, *supra* note 4.

[76] *See generally* Yin, *supra* note 10 (alluding to AI's subversion of lawyers).

people access traffic court information and facilitates online transactions, removing the need to wait in a long line in a courthouse.[77]

2. Risks: Side Effects of Enhancing Access with Technologies

[24] On the flip side of technological advancement, the fairness of justice may be compromised by the risk that new technologies burden those with limited access to the internet or technological literacy.[78] For example, if a pre-trial AI service is only available online, people without access to the internet will be left behind while an opposing party might benefit from the court-run technologies.

[25] Promoting easier access to courts also risks encouraging litigiousness.[79] A society where people can exercise their rights is ideal, but an overly litigious society might take away people's sense of harmony. There is also a risk to the lawyer's intermediary role if people resolve their cases by only consulting AI.[80]

3. Turning Risks into Benefits: Hybrid of Online and Offline Services

[26] To prevent digital exclusion, one solution could be to provide services both online and offline. For example, Xiao Fa's service is accessible from one's own smartphone or through the robot installed in

[77] *See Traffic*, *supra* note 18.

[78] *See* Richard Susskind, *Online Courts and the Future of Justice*, 18 CANADIAN J.L. & TECH. 303, 306 (2019).

[79] *See id.*

[80] *See generally* Qiao et al., *supra* note 12, at 1–2 (highlighting the relationship between adherence to the law and social harmony and the notion that people prefer human lawyers over AI).

court lobbies.[81] Another way to minimize the risks associated with using AI would be for the AI to prompt users to seek advice from lawyers when necessary. This way, AI would not undermine the important role that lawyers play as intermediaries. Further, if the use of new technologies is enhancing access to justice appropriately for those who are suffering from genuine loss or injury, such system shall be welcomed but not criticized for encouraging litigiousness.[82]

B. Time and Cost Efficiency of Court Procedures

1. Benefits: Improving the Efficiency

[27] AI can be a solution to improve the speed of litigation. For example, Brazil's VICTOR system has reduced the initial analysis time for appeals cases from 44 minutes to 5 seconds[83], whereas Gina in the U.S. has reduced wait times at courthouses from 2.5 hours to 8–12 minutes.[84] Real-time transcription by AI can save a lot of time in the hearing phase as well. China's systems Xiao Fa and AI Judge are both expected to improve courts' efficiency.[85] Intellidact AI is aimed to streamline courts' document workflows.[86] SUPACE and Socrates are expected to speed up court procedures by helping judges with legal research.[87] RAIs are expected to

[81] Yin, *supra* note 10.

[82] Susskind, *supra* note 78, at 224–25.

[83] Becker & Ferrari, *supra* note 61.

[84] Llop, *supra* note 17.

[85] *See* Yin, *supra* note 10.

[86] *Intellidact AI*, *supra* note 24.

[87] *SUPACE*, OPTIMIZEIAS (Apr. 7, 2021), https://optimizeias.com/supace/ [https://perma.cc/G4GM-44PG]; Fausto Martin De Sanctis, *Artificial Intelligence and Innovation in Brazilian Justice*, 59 INT'L ANNALS CRIMINOLOGY 1, 4 (2021).

enhance the efficiency of criminal procedures.[88] As these examples show, AI has enormous potential to improve the time efficiency of litigation procedures.

[28] AI can also solve efficiency and accuracy trade-offs.[89] For example, presently, if courts try to improve decision accuracy and upgrade or add procedures, the process tends to get more burdensome and cost additional time and human resources, consequently degrading efficiency.[90] AI can potentially help courts overcome this dilemma and improve both efficiency and accuracy.[91] For example, RAIs aim to achieve both goals by improving accuracy through objective statistical assessment and enhancing efficiency by automating the process.[92]

[29] Overcoming the dilemma of efficiency vs. accuracy would lead to another benefit: overcoming the quantity/quality trade-off. If courts used AI to become more efficient, they should be able to deal with a much larger quantity of cases in a shorter amount of time.[93] This would allow courts to invest more time and resources in tasks that require human touch, and consequently improve the quality of legal services.

[88] EQUIVANT, *supra* note 45.

[89] DAVID FREEMAN ENGSTROM ET AL., GOVERNMENT BY ALGORITHM: ARTIFICIAL INTELLIGENCE IN FEDERAL ADMINISTRATIVE AGENCIES 28 (2020), https://law.stanford.edu/wp-content/uploads/2020/02/ACUS-AI-Report.pdf [https://perma.cc/7RE3-ESVC].

[90] *Id.* at 82.

[91] *Id.*

[92] EQUIVANT, *supra* note 45.

[93] ENGSTROM ET AL., *supra* note 89, at 83.

2. Risks

a. Cost Viability

[30] Commercial viability is one concern for AI implementation.[94] Implementing AI will not only require development costs, but also additional resources to create the data infrastructure and to manage frequent system upgrades.[95] Courts are not commercial entities, so the evaluation of AI should not be based solely on economic metrics. However, the system will need to have benefits, such as a significant improvement in the speed and quality of legal services, that outweigh the costs.[96]

b. Trading-Off Responsiveness for Efficiency

[31] As a trade-off to efficiency, AI risks losing individual responsiveness.[97] For a long time, courts have provided bespoke, tailored, and responsive legal services to all parties. AI, on the other hand, is said to lack the ability to provide individualized service.[98] By implementing AI, courts risk losing the ability to be responsive to individual circumstances.[99]

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[94] Susskind, *supra* note 78, at 278.

[95] ENGSTROM ET AL., *supra* note 89, at 71–72 (discussing the many challenges associated with creating data infrastructure dealing with (1) data collection, which required proper and clear regulation, (2) standardization, which will be a largely troublesome process since the existing data are not all in the same format, and (3) data security, which requires constant updates regarding the skill development of hackers); *see* Yin, *supra* note 10.

[96] Susskind, *supra* note 78, at 279.

[97] Philip Sales, *Algorithms, Artificial Intelligence, and the Law*, 105 JUDICATURE 23, 31 (2021).

[98] State v. Loomis, 2016 WI 68, ¶ 100–04, 371 Wis. 2d 235, 276–78, 881 N.W.2d 749, 769–70.

[99] Sales, *supra* note 97, at 34–35.

c. Over-Reliance on Technology

[32] The implementation of AI also risks an overreliance on AI by judges and court clerks.[100] For instance, VICTOR, EXPERTIUS, and Xiao Zhi all suggest conclusions for individual cases, and SUPACE and Socrates assist judges with legal research. These AI raise a concern that some judges and court clerks may blindly accept an AI's conclusions and stop reviewing the claims and records independently. Overreliance on AI can result in judges and court clerks overlooking essential elements of the case, which would severely harm the court's legitimacy.

3. Turning Risks into Benefits: Creating Human-Centered AI

[33] One way to counteract the risks of low responsiveness and overreliance on technology would be to build AI not as a substitute but as a supportive, complementary tool for humans: the so-called "Human-Centered AI."[101] Human-Centered AI seeks to design AI in a way that requires high levels of human control.[102] It aims to make humans not only more efficient with the help of AI, but also more responsible, and consequently more creative.[103] By using Human-Centered AI, courts may enhance efficiency while encouraging judges and court clerks to stay responsible and creative.

[100] ENGSTROM ET AL., *supra* note 89, at 83.

[101] *Id.* at 83.

[102] BEN SHNEIDERMAN, HUMAN-CENTERED AI 43–45 (2022).

[103] *Id.* at 43.

C. Bias by Humans and Bias by AI

1. Benefits: Anticipating Bias by Humans

[34] Humans are biased, and since judges are humans, they are biased too.[104] Several studies show that either explicitly or implicitly, biases have an influence on judges' decisions.[105] For example, Black and Hispanic individuals have historically been given longer sentences than their White counterparts and females have been given shorter sentences than males.[106] In the U.S. prison system, 38% of inmates are Black even though only 13% of the country's population is Black.[107] AI, in contrast, is believed by many to be neutral and objective.[108] For example, RAIs aim to improve the fairness of judicial decisions through objective risk assessment.[109]

2. Risks: Bias by AI

[35] Contrary to popular belief, AI is far from eliminating bias in the judiciary and instead may contain biases based on training data sets. AI, especially those using machine learning, are accused of reflecting the biases existing in data and thereby deepening the structural discrimination and

[104] Bernice Donald et al., *Getting Explicit About Implicit Bias*, 104 JUDICATURE 75, 76 (2021).

[105] *Id.*

[106] David B. Mustard, *Racial, Ethnic, and Gender Disparities in Sentencing: Evidence from the U.S. Federal Courts*, 44 J.L. & ECON. 285, 300 (2001); Cassia Spohn, *The Effects of the Offender's Race, Ethnicity, and Sex on Federal Sentencing Outcomes in the Guidelines Era*, 76 L. & CONTEMP. PROBS. 75, 82, 84 (2013).

[107] Donald et al., *supra* note 104, at 77.

[108] Zichun Xu, *Human Judges in the Era of Artificial Intelligence: Challenges and Opportunities*, 36 APPLIED A.I. 1025, 1030 (2021), https://www.tandfonline.com/doi/epdf/10.1080/08839514.2021.2013652?needAccess=true&role=button [https://perma.cc/3ZCZ-2DKZ].

[109] EQUIVANT, *supra* note 45, at 31.

institutional inequity of the courts.[110] For example, RAIs are widely charged with containing racial bias, suggesting higher risk rates for Black individuals in contrast to White individuals.[111]

[36] One simple approach against AI biases is to blind the algorithm against protected characteristics such as race, gender, etc.[112] However, this approach is also criticized for being rather harmful[113] because protected characteristics can be reconstructed from other features and blindness to biases that get reconstructed can form a functional bias, creating similar results to AI that is not blind.[114]

3. Turning Risks into Benefits: Collaboration of Humans and AI

[37] Although humans are biased and so are AI, the collaboration between humans and AI has the potential to minimize bias. On one hand, human judges are more aware of certain biases they may have. A study shows that many judges try to guard themselves and pursue unbiased

[110] EPIC, *supra* note 43, at 9; Chohlas-Wood, *supra* note 42.

[111] Julia Angwin et al., *Machine Bias*, PROPUBLICA (May 23, 2016), https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing [https://perma.cc/9JES-UMGM]; Alexandra Chouldechova, *Fair Prediction with Disparate Impact: A Study of Bias in Recidivism Prediction Instruments*, 5 BIG DATA 153, 153 (2017); *see* SORELLA CORBET-DAVIES & SHARAD GOEL, THE MEASURE AND MISMEASURE OF FAIRNESS: A CRITICAL REVIEW OF FAIR MACHINE LEARNING 16 (2018), https://arxiv.org/pdf/1808.00023.pdf [https://perma.cc/J38D-7MX9]; Sandra G. Mayson, *Bias In, Bias Out*, 128 YALE L.J. 2218, 2271 (2019). *But see* EQUIVANT, *supra* note 45, at 15 (arguing that several researchers refute the claim that there is evidence to prove that COMPAS risk scales are biased against Black individuals).

[112] Jon Kleinberg et al., *Algorithmic Fairness*, 108 AEA PAPERS & PROC. 22, 22 (2018).

[113] *Id.*

[114] ENGSTROM ET AL., *supra* note 89, at 80.

decisions when characteristics such as race are made explicit.[115] However, there are many other implicit biases such as those based on age, height, weight, etc. These biases are relatively harder to counteract, but one study shows that judges can educate or entrench themselves to ensure that their decisions are less biased.[116]

[38] AI, on the other hand, has a different strength. It can collect large amounts of data and analyze it at a speed and quality that no human could ever manage to do. If AI could analyze past decisions and present statistics that make implicit bias explicit, it would be extremely helpful for judges to counteract the existing biases. Another idea is to use AI to remove protected characteristics such as race and gender from case materials that humans will review. For example, the district attorney of San Francisco is using an algorithm that removes race information from case materials to reduce racial bias in charging decisions.[117]

D. Errors in Decision-Making and its Impact

1. Benefits: Anticipating Human Errors

[39] Humans make mistakes, and so do judges on various occasions and in various ways. For instance, judges may rush a decision and blindly follow their first impression. Maybe the data a judge relies upon are imperfect.[118] Judges can also be politically or ideologically biased. These problems will inevitably arise so long as there are humans deciding cases. Since AI does not have its own emotion and never rushes or decides based on a certain political or ideological view unless it is programmed to do so, it can help

[115] Donald et al., *supra* note 104, at 78.

[116] *Id.* at 79 (suggesting several ideas of how institutions can address implicit bias).

[117] Chohlas-Wood, *supra* note 42; Evan Sernoffsky, *SF DA Gascón launching tool to remove race when deciding to charge suspects*, S.F. CHRONICLE (June 12, 2019, 4:56 PM), https://www.sfchronicle.com/crime/article/SF-DA-Gasc-n-launching-tool-to-remove-race-when-13971721.php [https://perma.cc/24JH-CQ8R].

[118] FORREST, *supra* note 45, at 30.

courts anticipate these human errors. For example, RAIs that statistically measure recidivism risks aim to improve the accuracy of criminal court decisions.[119]

2. Risks: Mistakes by AI

[40] AI may not make the same types of errors as humans, but it does make mistakes.[120] Although not an example from a judicial context, a facial recognition system used by the Detroit Police Department erroneously identified a man as a suspect which ultimately led police officers to wrongfully arrest him.[121] The AI systems used by courts are no exception to this risk of error. For example, Xiao Fa has been questioned about its reliability.[122] When the AI assesses a user's claim and provides predictions of the outcome, it does so by looking for analogous court decisions, but the line between "similar" and "dissimilar" cases is vague.[123] Moreover, predicting court decisions is difficult. A recent study shows that AI's accuracy rate of predicting the results of Chinese administrative litigation was around 80%, and the assumption is the accuracy rate will drop further

[119] EQUIVANT, *supra* note 45; Chohlas-Wood, *supra* note 42; FORREST, *supra* note 45, at 55 (pointing out that despite the expectations, the validation studies of RAIs are not done as a comparison to human judges' accuracy rate, therefore it is hard to tell whether they actually exceed the average accuracy rate of human judges).

[120] Andrea Roth, *Trial by Machine*, 104 GEO. L.J. 1245, 1275 (2016); Mike Ananny, *Seeing Like an Algorithimc Error: What are Algorithmic Mistakes, Why Do They Matter, How Might They Be Public Problems?* 24 YALE J.L. & TECH. 342, 348 (*available at* https://law.yale.edu/isp/publications/digital-public-sphere/healthy-digital-public-sphere/seeing-algorithmic-error-what-are-algorithmic-mistakes-why-do-they-matter-how-might-they-be-public) [https://perma.cc/275J-UGDQ].

[121] *See generally* Kashmir Hill, *Wrongfully Accused by an Algorithm*, N.Y. TIMES (June 24, 2020), https://www.nytimes.com/2020/06/24/technology/facial-recognition-arrest.html [https://perma.cc/KK5D-99LT] (describing how facial recognition technology falsely identified a black man as a robber leading to a wrongful arrest).

[122] Qiao et al., *supra* note 12, at 4.

[123] *Id.*

for civil litigation.[124] If Xiao Fa constantly provides inaccurate predictions to cases, it may end up pushing a large number of litigants to give up their claims or settle their cases in a way that may not represent their rights under the law.[125] AI that ought to improve access to justice may result in a "turn against law."[126]

[41] In addition, mistakes by AI can have a broader impact than errors by humans. While human error affects only the cases each judge handles, mistakes by AI may affect every case where the system was used.

3. Turning Risks into Benefits: Human Oversight

[42] To avoid the massive impact of mistakes by AI, human oversight is necessary. VICTOR, EXPERTIUS, and RAIs all leave the final decision-making to humans. To enable human oversight of AI, it is essential to provide appropriate training programs to educate judges and court clerks.

E. Consistency of Court Decisions

1. Benefits: Anticipating the Variability of Human Judges

[43] AI can improve the consistency of court decisions. As case law reflects, individual human judges may reach different conclusions in the same case.[127] For example, reports of judges in a particular jurisdiction describe a wide range of criminal defendants' release rates, varying from

[124] *Id.*

[125] *See id*. at 2 (explaining that there are machines in Chinese courthouses that can dissuade people from litigating a case to the end).

[126] *See id.* at 7 ("Chinese courts are using AI for technology basically to induce people to go to mediation, which conventionally speaking is a turn against, or more precisely, turn away from law, if we equate law as courts.").

[127] FORREST, *supra* note 45, at 35.

roughly 50% to almost 90%.[128] The United States' Federal Sentencing Guidelines are explicit examples of attempts to reduce variabilities in criminal sentencing amongst judges across the country.[129]

[44] Conversely, AI does not allow for such variabilities and therefore may contribute to the consistency of court decisions. RAIs are one example of AI that addresses this need for consistency.[130]

2. Risks: Implementing and Aggravating the Flaws and Biases in Data

[45] Broad application of the same software increases the risk that flaws and biases in data persist and grow. As discussed in the previous sections, AI reflects and deepens biases in data and makes mistakes. If an AI system is widely used across jurisdictions to enhance the consistency of court decisions, the biased or erroneous conclusions that AI provides will affect a greater number of cases, resulting in the implementation and aggravation of the flaws and biases in data.

3. Turning Risks into Benefits: Human Oversight

[46] Enabling human oversite is one way to counteract this risk. If judges and court clerks can assess and examine AI's suggestions, they can anticipate the flaws and biases better. As suggested in a previous section, appropriate AI training for judges and court clerks is essential.

[128] Chohlas-Wood, *supra* note 42.

[129] FORREST, *supra* note 45, at 36.

[130] *See* Chohlas-Wood, *supra* note 42 ("Algorithmic RAIs have the potential to bring consistency, accuracy, and transparency to judicial decisions.").

F. Transparency of Court Decisions

[47] Judicial transparency has been recognized as one of the key elements for public confidence in the justice system.[131] Transparency is essential for people to monitor, examine, and predict court decisions. It is a broad term that is discussed in various contexts such as disclosure within the trial processes, or of court decisions and their reasonings, enforcement information, etc.[132] This section focuses on the disclosure of court decisions and their reasonings.

1. Benefits: Resolving the Black Box Issue of Judges

[48] In many cases, people find court decisions inscrutable and unclear, and they see judges as opaque black boxes.[133] The opacity of judgments is

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[131] *See Judicial Conference Adopts Transparency Measures*, U.S. COURTS (Mar. 15, 2022), https://www.uscourts.gov/news/2022/03/15/judicial-conference-adopts-transparency-measures [https://perma.cc/EMK6-XZWE] ("[T]he Judicial Conference's Financial Disclosure Committee has been discussing posting judges' financial disclosure reports online to increase transparency and help improve public confidence in the Judiciary . . ."); *see also* Chris Oxtoby & J. Alfred Mavedzenge, *The Importance of Transparency in Judicial Selections and Appointments*, U.N. OFF. ON DRUGS AND CRIME (last visited Mar. 28, 2022), https://www.unodc.org/dohadeclaration/en/news/2019/09/the-importance-of-transparency-in-judicial-selections-and-appointments.html [https://perma.cc/HG95-WMJU] ("Participants . . . repeatedly identified transparency as being crucial to ensuring public confidence in the judicial selection and appointment process, and thus ultimately to the legitimacy of that process.").

[132] *See Judicial Transparency of Chinese Courts*, SUP. PEOPLE'S CT. OF THE PEOPLE'S REPUBLIC OF CHINA (July 20, 2015), https://english.court.gov.cn/2015-07/20/c_766129.htm [https://perma.cc/39WM-NEBH].

[133] Andrea Bonezzi et al., *The Human Black-Box: The Illusion of Understanding Human Better Than Algorithmic Decision-Making*, 151 J. EXPERIMENTAL PSYCH.: GEN. 2250, 2250 (2022) (arguing that judges issue rulings without explaining their decision making, similar to black-box algorithms); Wim De Mulder et al., *Are Judges More Transparent Than Black Boxes? A Scheme To Improve Judicial Decision-Making By Establishing A Relationship With Mathematical Function Maximization*, 84 L. & CONTEMP. PROBS. 47, 48 (2021) (arguing that judges act in a human black box manner when they produce a single outcome for a case without explaining alternative rulings).

problematic since it blocks litigants from examining past court decisions and considering whether to appeal. This mystery surrounding judgments also harms the predictability of court decisions which is essential to the legal system.

[49] AI is expected to make judicial reasoning more transparent.[134] For example, there are RAIs that use a checklist, which discloses the elements they consider when measuring the recidivism risks,[135] therefore improving transparency in criminal decision-making.[136]

2. Risks

a. Black Box AI Turning Courts into a Huge Black Box

[50] Despite any disclosures AI might make, AI also risks exacerbating judicial opaqueness.

[51] First, AI has the potential of becoming a black box to humans. This is because AI, especially the ones that use machine learning, tends to be very complex and inscrutable.[137] Even the engineers who create AI cannot fully understand how and why it arrives at certain conclusions.[138] Unless AI

[134] Jeff Ward, *10 Things Judges Should Know About AI*, 103 JUDICATURE 12, 15 (2019).

[135] EPIC, *supra* note 43, at 1.

[136] Chohlas-Wood, *supra* note 42.

[137] ENGSTROM ET AL., *supra* note 89, at 75.

[138] *Id.* at 75 ("Even a system's engineers may not understand how it arrived at a particular result or be able to isolate the data features that drove the model's prediction."); *see* Andrew Burt, *Is There a 'Right to Explanation' for Machine Learning in the GDPR?*, INT'L ASS'N PRIV. PROS. (June 1, 2017), https://iapp.org/news/a/is-there-a-right-to-explanation-for-machine-learning-in-the-gdpr/ [https://perma.cc/QTN2-NMGE] ("[T]he only thing harder than training good models is explaining them.").

is able to explain its own considerations, its decisions may be inexplicable.[139]

[52] In addition, courts will need to disclose sufficient information about how and when they are using the system or AI can turn the whole court into a huge black box.[140] For example, in one criminal case in the U.S., the defendant argued that the court's sentencing decision that used an RAI lacked transparency.[141] The defendant argued the court's decision was unreviewable because it did not provide information about how the RAI assessed the defendant's recidivism risks.[142] These concerns have led some states to regulate the use of RAIs to improve the transparency of decision-making in criminal cases.[143]

[53] None of these issues will be solved by simply disclosing the algorithm. For most people an algorithm is unreadable, and even then, the algorithm itself may not fully explain why the AI arrived at an individual conclusion.

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[139] ENGSTROM ET AL., *supra* note 89, at 75 (arguing that many of the algorithmic tools that government agencies use are not explainable).

[140] *Id.* at 7 ("When public officials deny benefits or make decisions affecting the public's rights, the law generally requires them to explain why."); Brandon Garrett & John Monahan, *Risk: The Use of Risk Assessment in Sentencing*, 103 JUDICATURE 42, 47–48 (2019).

[141] State v. Loomis, 2016 WI 68, ¶ 6–7, 371 Wis. 2d 235, 243, 881 N.W.2d 749, 753.

[142] *Id.* at ¶¶ 47, 52, 371 Wis. at 257–59, 881 NW.2d at 761; Garrett & Monahan, *supra* note 140, at 42–43.

[143] *See, e.g.*, EPIC, *supra* note 43, at 11 (noting that Idaho, in 2019, enacted a law that requires all documents, data, records, and information used to build or validate RAI and ongoing documents, data, records, and written policies outlining the usage and validation of the RAI to be publicly available).

b. Adversaries Manipulating the System

[54] Another reason it would be unhelpful to disclose the algorithm is because doing so invites a different risk: the system could be reverse-engineered and manipulated by adversaries into deciding in a way that favors one party.[144] This type of manipulation may only be possible by those who have the resources to hire specialists with the know-how to find a loophole, resulting in additional inequities.[145]

[55] One way to counteract the risk of adversarial attacks is to raise the complexity of algorithms.[146] However, the more complex the AI is, the more inscrutable and difficult to explain its conclusion will be.[147] This approach would harm courts' transparency.

[56] Another approach would be to impose sanctions on those who manipulate the court's AI.[148] However, uncovering the manipulation and identifying the actors may not be an easy task because it would require courts to have strong protective monitoring mechanisms, which would demand a huge financial investment.[149]

3. Turning Risks into Benefits: Making Decisions Explainable

[57] One way for courts to avoid becoming black boxes and to improve transparency is to sufficiently explain the rationale for each decision. This applies to both judges and AI. If courts are going to use AI for legal

[144] ENGSTROM ET AL., *supra* note 89, at 7, 88.

[145] *Id.* at 86–87.

[146] *Id.*

[147] *Id.* at 87.

[148] *Id.*

[149] *See* ENGSTROM ET AL., *supra* note 86, at 87.

decision-making, the algorithms must be programmed to explain how they reached a certain conclusion: the so-called "Explainable AI".[150]

[58] One concern is that creating an Explainable AI may not be the most sophisticated or efficient modeling approach to achieve its purpose.[151] Requiring AI to be explainable will narrow the design choices and demand development costs for explanatory functionality.[152] Courts may face a dilemma between creating an Explainable AI and pursuing efficiency.[153]

G. Security Risks and Privacy Protection

[59] Last, but definitely not least, security risks are unavoidable when courts use technology. If AI is powered by data, data security will be a huge concern for courts.[154] Courts will be expected to invest in protecting people's privacy.

H. A Brief Summary

[60] The implementation of AI brings a variety of benefits. It has the potential to enhance the accessibility of courts, improve court procedure efficiencies, mitigate human biases, anticipate human errors, and improve the consistency and transparency of court decisions. Although these benefits are contextual, there is substantial potential for AI to contribute to improving the courts' legal services in a variety of ways.

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[150] Ashley Deeks, *The Judicial Demand for Explainable Artificial Intelligence*, 119 COLUM. L. REV. 1829, 1833–34 (2019).

[151] *See id.* at 1834; ENGSTROM ET AL., *supra* note 89, at 75; Finale Doshi-Velez et al., Accountability of AI Under the Law: The Role of Explanation 21 (Nov. 3, 2017) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3064761 [https://perma.cc/H6XZ-DFPH].

[152] *See* Deeks, *supra* note 150, at 1834.

[153] *See* ENGSTROM ET AL., *supra* note 89, at 76.

[154] *Id.* at 72.

[61] However, AI also brings certain risks such as digital exclusion, lack of responsiveness and responsibility, enhancing biases in data, misguiding users by mistakes, damaging courts' transparency, and security breaches. When implementing AI, courts must structure systems that mitigate these risks. By creating systems to anticipate the risks, courts may maximize the benefits and minimize the risks of AI.

III. POSSIBILITIES AND PROBLEMS OF INSTALLING AI IN DIFFERENT JURISDICTIONS

[62] Although AI provides great benefits to courts, AI that is successful in one jurisdiction may not be as successful in another. This section will briefly introduce the legal, ethical, and practical problems discussed in the U.S. and Japan to demonstrate how controversial AI can be.

A. Problems Under the U.S. Legal System

[63] RAIs have raised constitutional debates in relation to the Due Process Clause and the Equal Protection Clause.[155] The criticism is that RAIs lack individualization and accuracy which are both necessary elements for the protection of due process rights.[156] Another criticism is that RAIs' risk scores violate minorities' rights to equal protection because the data RAIs rely upon is racially and sexually biased.[157]

[64] If an AI judge adjudicated cases, it is likely to be even more controversial than merely providing a risk score as RAIs currently do. The lack of individualization and accuracy, and the biases caused by

[155] State v. Loomis, 2016 WI 68, ¶ 80, 371 Wis. 2d 235, 270, 881 N.W.2d 749, 766 (Wis. 2016).

[156] *See id*; Danielle Keats Citron, *Technological Due Process*, 85 WASH. L. REV. 1249, 1254 (2008); Kate Crawford & Jason Schultz, *Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms*, 55 B.C. L. REV. 93, 124–25 (2014).

[157] *See* EPIC, *supra* note 43, at 9–10.

discriminative data could be detrimental to defendants if AI were to make a final legal decision autonomously. In addition, an AI judge may conflict with the Appointment Clause, the Vesting Clause, the Public Trial Clause, or the Impartial Jury Clause of the U.S. Constitution.[158] More fundamentally, some argue that judicial decision-making is about deciding legal issues based on the concepts of fairness and morality, which cannot or should not be delegated to AI.[159] Others argue that the automation of legal decision-making can harm the capacity of courts to create legal rules through adversarial debate.[160]

B. Problems Under the Japanese Legal System

[65] Under the Japanese legal system, the use of AI may be controversial in different ways. First, RAIs and AI judges that adjudicate cases would be controversial under Article 14 of the Japanese Constitution, which prohibits any discrimination by race, creed, gender, social status, or family origin.[161] The use of AI would conflict with this statute when it is biased not only by race or gender but also by other factors such as creed, social status, or family origin.

[66] Second, if courts used AI in criminal procedures and failed to explain the rationales for reaching a certain conclusion, their decisions would conflict with Article 44 of the Japanese Criminal Procedure Code, which requires all judgments and other judicial decisions subject to objection to be accompanied by reasoning.[162] Further, violation of this

[158] *See generally* U.S. CONST. art. II, § 2; *id.* art. III, § 1–2; *id.* amend. VI (implying that these clauses to the U.S. Constitution require people to be in positions in our judicial system, not AI).

[159] *See* FORREST, *supra* note 45, at 32.

[160] *See* ENGSTROM ET AL., *supra* note 89, at 85.

[161] *See* NIHONKOKU KENPŌ [KENPŌ] [CONSTITUTION], art. 14 (Japan).

[162] *See* KEIJI SOSHŌHŌ [KEISOHŌ] [C. CRIM. PRO.] art. 44 (Japan).

statute would also mean the violation of Article 31 of the Japanese Constitution, which prohibits the imposition of any criminal penalty without established criminal procedures.[163] A similar problem would occur in civil cases under Article 253 of the Japanese Civil Procedure Code, which requires grounds to accompany all judgments.[164] Lastly, although not necessarily unique to Japan, if an AI judge adjudicated cases, it would conflict with Constitutional Law principles which protect people's rights to access courts that are assumed to consist of human judges.[165]

C. The Importance of having a Tailormade AI

[67] In sum, the implementation of AI raises different legal, ethical, and practical issues in different jurisdictions. For example, court decisions assisted by or derived from AI could be controversial in different ways in the U.S. and Japan: individualization and accuracy are the two main constitutional concerns under the Due Process Clause in the U.S., whereas, in Japan, the software's ability to explain the rationale would create a constitutional problem.

[68] Given the variety of issues that AI encompasses, AI would need to be tailored specifically for the courts in each jurisdiction to create an AI system that blends with each individual legal system.

D. The Importance of Choosing the Right Phases for AI Implementation

[69] The more AI gets involved in courts' legal decision-making, the more ethical, legal, and practical issues it will encompass. In other words, AI will be less controversial when it is implemented in phases farther from the courts' legal decision-making.

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[163] *See* NIHONKOKU KENPŌ [KENPŌ] [CONSTITUTION], art. 31 (Japan).

[164] *See* MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 253 (Japan).

[165] NIHONKOKU KENPŌ [KENPŌ] [CONSTITUTION], art. 32 (Japan).

IV. BUILD OR BUY

[70] There are two main ways for courts to implement tailored AI. One is to build AI on their own and the other is to buy AI from commercial vendors.

[71] Courts are usually ill-equipped to create new technology due to a lack of expertise, while many companies have the expertise to produce a better system at a lower cost. In fact, Xiao Fa, Intellidact AI, and COMPAS are all commercial products.[166] However, outsourcing the entire creation of AI and relying fully on commercial development is very problematic for the reasons discussed below.[167] Indeed, there are several cases in which courts have participated in the creation of AI. For example, the Solution Explorer, EXPERTIUS, and VICTOR were all built through the collaboration of courts and engineers, lawyers, or universities.[168]

[72] This section will discuss the risks of purchasing commercially produced AI, analyze the hurdles for courts to create AI on their own, and suggest several ways that courts can overcome these hurdles.

A. Risks of Purchasing AI from Commercial Companies

1. Creation Under Insufficient Understanding

[73] The first concern is that engineers working for companies likely do not have a nuanced understanding of the work of the courts.[169] Algorithms written by engineers who lack an understanding of the courts' needs, legal

[166] *See, e.g.*, Yin, *supra* note 10; *Intellidact AI*, *supra* note 24; EPIC, *supra* note 43, at 9.

[167] ENGSTROM ET AL., *supra* note 89, at 71.

[168] Salter et al., *supra* note 5; Cáceres, *supra* note 57; BREHM ET AL., *supra* note 35, at 13.

[169] *See* ENGSTROM ET AL., *supra* note 89, at 71.

and regulatory background, and the technical capacity of court officials are potentially highly troublesome.[170]

2. Motivation Problems Among Judges and Court Clerks

[74] AI purchased from commercial vendors may face resistance among judges and court clerks. Learning and adjusting to new technologies is often time-consuming and people tend to be skeptical about whether new systems are useful and efficient compared to the routine they are familiar with.[171] To encourage judges and court clerks to utilize new technology, AI needs to have a user-friendly interface that lowers this hurdle.[172] It may be difficult if the AI is created by engineers who lack understanding of those professionals who will operate the system on a daily basis.

3. Being Blocked from Monitoring and Assessing the Quality of AI

[75] AI is recognized as a product that is relatively difficult to monitor for quality, and companies have a perverse incentive not to disclose information on the basis of intellectual property and trade secret protections.[173] By outsourcing AI and giving more discretion to these commercial entities, courts invite the risk of being excluded from information critical to monitoring and assessing the AI's quality.[174]

[76] For example, the United States Department of Homeland Security reported the inability to explain the failure rates of an AI product they

[170] *Id.* at 73.

[171] *Id.*

[172] *Id.*

[173] *Id.* at 71, 89.

[174] *See* ENGSTROM ET AL., *supra* note 86, at 71, 89.

outsourced due to restrictions in the contracting terms.[175] If courts were blocked from monitoring their AI products and were unable to explain error rates or their causes, courts would lose people's trust and it would be difficult to maintain public support for implementing new technologies.

4. Liability and Responsibility Problem

[77] Outsourcing AI also raises allocation of liability problems. For example, if a judge makes an erroneous decision on the advice of AI, should the liability be allocated to the engineer who wrote the algorithm, the manufacturer who sold or licensed the system to the court, or the judge who made the decision?[176] Regardless of the logical or legal conclusion to this question, people ultimately expect the courts to take responsibility. An explanation that the algorithm was outsourced is unlikely to be accepted or tolerated. Outsourcing AI could put courts in the vulnerable position of having to take responsibility for errors that are out of their reach.

5. Delay in Updating and Upgrading the Systems

[78] Outsourcing the creation of AI could delay updates and upgrades. Implementing AI is an iterative, four-step process (designing, developing, deploying, and monitoring), where AI needs to be constantly updated and upgraded.[177] Updates and upgrades will be required whenever errors in the algorithm are discovered. Moreover, changes in regulations, policies, or social circumstances will be cause for changes in the algorithm. To address the need to update and upgrade the algorithm promptly, AI requires continuous monitoring.[178] Because companies' work is fully removed from the courts, relying entirely on these entities will make such timely updates

[175] *Id.* at 89.

[176] *See id.* at 74.

[177] *See* U.S. GOV'T ACCOUNTABILITY OFF., GAO-21-519SP, ARTIFICIAL INTELLIGENCE: AN ACCOUNTABILITY FRAMEWORK FOR FEDERAL AGENCIES AND OTHER ENTITIES (2021).

[178] ENGSTROM ET AL., *supra* note 89, at 73.

and upgrades difficult.[179] Additionally, outsourcing the monitoring will impose a heavy financial cost.[180]

6. Losing Chances to Counteract AI Bias

[79] Courts need to monitor AI to anticipate any biased treatment and make sure biases are not reconstructed through other features. If courts do discover biases in an AI's conclusions, they must promptly counteract them.[181] Such close engagement will be difficult if courts have outsourced the creation of AI.

7. Uncontrollable Distribution of Know-Hows by Commercial Companies

[80] Outsourcing AI invites risks of losing control of the know-how that commercial companies gain through contracts with courts. For example, a commercial company that provided an automatic classification tool to the U.S. Patent and Trademark Office (PTO) is now selling services to patent applicants, advertising that they have special experience gained through their contract with the PTO.[182] This can lead to conflicts of interest and serious information leaks.[183] Not all parties would be able to afford to buy the know-how and services, therefore this can result in unfairness.[184] If

[179] *Id.* at 89.

[180] *Id.*

[181] *See* ENGSTROM ET AL., *supra* note 89, at 81; Kleinberg et al., *supra* note 112, at 22; Cynthia Dwork et al., *Fairness Through Awareness,* PROCEEDINGS OF THE 3RD INNOVATIONS IN THEORETICAL COMPUTER SCIENCE CONFERENCE 214 (2012).

[182] *See* ENGSTROM ET AL., *supra* note 89, at 87.

[183] *See id.* at 89.

[184] *See id.* at 87.

courts outsourced AI, they might invite similar risks and end up losing people's trust.[185]

8. Losing Chances to Foster Internal Expertise

[81] By outsourcing AI creation, courts might lose a chance to foster internal expertise. Technology is advancing at a rapid pace, and catching up only gets harder. If courts do not participate in the building of AI, they will probably never be able to join the discussion.

9. Cost Issues

[82] Finally, financial costs will be an issue when courts outsource AI creation. Purchasing or licensing AI can be costly. Even if courts could purchase AI at a reasonable price, AI requires continuous and iterative monitoring, updating, and upgrading, which by itself could be costly.[186]

10. Brief Summary

[83] In sum, outsourcing the creation of AI invites multiple serious risks, and courts can easily be left behind in the four phases of AI implementation: designing, developing, deploying, and monitoring. It is essential for courts to engage in AI creation and be present in all four steps.

B. Hurdles for Courts to Create AI

[84] Although it is essential for courts to engage in the creation and implementation of AI, there are hurdles that courts need to overcome before they can do so.

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[185] *See id.*

[186] *See id.* at 89.

1. Lack of Expertise

[85] The greatest challenge for courts will be to generate internal technical expertise.[187] Hiring engineers and building internal expertise will be a tough task for courts due to the extremely competitive labor market.[188] While companies attract experts with high salaries and stock options, courts need to find a different way to incentivize experts under a limited budget.[189]

2. Cost Issues

[86] Another hurdle for courts to create and implement AI on their own is the financial cost. To implement AI, throughout the four steps of designing, developing, deploying, and monitoring, courts need to test, evaluate, update, and even retire some AI.[190] When building AI, technological failure is to be expected, and investing in systems that get scrapped is necessary. Building AI is therefore a costly mission.

C. Ideas of How Courts can Approach the Creation of AI

[87] There are multiple risks to outsourcing the creation of AI to commercial entities, but it is difficult for courts to generate enough internal expertise and budget to create and implement AI on their own. One way to deal with this dilemma is to select the tasks that should be handled by internal experts and outsource the rest. Technically complex but standardized tasks such as securing the database and upgrading computer infrastructure may be outsourced, whereas designing, updating, and

[187] *See* ENGSTROM ET AL., *supra* note 89, at 71.

[188] *See id.* at 89.

[189] *See id.* at 73.

[190] U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 177, at 18; ENGSTROM ET AL., *supra* note 89, at 73.

maintenance of the tools which must be tailored to the court's needs and policies are better handled by in-house experts.[191]

[88] Another idea is to collaborate with non-commercial entities such as universities, NPOs, or NGOs.[192] By creating a cooperative relationship with these non-commercial entities, courts can gain access to expertise without contracting with commercial companies or recruiting technologists.[193] A few examples are VICTOR and EXPERTIUS which were built through the collaboration of courts and universities.[194] Competitions are one way to incentivize non-commercial entities.[195] Any prize money will likely be a small investment compared to the financial cost of contracting with a commercial company.[196]

D. Brief Summary

[89] There are several possible approaches to implement AI in courts but relying fully on commercial products will be risky and harmful for multiple reasons. Courts are strongly recommended to engage in all four phases of AI implementation.[197]

[191] *See* ENGSTROM ET AL., *supra* note 89, at 89.

[192] *See id*. at 90.

[193] *Id.*

[194] BREHM ET AL., *supra* note 35, at 13; Cáceres, *supra* note 57.

[195] ENGSTROM ET AL., *supra* note 89, at 90.

[196] *Id.*

[197] U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 177, at 16–17.

V. DESIGNING AI FOR COURTS: WHERE TO START, AND HOW TO THINK

A. Suggestions for Courts to be "All-In"

[90] As discussed in the previous section, it is essential for courts to actively participate in each of the four implementation processes of AI. For the designing phase, one possible approach is top-down, in which the executives decide where and how to use new technologies. However, given that there are many ways AI can be beneficial, it is impossible for a limited number of executives to understand every way in which AI can be helpful. Therefore, this Article suggests that courts invite all the judges and court clerks who handle cases at the forefront to join the discussion to consider the best ways to implement AI. Courts should fully commit to the advancement of AI technology.

[91] Additionally, inviting judges and court clerks to join the developing process would be even more effective in creating better AI. In particular, holding meetings with experts, judges, and court clerks can be an extremely easy and effective means to create mutual understanding. Direct and intense communication between all participants can lead to this mutual understanding and subsequently the creation of well-tailored AI.

B. Brief Frameworks for Judges and Court Clerks to Design AI

[92] It is essential to invite judges and court clerks to join the discussion for designing AI. However, judges and court clerks at the forefront usually do not have expertise in technology. To lower the hurdle due to a lack of specialized technological knowledge, this section will suggest a brief framework that can be useful when discussing new ideas relating to AI implementation.

1. Introductory Question: Can AI Help?

[93] As an introductory question, this Article suggests judges and court clerks think freely about whether AI can be of any help in their work. This question aims to encourage judges and court clerks to review their work and

see if there is any part that AI could help with. This is the most basic and important question.

[94] If judges and court clerks need information about what AI is and what it can do for courts, section I provides examples of AI currently used in courts around the world.

2. What Internal & External Needs are There?

[95] To broaden and deepen the discussion, this Article suggests judges and court clerks discuss whether there are any other internal or external needs for AI. For external needs, thinking of what people expect of courts will be crucial. Do people want faster but somewhat rough procedures or slow but courteous and tailored legal services? Why do people hesitate to seek justice in court? Is it the time-consuming procedure, cost, a lack of trust in judges, or physical distance to courthouses? What do people feel that courts should work on?

[96] A public survey could be helpful to discuss this question. For example, a 2016 survey in Japan asked 3,146 litigants questions about civil lawsuits.[198] The survey showed that, when asked the question, "When you filed a lawsuit, did you hesitate or feel that you want to avoid it if possible?" 49.4% answered, "[y]es, I hesitated."[199] As for the reasons they hesitated, the most selected answer was, "[b]ecause I thought litigation is time-consuming," chosen by 78.4%, followed by, "[b]ecause I thought litigation costs a lot of money," chosen by 75.3%, "[b]ecause I thought litigation is burdensome," chosen by 59.4%, and, "[b]ecause I did not have knowledge nor experience in litigation and felt nervous," chosen by 55.6%.[200] These

[198] IKUO SUGAWARA ET AL., *MINJISOSHOU NO JITSUJOU TO KADAI* [THE REALITY AND PROBLEMS OF CIVIL LITIGATION] 7, 13, 275 (2021).

[199] *Id*.

[200] *Id*.

surveys require careful examination, but they explain the ways in which people expect courts to change.

[97] If judges and court clerks need more information about what needs AI can address, section II provides examples of the benefits AI brings.

3. Is It a Repetitive Task?

[98] The third question is whether the task is repetitive. In the present day, AI is a technology powered by data.[201] In order to create usable AI, it is necessary to have sufficient data to feed it.

a. How Much Data We Need to Train AI

[99] There is no single answer to the amount of data necessary or sufficient to create AI because its accuracy improves when it is given more data.[202] It is possible to create AI with a limited amount of data, but accuracy rates will suffer. To provide a rough image of how much data AI uses, Socrates was trained with 300,000 court decisions, and VICTOR was educated with more than 100,000 lawsuits and 3,000,000 case dockets.[203]

b. How Courts Can Create a Database

[100] Most old court documents are on paper and not digitized, and some might even be hand-written. However, the lack of existing electronic data should not be a problem because technology called Optical Character Recognition (OCR), which was used by the Brazilian court when creating VICTOR, can be helpful.[204]

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[201] *See* U.S. GOV'T ACCOUNTABILITY OFF., *supra* note 177, at 15.

[202] Jason Brownlee, *How Much Training Data is Required for Machine Learning?*, MACH. LEARNING MASTERY (May 23, 2019), https://machinelearningmastery.com/much-training-data-required-machine-learning/ [https://perma.cc/M4TG-RHXQ].

[203] Becker & Ferrari, *supra* note 61, at 5.

[204] *Id*.

c. The Importance of Frequency

[101] When thinking of repetitiveness, the frequency of the task will also be important. This is because data gets old and loses value over time.[205]

4. Is It a Part of the Legal Judgment or Is It a Procedural Task?

[102] The fourth question is about the distance between the task and the decision-making process by the court. As discussed in section III, AI becomes more controversial when it is involved in a court's decision-making. Therefore, courts are advised to avoid taking on risks and potential controversies by using AI for tasks that are distant from the decision phase.

[103] This distance also helps courts guard themselves against adversarial attacks. There will be less incentive to hack a court's AI system if it has minimal connection to the judge's decision-making. Even if the AI gets hacked, courts will be able to minimize the impact on judgments.

5. Does That Task Require Human Touch?

[104] The fifth question for judges and court clerks is whether their task requires compassion, empathy, collaboration, teamwork, people's trust, creativity, emotion, etc., which implies it is necessarily done with a human touch.[206] As discussed in section II, the implementation of AI can put courts' responsiveness at risk. If a service provided by courts requires a human

[205] Dell Technologies, *AI And Machine Learning: How Much Data Is Enough?*, FORBES (Apr. 15, 2019, 1:47 PM), https://www.forbes.com/sites/delltechnologies/2019/04/15/ai-and-machine-learning-how-much-data-is-enough/?sh=73c27c153536 [https://perma.cc/ZB9C-D65R].

[206] *See* Susskind, *supra* note 78, at 273; The Economist Asks, *How will we use artificial intelligence in 20 years' time?*, THE ECONOMIST, at 15:10–16:00 (Aug. 26, 2021), https://www.economist.com/podcasts/2021/08/26/how-will-we-use-artificial-intelligence-in-20-years-time [https://perma.cc/QB2G-CSFY].

touch, that would be a clear signal that this portion of work is unsuitable to delegate to AI.

6. Optional Question: Any Ideas for a Solution?

[105] The last question asks if there are any ideas for a solution. This question is optional because judges and court clerks are usually not experts in technology, and it is natural that they have no solutions in mind.

C. Brief Summary

[106] When implementing AI in courts, it is essential for all judges and court clerks to join the discussion. As for the designing phase, judges and court clerks may start the discussion by answering the following 6 questions: Can AI help? What internal and external needs are there? Is it a repetitive task? Is it a part of the legal judgment or is it a procedural task? Does that task require a human touch? And as an optional question, do you have any ideas for a solution?

VI. CONCLUSION

[107] AI is currently used in various fields. Although courts are not frontrunners in the use of AI, there is a variety of AI being used in different court procedures. This emphasizes the significant advantages that can be achieved with AI. On the other hand, the use of AI entails certain risks and controversies. To mitigate these risks, courts need to build a system that compensates for the weaknesses of AI. Given that the controversies vary under different legal systems, AI needs to be tailored for courts in each jurisdiction. There are several ways to implement tailored AI in courts, but because outsourcing can introduce multiple risks, courts are advised to engage in all four stages of the implementation process. As for the designing phase, this Article suggests courts invite all judges and court clerks to join the discussion. Ultimately, this would be the best approach for designing AI for courts.