COST, ACCURACY, AND SUBJECTIVE FAIRNESS IN LEGAL INFORMATION TECHNOLOGY: A RESPONSE TO TECHNOLOGICAL DUE PROCESS CRITICS

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The United States spends substantially more as a percentage of GDP on legal services than most other countries. Simultaneously, various indicators suggest this outsized spending does not result in public perceptions of greater fairness or justice. While the digital automation of legal work offers the potential to help address this problematic paradigm, the legal academy's reception of automation in law has been critical. This Note responds to these criticisms by showing the demonstrable objective and subjective fairness benefits that legal automation can achieve—all while reducing costs.

INTRODUCTION

Today a variety of new legal technology companies stand ready to automate a diversity of tasks once exclusively completed by human lawyers. Although scholarly criticisms of legal automation abound, the rise of automation offers a cost-effective, accessible, accurate, and subjectively satisfying alternative to traditional human-based legal processes. Such technological alternatives arise at a time when legal services have become largely beyond the financial reach of the middle and lower classes,[1] and even our nation's wealthiest companies have increasingly implemented drastic measures to control apparently endlessly mounting legal costs.[2]

Several studies demonstrate that the United States dedicates an enormous amount of resources to the legal market; at least one study comparing legal outlays as a percentage of gross domestic product (GDP) has found overall legal spending in the United States to be 2.6 times greater than the average level in Europe, and 5.5 times greater than in Japan.[3] At the same time, annual satisfaction surveys con-

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[1] *See* William D. Henderson & Rachel M. Zahorsky, *Paradigm Shift*, 97 A.B.A. J. 40, 42 (2011) (explaining that, in Connecticut, over 80% of divorces have a self-represented party and 90% of criminal defendants are either self-represented or utilize government-provided lawyers). This situation will likely continue; in recent decades, legal fees have increased substantially, while middle and lower class incomes have stagnated. *Id.* at 46.

[2] *See infra* note 8 and accompanying text (describing various cost-cutting methods employed by companies).

[3] U.S. CHAMBER INSTITUTE FOR LEGAL REFORM, INTERNATIONAL COMPARISONS OF LITIGATION COSTS: CANADA, EUROPE, JAPAN, AND THE UNITED STATES 2, add.ix (2013), http://www.instituteforlegalreform.com/uploads/sites/1/ILR_NERA_Study_International_Liability_Costs-update.pdf (comparing overall legal costs across several different countries). This study found U.S. liability cost—a phrase used by the study to describe the cost of claims, whether resolved through litigation or alternative dispute resolution systems—as a percentage of GDP to be 1.66%. *Id.* at 2. Other studies and scholars estimate that U.S. legal spending is even greater, nearer to 2% of GDP. Henderson & Zahorsky, *supra* note 1, at 41; *see also* Joshua Kubicki, *Make That $400 Billion for US Legal Market Size*, LEGAL TRANSFORMATION INST. (Feb. 24, 2014), http://legaltransformationinstitute.com/blog/2014/2/22/make-that-400-billion-for-us (estimating the size of the U.S. legal market at above $400 billion, although direct legal services are only $274 billion); *see also* Jason F. Cohen, *The Japanese Product Liability Law: Sending a Pro-Consumer Tsunami Through Japan's Corporate and Judicial Worlds*, 21 FORDHAM INT. L.J. 108, 123 (1997) (noting that "[t]he United States has twenty-five times as many attorneys per capita" than Japan). A recent survey of corporate legal departments conducted by the Searle Center on Law, Regulation, and Economic Growth at Northwestern University found that "[a]s a percent of revenue, multi-national company respondents to the survey spend a disproportionate amount on litigation in the United States relative to their expenditures in foreign jurisdictions. Depending on the year, relative U.S. costs were between four and nine times higher than non U.S. costs (as a percent of revenue)." U.S. CHAMBER INSTITUTE FOR LEGAL REFORM, LITIGATION COST SURVEY OF MAJOR COMPANIES (2010), www.uscourts.gov/file/document/litigation-cost-survey-major-companies.

ducted by the World Justice Project suggest these high costs offer scant offsetting benefit. The surveys show that the accessibility and respect given to the rule of law is fairly low as compared to other nations, in spite of our justice system's outsized financial footprint.[4] The World Justice Project's Rule of Law Index 2015 ranked the United States at number thirteen out of twenty-four within its regional grouping.[5] Compared to nations with high income-levels, the United States was ranked at number nineteen out of thirty-one.[6] Other sources also reflect a certain societal frustration with the legal services sector.[7] Put simply, our nation spends more as a proportion of economic output on legal services than most others, but our citizens surprisingly do not, according to these measures, perceive these outlays to generate increased fairness or justice.

Corporate consumers of legal services have responded by structurally reforming how they obtain these services: by sourcing legal work to lower cost offshore markets, shifting work to more cost-efficient, in-house legal departments, and *most crucially*, by automating tasks previously done by human lawyers.[8] Simultaneously, there has

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[4] *See* Anjanette H. Raymond & Scott J. Shackelford, *Technology, Ethics, and Access to Justice: Should an Algorithm Be Deciding Your Case?*, 35 MICH. J. INT'L L. 485, 488–90 (2014) (discussing the World Justice Project's Rule of Law Index and its findings related to accessibility to legal services and costs).

[5] WORLD JUSTICE PROJECT, WORLD JUSTICE PROJECT RULE OF LAW INDEX 2015 21 (2015), http://worldjusticeproject.org/sites/default/files/roli_2015_0.pdf (grouping the United States with other countries from the European Union, European Free Trade Association, and North America).

[6] *Id.* at 22. Although the United States underperforms many of its peers on the global stage, it is worth noting that in the global rankings, the United States was ranked at number nineteen out of a total of 102 countries. *Id.* at 20.

[7] *See* Jeffrey Fagan, *Introduction to Legitimacy and Criminal Justice Symposium*, 6 OHIO ST. J. CRIM. L. 123, 123 (2008) ("Surveys of public opinion over four decades consistently show that Americans have little confidence in the fairness or effectiveness of the criminal justice system and criminal law more generally."); Rachel M. Zahorsky, *It's Not Just Money Fears Blocking Access to Legal Help; Lawyer Distrust Is Growing*, A.B.A. J.: LAW SCRIBBLER (Dec. 1, 2012, 8:20 AM), http://www.abajournal.com/magazine/article/its_not_just_money_fears_blocking_access_to_legal_help_lawyer_distrust_is_g (reporting that citizens were not only dissuaded from engaging attorneys to handle their legal claims for financial reasons, but because of distrust and negative views of the legal profession).

[8] *See* Henderson & Zahorsky, *supra* note 1, at 44–45 (describing the increased reliance on in-house attorneys and electronic legal services to reduce costs imposed by corporate law firms); *Law Firms: A Less Gilded Future,* ECONOMIST (May 5, 2011), http://www.economist.com/node/18651114 ("The legal business has undergone not only recession but also structural change. Ever-growing profits are no longer guaranteed. Nor, for some firms, is survival."). Mari Sako at Oxford's Said Business School undertook an extensive survey and interview with the general counsels of several dozen of the largest U.K. and U.S.-based companies. Her research chronicles how in-house legal departments increasingly drive cost savings by leveraging new tools such as competitive bidding processes for law firms, disaggregating and standardizing processes for their full or partial automation, use of legal process outsourcing firms, removing expensive lawyers from doing tasks others could do

been growth in digital alternatives, such as online legal information repositories or automated tools, available to otherwise legally underserved populations.[9] Both top-price corporate legal consumers and low-price individual consumers seem to be responding, at least partially, to the high costs and low perceived utility of traditional legal processes by turning to automation. These changes have inspired a boom in venture capital funding for dozens of start-ups seeking to automate legal work.[10]

Despite apparently sound reasons for this growing shift, the legal academy has displayed general hostility towards technology's replacement of manual processes. Most scholars involved in this area advocate grafting more manual (human-based) processes, human oversight, and other costly delays onto the automated systems that were created to address high legal fees and related burdens.[11] Many of these reasoned criticisms fundamentally ignore the untenably high costs and low user satisfaction that has motivated the substitution of information technology in legal processes.[12] They also tend to overem-

("de-lawyering"), and simply not doing marginal legal work. MARI SAKO, GENERAL COUNSEL WITH POWER? 11, 14–21 (2011), http://eureka.sbs.ox.ac.uk/4560/1/General_Counsel_with_Power.pdf. The key problem as explained by one interviewee is: "Let's be honest. Lawyers are not good at providing either systems or process or handling volumes." *Id.* at 21. Many of these findings appear also in a 2014 Chief Legal Officer Survey conducted by Altman Weil of 186 chief legal officers, which chronicles how only 4% of those surveyed "are satisfied with the traditional legal service delivery model" and over two-thirds of those surveyed are displacing traditional legal service providers with technological tools. ALTMAN WEIL, 2014 CHIEF LEGAL OFFICER SURVEY iii, 7 (2014), http://www.altmanweil.com/CLO2014/.

[9] *See* Henderson & Zahorsky, *supra* note 1, at 46–47 (discussing the structural shift caused by the introduction of technology in the legal marketplace).

[10] *See, e.g.*, Nicole Bradick, *All Rise: The Era of Legal Startups Is Now in Session*, VENTUREBEAT (Apr. 13, 2014, 8:32 AM), http://venturebeat.com/2014/04/13/all-rise-the-era-of-legal-startups-is-now-in-session/ ("In 2009, just 15 legal startups were listed on AngelList. There are now more than 400 startups and almost 1,000 investors."). Venture funding for legal technology in 2012 and 2013 is estimated at over $500 million. *Id.*

[11] *See infra* notes 67–72 and accompanying text (detailing scholarly criticisms of ADS).

[12] Crawford and Schultz propose extending the purview of due process beyond those systems used by government for adjudicating public rights and responsibilities to any situation where a predictive algorithm may be used to sort and select individuals for any private sector opportunities, suggesting that for any Big Data decisions, "the affected party must receive an opportunity to present an argument, evidence, and corrections to prejudice." Kate Crawford & Jason Schultz, *Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms*, 55 B.C. L. REV. 93, 115–17 (2014). Kenneth Bamberger acknowledges that the "risk control [platforms] that regulation demands simply cannot function without the data collection, analyzing, and monitoring capacities of integrated computer technology," yet he nevertheless advocates for "external institutions that can foster accountability in technology choices" and "much more intense regulator involvement in oversight and accountability with a threat of sanction." Kenneth A. Bamberger, *Technologies of Compliance: Risk and Regulation in a Digital Age*, 88 TEX. L. REV. 669, 673, 726, 729 (2010). In writing about credit scores and other automated

phasize certain cases when such systems have malfunctioned[13] or have otherwise led to worrisome results.[14] By amplifying a few cases when automated decision systems (ADS) have gone wrong—despite their ubiquitous implementation—this scholarship ignores the systematic cost, accuracy, and consistency gains that legal ADS can offer.[15] This Note argues that the ongoing evolution in legal ADS—and ADS' inherent malleability and scalability—actually makes such systems far more responsive than many scholars anticipate to the objective and subjective notions of fairness that undergird legitimate legal systems.

By carefully analyzing the systematic objective and subjective benefits of legal ADS, which are underappreciated or ignored by scholars writing on this topic, this Note finds good reason to support future legal automation. The argument proceeds in three parts. Part I discusses how automation is already reshaping the contours of the legal system and how some courts are responding. Part II summarizes the major scholarly criticisms of legal ADS and presents the objective advantages of such systems in addressing longstanding challenges surrounding legal complexity, consistency, and bias. Part III employs empirical findings of the social psychology of procedural justice scholarship to argue legal ADS deliver subjective fairness better than many manual processes. Because legal systems function as much by moral suasion as by active adjudication, accounting for these subjective fairness parameters will be crucial to allowing our society to realize the objective benefits that legal ADS offer.[16]

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ranking algorithms, Citron and Pasquale claim that "[i]f law and due process are absent from this field, we are essentially paving the way to a new feudal order of unaccountable reputational intermediaries." Danielle Keats Citron & Frank Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89 WASH. L. REV. 1, 19 (2014).

13 *See* Danielle Keats Citron, *Technological Due Process*, 85 WASH. U. L. REV. 1249, 1256–57 (2008) (chronicling examples of how the public benefits administration system in Colorado consistently generated improper results, how digitally generated No-Fly list frequently detained the wrong persons, and how Federal Parent Locator Service routinely misidentified individuals accused of delinquency on child support, among other failures).

14 *See* Crawford & Schultz, *supra* note 12, at 94–95 (discussing how Target predicted, with some degree of success, the pregnancy of certain shoppers before such individuals had announced it by tracking individual purchases and other data mining techniques).

15 *See* Maura R. Grossman & Gordon V. Cormack, *Technology-Assisted Review in E-Discovery Can Be More Effective and More Efficient Than Exhaustive Manual Review*, 17 RICH. J.L. & TECH. 11 (2011) (detailing how automated systems in e-Discovery likely produce more accurate results than massive manual review); J. Melissa Perry, Fed. Court of Austl., iDecide: The Legal Implications of Automated Decision-Making, Speech at the Cambridge Centre for Public Law Conference: Process and Substance in Public Law (Sept. 15, 2014), http://www.fedcourt.gov.au/publications/judges-speeches/justice-perry/perry-j-20140915# (discussing potential for greater accuracy through using IT in law, as well as related risks). *See* Part I, *infra*, for judicial recognition of these points.

16 *See* Rebecca Hollander-Blumoff & Tom R. Tyler, *Procedural Justice and the Rule of Law: Fostering Legitimacy in Alternative Dispute Resolution*, 2011 J. DISP. RESOL. 1, 6–10

In making this argument, this Note seeks to reframe the dialogue surrounding legal ADS in three ways. First, the objective performance of such systems should be analyzed in terms of their systematic potential to provide consistent application of the increasingly complex legal and regulatory regimes characteristic of the modern world, rather than on anecdotal examples of alleged errors. Second, the subjective legitimacy of such systems should be analyzed in light of empirically determined causal factors, such as perceptions of legal fairness, rather than through criticisms that unquestioningly equate fairness with traditional forms of legal practice. Finally, any evaluation of legal ADS must account for our nation's comparatively outsized spending on legal services. Framed this way, and despite the heretofore hostile scholarly reception, the evidence suggests wider use of legal ADS can both improve the objective and subjective fairness of our legal system while simultaneously controlling costs.

I
USE OF AUTOMATED SYSTEMS IN LAW

Over two decades ago, a prescient scholar, Henry Perritt, Jr., foresaw the potential marriage of information technology with legal practice.[17] He authored a detailed operational description for how comprehensive computer-based "Adjudication Management System[s]" and "Rulemaking Management System[s]" could automate, standardize, and streamline many legal processes to make them less costly.[18] Perritt criticized the false, but persistent, perception that the U.S. legal system crafted only individualized outcomes instead of "assembly line justice," or the resolution of a large volume of cases that are often highly repetitive.[19] Today, diverse parties seek to leverage software's scalability and consistency advantages—recognized several decades ago by Perritt—to better serve the interests of justice through automating manual human processes for a large number of simple, repetitive matters. The next sections chronicle two especially promising applications of ADS—the first related to public law and the second to private law—to legal processes previously completed by

(2011) (discussing the reasons that paying attention to subjective perceptions of procedural justice in designing systems can crucially affect the overall societal efficacy of such systems).

[17] *See* Henry H. Perritt, Jr., *The Electronic Agency and the Traditional Paradigms of Administrative Law*, 44 ADMIN. L. REV. 79 (1992) (arguing that the adoption of computers to perform administrative law functions would advance the traditional substantive goals of administrative law).

[18] *Id.* at 82–85.

[19] *Id.* at 98.

human operatives, in order to give an understanding of the current state of this technology and its potential.

A. Administration of Public Benefits Systems

Computers have substantially displaced human legal operatives in the administration of various government benefit programs. Traditionally, public benefits, such as welfare or other large-scale government entitlement programs, were administered by hundreds of human operators who used form templates to determine the benefits a party could receive. Gandy and Tepperman's sociological study of early automation in social welfare organizations illustrates the transformations wrought by early technology.[20] At one county's Department of Social Services, for example, before the implementation of the automated systems, agency employees would conduct site visits, interviews, and accumulate relevant data before making their own determination whether an individual was eligible for various government social services.[21] Following the implementation of the new automated system, human operatives went from actually calculating various income factors for eligibility, to simply imputing the data on *standardized parameters* for the computer to make this determination.[22] The substantive difference, albeit an early example, is that automated logical schema accept *quantifiable* data inputs to make legal determinations of eligibility, whereas before humans made such determinations with greater flexibility and discretion.[23]

In the decades since Gandy and Tepperman's study, legal ADS have expanded considerably in the administration of government benefits. Since the 1970s, the federal government has heavily subsidized the implementation of such systems at the state level.[24] Interest quickly developed in aggregating the administration of different social

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[20] *See generally* JOHN M. GANDY & LORNE TEPPERMAN, FALSE ALARM: THE COMPUTERIZATION OF EIGHT SOCIAL WELFARE ORGANIZATIONS (1990). This study surveyed over one hundred social welfare organizations regarding the effects of computerization upon their internal processes. Detailed site visits and interviews were collected for a smaller subset of these organizations. *See id.* at 29–34 (describing how the study was completed).

[21] *Id.* at 35–37 (describing the range of work-related activities completed manually).

[22] *Id.* at 47–48, 63–66.

[23] *Id.* at 21–25 (discussing the equitable and societal improvements and concerns presented by automation); *see also* Terrence Maxwell, *Information Federalism: History of Welfare Information Systems* 9 (The Nelson A. Rockefeller Inst. of Gov't., Working Paper, 1999), http://www.rockinst.org/pdf/workforce_welfare_and_social_services/1999-09-information_federalism_history_of_welfare_information_systems.pdf (noting that automation narrowed discretion and potential for error in welfare determinations).

[24] *See id.* at 5–6 (discussing early efforts by the federal government to incentivize state's movement toward automated systems).

benefit systems by "cross-check[ing]" information across different agencies, such as between social service systems and the Internal Revenue Service systems.[25] Government initiatives leveraged new technology, hoping to pursue new functionality and further integration throughout the 1990s.[26] Today this has resulted in a thicket of systems that use various standardized inputs in order to make legal determinations, which often serve as inputs for other decision systems.

A recent decision from California's Court of Appeals analyzed the objective benefits of such systems.[27] *Pich v. Lightbourne* considered allegedly erroneous benefits terminations arising from the implementation of CalWIN, a unified benefit management platform with a price tag of $744 million.[28] CalWIN makes initial eligibility determinations, calculates the amount of benefits allowed, generates warnings regarding potential benefit termination, and, crucially, has the capability to "automatically terminate benefits or impose a penalty."[29] While automated benefit administration systems had been used in these counties previously, such systems would not automatically execute an adverse decision without human involvement.[30] Although the plaintiffs in *Pich* had their benefits reinstated after an administrative appeal,[31] they still filed suit claiming that "CalWIN had systematic programming flaws that caused erroneous and automatic benefit terminations, reductions, and delays to thousands of benefit recipients."[32] In affirming the trial court's demurrer, the appeals court focused its analysis on two crucial points. First, it explored whether the trial court incorrectly refused to enforce the State Department of Social Services' "nondelegable duty . . . to ensure timely issuance of benefits."[33] Second, it considered whether CalWIN's implementation and operation violated statutory timing requirements or due process protections surrounding benefit issuance.[34] These questions required the court to analyze CalWIN's operational accuracy as well as its supervisory framework.

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[25] *See id.* at 6.

[26] *See id.* at 14–19 (discussing attempts to further integrate automated systems while noting that complexity in regulation prevented the design of any unitary-automated systems and led to new single-function systems being designed for each welfare program).

[27] *See* Pich v. Lightbourne, 164 Cal. Rptr. 3d 388 (Ct. App. 2013).

[28] *Id.* at 391–93.

[29] *Id.* at 392–93.

[30] *Id.* ("Prior to the use of CalWIN. . . eligibility continued until the caseworker took action to discontinue benefits.") It should be noted there was a manual override that gave employees the discretion to override CalWIN's determinations if needed. *Id.* at 486.

[31] *Id.* at 393.

[32] *Id.*

[33] *Id.* at 395.

[34] *Id.*

The court found that the manner in which the Department of Social Services "supervises the counties to ensure benefits are timely and correctly delivered is a matter of discretion."[35] For this reason, the court concluded the Department did not need to intervene every time an error was made, but only if the counties' processes were "substantially failing."[36] In answering this follow-on question, the court made a number of interesting observations. First, looking at instances of allegedly tardy benefit distributions, the court explained that in all of these cases the system functioned properly, "but the caseworkers had not."[37] Second, while the court acknowledged some improper benefit terminations, it similarly concluded that "[t]he system's incorrect automatic terminations are the result of staff error, not CalWIN error," for which revisions in training procedures had already been implemented.[38] The court determined that a few errors—resulting from human mistakes—in the largest benefit system in the country did not constitute "substantial failure" under the relevant law.[39] While some social benefits system implementations have allegedly been more problematic,[40] this court at least recognized the high consistency, accuracy, and scalability of CalWIN and the tendency of most erroneous outcomes to be of human origin. In other words, in the eyes of this court, CalWIN demonstrated greater fidelity to principles of objective fairness than human operatives. This reaction contrasts markedly from the scholarly criticisms discussed below.

B. Online Dispute Resolution

While the above systems automate the application of explicit (although often complex) public law benefits rules, a recent flurry of software developments seek to automate a mainstay of traditional legal practice: the resolution of potentially multifaceted and unstructured disputes between parties. One of the leaders in the online dispute resolution field is a company called Modria, which leverages

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[35] *Id.* at 397. The court explains that governing state statutes "directed the [Social Services] Department, when supervising the counties, to be flexible, and to aid them, as opposed to direct them, in establishing their own methods of operation." *Id.* at 493.

[36] *Id.* at 398–99.

[37] *Id.* at 400–01. The court also explained that the Department and CalWIN's remedial efforts to prevent future reoccurrence of late payments clearly reflected the Department was properly supervising the system's administration. *Id.*

[38] *Id.* at 406–07.

[39] *Id.*

[40] *See* Gerry Smith, *How a Government Computer Glitch Forced Thousands of Families To Go Hungry*, HUFFINGTON POST (Mar. 27, 2014), http://www.huffingtonpost.com/2014/03/27/food-stamp-delays-north-carolina_n_4994822.html (overviewing numerous computer-based benefits program glitches affecting thousands of people).

automated processes developed at eBay to resolve tens of millions of disputes each year.[41] A Modria user inputs a dispute resolution policy, often included as part of a sales or service contract, which addresses issues such as "refunds, returns, exchanges and chargeback policies."[42] Upon the filing of a dispute by a customer, the program collects relevant information from the user's software platform and from the customer making the complaint, such as customer information, product information, shipping data, as well as the written complaint itself.[43] The presence of specified factors may be set to automatically trigger certain outcomes. For example, long-time or repeat customers without any history of disputes might automatically be granted whole or partial refunds.[44] The software determines relevant dispute parameters by applying various templates that were developed by modeling earlier disputes resolved through the platform.[45] If an automatic decision rule is not triggered, the software scours the relevant data to identify point(s) of contention and suggests various options for settlement.[46] Using dispute mapping, the system proposes a number of drop-down menus whereby the terms for a potential settlement can be hammered out through digitally structured interchanges between the parties.[47] Modria claims its system permits the resolution of up to 90% of disputes without any costly human intervention.[48] But if either party is unsatisfied with the result or cannot come to agreement through the

[41] *See The Modria Platform*, MODRIA, http://modria.com/product/ (last visited Dec. 31, 2015); *see also* Humayun Khan, *Modria Launches Dispute Resolution Tool to Scale Former Ebay and PayPal Tech*, BETAKIT (Nov. 19, 2012), http://betakit.com/modria-launches-dispute-resolution-tool-to-scale-former-ebay-and-paypal-tech/ (explaining the application of eBay technology to the dispute resolution platform on a pay-per-use basis).

[42] *How It Works*, MODRIA, http://modria.com/how-it-works/ (last visited Nov. 30, 2016). While premised on using private dispute resolution policy as the guiding rules for the software, any contractual framework or other legal doctrine could be substituted into the program instead.

[43] *Id.*

[44] *Id.*

[45] *See Modria Launches Global Platform for Online Conflict Resolution*, STEAMFEED (June 22, 2015), http://www.steamfeed.com/modria-launches-global-platform-for-online-conflict-resolution/ (discussing how Modria's Fairness Engine was developed from modeling eBay disputes).

[46] *See* Paul Sawers, *Ebay and PayPal Spin-Off Modria Launches Its Conflict-Resolution Platform*, THENEXTWEB (Nov. 19, 2012), http://thenextweb.com/apps/2012/11/19/ebay-and-paypal-spin-off-modria-launches-its-online-conflict-resolution-platform-for-businesses/.

[47] *See* Sarah Kessler, *Ebay Spinoff Modria Is Judge Judy for Cyber Shoppers*, FAST COMPANY (Feb. 5, 2013), http://www.fastcompany.com/3005402/ebay-spinoff-modria-judge-judy-cyber-shoppers ("In some cases, the person with the complaint puts together a solution proposal using pre-populated drop-down menus. That proposal is sent to the other party in the dispute, who can counteroffer,. . . [f]or more complicated cases, Modria offers the same kind of mediation and arbitration that a court would.").

[48] *See How It Works*, *supra* note 42.

digitally structured process, the platform facilitates the involvement of an independent third party mediator or arbitrator who uses the evidentiary record digitally compiled in the earlier phases of the dispute.[49] While Modria initially targeted small or multi-jurisdictional disputes that would otherwise be left unresolved, current plans suggest an intent and capability to resolve disputes with tens of thousands of dollars or more at stake.[50] The company conceptualizes its software as the "Fairness Engine," a theme this Note will explore in Part III.[51]

Online dispute resolution platforms, like Modria, have received limited and superficial attention in case law. A number of courts have simply found that the existence of an online dispute resolution option does not preclude adjudication in traditional courts, or analyze the enforceability of clauses requiring online dispute resolution under unconscionability doctrine.[52] One case offers only a passing comment on how the disputants before the court previously considered using an online dispute resolution mechanism before ultimately declining to do so.[53] One of the few cases that substantively addresses the merits of automated dispute resolution systems involved information gathered by Experian's online dispute resolution tool, in the context of a claim for inaccurately reporting a debt.[54] In this case, the plaintiff complained that this tool unfairly "restricted her to select[ing] from a prefilled set of dispute categories."[55] In part because Experian was voluntarily dismissed from this case, the court concluded that it was reasonable for the defendant to rely on data collected by Experian's system, even if its program limited the data entry options available to users.[56] Taken together, the few cases in which automated dispute resolution was directly at issue suggest that courts tend to perceive ADS as comparable to other kinds of alternative dispute resolution options and,

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[49] *See id.*; *see also* Kessler, *supra* note 47.

[50] *See* Frederic Lardinois, *Modria Launches a "Fairness Engine" for Online Dispute Resolution*, TechCrunch (Nov. 19, 2012), http://techcrunch.com/2012/11/19/modria-launches-a-fairness-engine-for-online-dispute-resolution/ (explaining Modria's model for claim valuation).

[51] Khan, *supra* note 41.

[52] *See* Attaway v. Omega, 903 N.E.2d 73, 80 (Ind. Ct. App. 2009) (holding that eBay's dispute resolution service does not preclude adjudication in state court); Stenzel v. Dell, Inc., 2004 Me. Super. LEXIS 108, *4–8 (Me. Mar. 10, 2004) (analyzing enforceability of clauses requiring online dispute resolution under the unconscionability doctrine in the context of claims for overcharging sales taxes and unfair or deceptive business practices, but upholding the provision).

[53] Carmel v. Fleishman, 2005 Cal. App. Unpub. LEXIS 8082, *29 (Cal. App. 2d Dist. Sept. 7, 2005) (discussing a dispute regarding breach for real estate purchase contract).

[54] Gustafson v. Experian Info. Sols., Inc., 2015 U.S. Dist. LEXIS 71280 (C.D. Cal. June 2, 2015).

[55] *Id.* at 13.

[56] *Id.* at 10–14.

therefore, not deserving of any heightened skepticism. Some administrative agencies, on the other hand, such as the Ohio Board of Tax Appeals, have affirmatively embraced Modria's technology for use in their own adjudication processes.[57]

C. *Wider Application*

The above-discussed examples of legal ADS in all likelihood will not be the endpoint for legal automation, but only the initial incursions in a vast, prolonged, and disruptive evolution. Future applications of IT systems to legal processes include diverse paradigm-changing possibilities. For example, certain start-ups are working on contracts that autonomously perform themselves.[58] As another example, companies increasingly rely on comprehensive software suites to manage regulatory responsibilities and to ensure their operations satisfy legal requirements across many jurisdictions.[59] This shift is motivated by the "increased transaction volumes, increased complexity in financial offerings, proliferating compliance and reporting requirements across business lines, and the [resulting] massive accumulation of data" characteristic of the modern regulatory environment.[60] Such concerns are reflected in the astounding growth in compliance and regulatory software spending in recent years.[61]

The crucial thing to realize is that despite traditionally distinct labels applied to dispute resolution between parties (discussed in Sec-

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[57] *See* Press Release, Modria, Ohio Board of Tax Appeals (BTA) Selects Modria Resolution Center to Power New Online Case Management System (Dec. 4, 2014), http://www.prnewswire.com/news-releases/ohio-board-of-tax-appeals-bta-selects-modria-resolution-center-to-power-new-online-case-management-system-300004748.html ("Taxpayers, agents, and attorneys can now file online, gain instant access to their electronic case files, negotiate settlements, and take actions on cases, all from the convenience of their computers or tablets.").

[58] *See, e.g.*, Robert Ambrogi, *Startup Uses "Internet of Things" to Enable Contracts to Perform Themselves*, LAWSITES (Oct. 25, 2016), http://www.lawsitesblog.com/2016/10/startup-uses-internet-things-enable-contracts-perform.html (discussing "Clause," a startup working "to make contracts 'come alive' using a combination of data and the internet of things").

[59] David Cau, *Governance, Risk and Compliance (GRC) Software: Business Needs and Market Trends*, DELOITTE, http://www2.deloitte.com/content/dam/Deloitte/lu/Documents/risk/lu_en_ins_governance-risk-compliance-software_05022014.pdf (last visited Sept. 16, 2016) (discussing the growing use of comprehensive compliance software solutions).

[60] Bamberger, *supra* note 12, at 685.

[61] *See* Steve Morgan, *Cybersecurity Market Reaches $75 Billion in 2015; Expected to Reach $170 Billion by 2020*, FORBES (Dec. 20, 2015), http://www.forbes.com/sites/stevemorgan/2015/12/20/cybersecurity%E2%80%8B-%E2%80%8Bmarket-reaches-75-billion-in-2015%E2%80%8B%E2%80%8B-%E2%80%8Bexpected-to-reach-170-billion-by-2020/ ("The global enterprise governance, risk and compliance (GRC) market is expected to grow from $5.8 billion in 2014 to $11.5 billion by 2019, at a CAGR of 14.6% for the period 2014 to 2019, according to MicroMarketMonitor.").

tion I.B), the allocation of public rights or responsibilities (discussed in Section I.A), or using digital models to predict and avoid adverse legal or regulatory action (discussed just above), the fundamental process behind each of these approaches is highly related. That is, a computer model is developed that accounts for the relevant legal norms—which guide either dispute resolution, the allocation of rights and responsibilities, counseling a client, or other traditional legal activities—which are applied to specific facts input from a particular situation. That in one instantiation the automated model is used to resolve disputes between parties ex post, while in another it is used to avoid a dispute ex ante (by predicting likely outcomes and allowing for behavioral changes) means they should be seen as two sides of the same technological coin. The widely applicable nature of the process for involving ADS in legal matters suggests that future technological advances will likely introduce automated systems into additional legal issues in surprising ways, while also handling increasing portions of legal work done by humans today.

Growth in legal ADS will redefine the processes behind our legal system, as software overtakes roles traditionally performed by human legal professionals and blurs traditionally distinct legal functions. This blurring also suggests new cultural contours for how our society will conceptualize and interact with the law. As discussed next, unlike the cautiously neutral evaluations by courts explored above, a group of scholars writing on "technological due process" generally seeks to resist these looming changes to our legal system, in spite of the objective and subjective advantages they offer.

II
Chief Scholarly Criticisms of Automated Systems in Law

Scholars writing about the need to develop a novel notion of "technological due process" chronicle an array of concerns where information technology and law intersect. This group's criticisms initially focused on government benefit systems, but later it extended their criticisms to various privately owned and operated systems. Some of their criticisms are more persuasive than others. One persuasive (if overstated) concern is that when taking legal requirements and turning them into computer code, "translation" errors will be made, such that the decisional framework prescribed by the legislature or regulatory agency differs from that applied by the computer code.[62] In response to these concerns and other potential errors in programming,

[62] Citron, *supra* note 13, at 1261–63; Bamberger, *supra* note 12, at 706–10.

these scholars suggest a number of ex ante solutions, including more rigorous testing,[63] releasing source code,[64] more participatory automation processes,[65] and/or not coding agency interpretations that do not have the full force of law.[66]

The second set of criticisms advocate for greater ex post human monitoring of automated decisions. These scholars argue comprehensive human oversight (presumably by a lawyer) is necessary for a variety of reasons, such as "automation bias" (wherein operators tend to blindly trust computer outputs),[67] the desire for greater human involvement in justice,[68] discomfort with the perceived opacity of ADS,[69] and the need to identify system inaccuracies.[70] The most invasive proposals suggest a form of notice, opportunity to be heard, impartial adjudicators, and judicial review for every individual affected by automated decisions.[71] Some even argue, as noted above, that these rigorous requirements should even apply to private organizations, who do not meet the state actor requirement.[72]

A. Responses

This Note endorses the core of the first criticism, while rejecting the notion that legal ADS are inherently less reliable, or less fair, than human-based systems.

Appropriate ex ante software design and error testing cannot be argued against; they are crucial components of software design best practices. Government or private users of automated systems already have the contractual tools to specify *appropriate* levels of accuracy and reliability in the systems they build or purchase, and can make the resulting cost tradeoffs accordingly. Even at today's standard level of

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63 Citron, *supra* note 13, at 1310–11.

64 *Id.* at 1308–09.

65 *See id.* at 1280–81 (discussing risk inherent when automation processes do not involve a high level of human participation).

66 *See id.* at 1309–10 (noting that releasing source code may require an agency to engage in notice-and-comment rulemaking to change coded policy).

67 *Id.* at 1271–73.

68 *See, e.g.*, Frank Pasquale, *Restoring Transparency to Automated Authority*, 9 J. TELECOMM. & HIGH TECH. L. 235, 236–39 (2011) (describing flaws that have developed in the move to automated processes and implying the need for some form of human intervention in order to maintain transparency).

69 *Id.* at 248–52.

70 Citron, *supra* note 13, at 1279; *see also* Citron & Pasquale, *supra* note 12, at 8.

71 *See, e.g.*, Citron, *supra* note 13, at 1249–50 (noting that "a carefully structured inquisitorial model of quality control can partially replace aspects of adversarial justice that automation renders ineffectual").

72 *See* Crawford & Schultz, *supra* note 12, at 93–94, 127 (2014) (noting that the use of data analytics in the private sector should be subject to due process); *see also* Citron & Pasquale, *supra* note 12, at 6 (same).

programming accuracy, a number of courts have, as discussed above, already recognized that legal ADS can produce more accurate outcomes than manual processes. On this point, it should be noted that one example of legal ADS gone awry used by technological due process scholars to condemn the reliability and fairness of legal ADS was CalWIN, where, as discussed above, courts eventually concluded that human user error caused the problems.[73] Moreover, accuracy and reliability should further improve as programmers and governments gain further experience with legal ADS. Taken together, the technological due process advocates rightly emphasize the importance of proper ex ante design and testing, but practically, the accuracy or reliability concerns that motivate their criticism on these points appear overstated.[74]

Accepting the importance of appropriate ex ante system design leaves us to consider the other major suggestion of the technological due process movement: the need for more human oversight to restrain the inherent potential unfairness of legal ADS.[75] Returning to a central theme of this Note, one wonders whether a country already spending multiples more, as a percentage of GDP, than its peers on legal services could afford extensive human oversight of every electronic decision made by ADS. Such oversight would also likely impose substantial secondary costs on innovation. Even putting primary and secondary cost issues aside, however, these arguments are still not persuasive because they postulate an idealized and unrealistic vision of human capacity while ignoring the considerable subjective and objective benefits of legal ADS. The next section discusses two ways in which the limits of human cognition favor automated decisions in legal processes.

1. Complexity and Transparency

Contemporary regulatory regimes and legal processes have become so complex that individuals have little choice but to rely upon simplifying technologies. The growing complexity of the legal system is reflected, in addition to the legal spending figures discussed above, by numerous other indicators: an exponential growth in the volume of

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[73] *See supra* text accompanying notes 33–40 (explaining that CalWIN's incorrect automation terminations were the result of staff error, not system error).

[74] *Id.*

[75] *See* Citron & Pasquale, *supra* note 12, at 21–22 (advocating a perplexing tier of double licensing for users of predictive statistical methods wherein government licenses various licensing organizations that in turn have authority to license companies using predictive statistics); *see also supra* notes 12, 72, and accompanying text (outlining suggestions for more human oversight).

materials available for pre-trial discovery,[76] the steady expansion in the quantity of statutory crimes,[77] and the proliferation of quantitative and metric-based regulatory requirements.[78] Computers offer the ability to address multi-faceted decisions that implicate diverse regulatory bodies with a thorough consistency that human decision makers could never realistically achieve.[79] To give a specific example, the recent Dodd-Frank financial reform imposed an additional thousand pages, or so, of requirements—not including any follow-on regulations—onto an already highly regulated sector.[80] Companies faced with satisfying these rules report that without computer-based compliance software, it would not be possible to comply with such intricate and detailed regulation.[81] Individual taxpayers' rapid adoption of tax preparation software likely is similarly motivated by the fact that even a middle class income tax return could be affected by hundreds of

[76] *See* Michael R. Arkfeld, *Proliferation of "Electronically Stored Information" (ESI) and Reimbursable Private Cloud Computing Costs*, LexisNexis (2011), http://www.lexisnexis.com/documents/pdf/20110721073226_large.pdf (reporting that "[c]lient [d]ata is [d]oubling [e]very [t]hree [y]ears").

[77] *See* John S. Baker, Jr., *Revisiting the Explosive Growth of Federal Crimes*, Heritage Foundation (June 16, 2008), http://www.heritage.org/research/reports/2008/06/revisiting-the-explosive-growth-of-federal-crimes (measuring the growth of federal criminal offenses and attempting to pinpoint the reasons for this expansion); *see also* Richard Heaton, *Foreword* to Office of Parliamentary Counsel, When Laws Become Too Complex: A Review into the Causes of Complex Legislation (2013), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/187015/GoodLaw_report_8April_AP.pdf (discussing the phenomenon of creeping growth in statutory law's complexity in United Kingdom and analyzing current and historical efforts to control this tendency); Michael J. Bommarito II & Daniel M. Katz, *A Mathematical Approach to the Study of the United States Code*, 389 Physica A 4195 (2010) (quantitatively measuring the complexity in the United States Code and finding "that in the recent past, the Code has grown in its amount of structure, interdependence, and language").

[78] *See* Bamberger, *supra* note 12, at 692–702 (describing technology products and systems geared toward corporate risk management and compliance).

[79] *See* James Grimmelmann, Note, *Regulation by Software*, 114 Yale L.J. 1719, 1722–24 (2005) (exploring similarities between software and law and examining which regulatory contexts best lend themselves to regulation by software).

[80] *See Over-Regulated America*, Economist (Feb. 18, 2012), http://www.economist.com/node/21547789 ("The home of laissez-faire is being suffocated by excessive and badly written regulation."); Ron Ashkenas, *Is Dodd-Frank Too Complex to Work?*, Harv. Bus. Rev. (Mar. 13, 2012) (discussing the complexity of Dodd-Frank and difficulties of implementation).

[81] *See* Chris Cumming, *Dodd-Frank Drives Growth of Compliance Software Budgets, Survey Finds*, Am. Banker (Apr. 23, 2013), http://www.americanbanker.com/issues/178_78/dodd-frank-drives-growth-of-compliance-software-budgets-1058554-1.html. This same phenomenon can even be seen with something as comparatively simple as managing benefit distribution rules, which, as chronicled above, increasingly requires automation given their growing complexity and overlapping areas of responsibility. *See supra* Section I.A.

often interdependent rules.[82] Some scholars report that lawmakers and key regulators are already behaving in ways that presume the primacy of legal technology by *how* they choose to regulate, in mandating technical requirements as part of substantive regulation.[83] In a way then, legal automation may in turn enable the ongoing growth in legislative and regulatory complexity.

Complexity-driven automation implicitly raises concerns about transparency and the need for human oversight of the software used to implement highly complex laws.[84] While intuitively appealing, these criticisms fall flat upon closer examination for a variety of reasons. To begin with, transparency in traditional legal processes serves the crucial function of ensuring fidelity to relevant legal rules and as a check on improper human bias.[85] But in the case of automated decision systems, assuming the software is properly developed and tested, allowing ex post manual reevaluation of every digitally resolved issue will not have the same salutary effects as it would for manual processes. Unlike a human decision maker, whose reasoning might change on the knowledge it will be exposed to the public in a written opinion ex post, automated decision systems will apply their defined logical protocol without regard to ex post exposure.

Second, transparency for ex post review of legal ADS could exacerbate serious potential weaknesses: If their decisional heuristic can be modeled, workarounds can be readily developed that undermine the desired substantive results of the system.[86] ADS are less able than

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[82] *Cf.* Christopher Ingraham, *Charted: The Skyrocketing Complexity of the Federal Tax Code*, WASH. POST WONKBLOG (Apr. 15, 2015), https://www.washingtonpost.com/news/wonk/wp/2015/04/15/charted-the-skyrocketing-complexity-of-the-federal-tax-code/ ("Back in 1940, the 1040 form had only two pages of instructions—pretty manageable, even with the small type. But you'd have to wade through 207 pages of instructions to fully understand the 2013 form.").

[83] *See* Bamberger, *supra* note 12, at 672 (explaining how legislatures increasingly promulgate laws that seem to expect data-based and automated compliance mechanisms given the complexity).

[84] *See* Pasquale, *supra* note 68, at 236–37 (raising concerns about the inability of outside observers to understand the incentives that underlie automation systems and designations).

[85] Tom Tyler explains that "[a]uthorities benefit from openness and explanation, because it provides them an opportunity to communicate evidence that their decision making is neutral." Tom R. Tyler, *Procedural Justice, Legitimacy, and the Effective Rule of Law*, 30 CRIME & JUST. 283, 298 (2003) (discussing how the efficacy of administrative or judicial institutions is linked to public perceptions of their fairness). Assuming proper programming procedure and system testing, a transparent explanation to every automated decision system participant is neither a necessary nor sufficient means to ensure neutrality of decisionmaking.

[86] *See, e.g.*, Allison Chang et al., *How to Reverse-Engineer Quality Rankings*, 88 MACHINE LEARNING 369 (2012) (describing methods to reveal proprietary ranking models, even without transparency).

human legal decision makers to autonomously respond to gaming behavior. For example, knowing in great detail how credit agencies evaluate creditworthiness would permit some un-creditworthy parties to selectively perform certain behaviors, purely for the purpose of falsely inflating their credit scores, which could result in potentially costly defaults.[87] Absolute transparency in such a case expressly undermines the purpose and function of such processes: to efficiently allocate credit. This reality is acknowledged by many advocating more "transparent" human oversight of automated decision making systems.[88] Finally, as referenced above, automated decision systems are frequently implemented to address legal issues of such complexity that humans cannot readily administer them, which strongly suggests that making such systems more open to ex post human review will have limited utility.

The calls for minute human oversight of legal ADS also appear disproportionate when one considers the degree of transparency in manual human legal decision making today. First, as several prominent twentieth-century legal scholars argued, the decisions rendered by human legal decision makers often have rationales that differ from those expressly stated in a written opinion.[89] Second, long, complex, and often technical court opinions—to say nothing of opaque jury determinations, which by definition give no rationale for their conclusions—are scarcely intelligible to most citizens.[90] Finally, given that such a small proportion of criminal or civil disputes are actually resolved through a full adjudication before a court, the terms and rationales for the resolution of a sizeable proportion of modern legal disputes remain largely unknowable to the public, and frequently unintelligible to the parties. So not only does minute ex post human review of legal ADS not provide the same incentives for accuracy as it

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87 Martin Mayer, *Credit Rating Agencies in the Crosshairs*, BROOKINGS INST. (Aug. 31, 2010), http://www.brookings.edu/research/articles/2010/08/31-ratings-agencies-mayer (describing how credit agencies overstated the creditworthiness of some commercial institutions leading up to the Great Recession).

88 *See* Pasquale, *supra* note 68, at 236 (noting that individuals who fully understand an automated system could game it).

89 *See* PAUL W. KAHN, THE CULTURAL STUDY OF LAW 24–25 (1999); *see also* WOUTER DE BEEN, LEGAL REALISM REGAINED: SAVING REALISM FROM CRITICAL ACCLAIM 7 (2008) (noting that in prior eras, "the law in the books was of only limited help in predicting what judges would decide").

90 *See* JEROME FRANK, COURTS ON TRIAL: MYTH AND REALITY IN AMERICAN JUSTICE 258 (1963) ("The conventions of judicial opinion-writing—the uncolloquial vocabulary, the use of phrases carrying with them an air of finality . . . lend an air of thorough certainty, concealing the uncertainties inherent in the judging process. . . . [T]he average judicial opinion is so worded that, at best, only lawyers can comprehend it."); *see also* Adam Liptak, *Justices Are Long on Words but Short on Guidance*, N.Y. TIMES (Nov. 17, 2010), http://www.nytimes.com/2010/11/18/us/18rulings.html?_r=0.

does with human decision makers, such proposals implicitly hold automated decision systems to a level of transparency far beyond that delivered by traditional manual legal processes. Taken together, these two factors undermine much of the force of these transparency-based criticisms, which seek to broadly restrain automation in law by requiring minute human oversight of it.

2. Bias Cutting Both Ways

Motivating the technological due process school's desire for radical transparency and greater human oversight for automated legal processes is a profound fear of bias. The two kinds of bias at issue in these criticisms differ from their usual manifestations. The first bias-related concern involves how humans rapidly become reliant on automated decision making systems, such that they come to trust their outcomes to the exclusion of their own judgment and become blind to system failures.[91] This is especially true for decisional systems that apply complex interconnected sets of rules which users may not be able to fully understand. The second kind of bias cited by technological due process scholars involves the possibility that computer programmers will make certain improper assumptions in coding legal norms.[92] These concerns at worst constitute a second-order fear given that readily available countermeasures exist to address them. Solutions addressing user automation bias include making those overseeing automated decision systems "socially more accountable" for outcomes, as well as introducing occurrences of "rare automation failures" in relevant training procedures.[93] As discussed above, proper software development techniques and thorough testing ex ante can prevent improper coding of laws.

Compared to these limited, readily-mitigated instances of bias, the use of automated decision systems in law can reduce the risk of the most insidious, pervasive, and even unintentional forms of bias that have traditionally been the greater preoccupation of our society. Even positing a legal system where no decisionmaker consciously desires to ground his choices on an improper basis, extensive neuroscience research suggests that the very mental areas used to render legal judgments employ neurological structures inherently susceptible

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[91] *See* J. Elin Bahner et al., *Misuse of Automated Decision Aids: Complacency, Automation Bias and the Impact of Training Experience*, 66 INT'L J. HUM. COMPUTER STUD. 688–89 (2008) (discussing background research on how automated decision aids can lead to higher error rates as operators become complacent).

[92] *See* Citron, *supra* note 13, at 1262 (describing instances of programmers unconsciously inserting bias into code).

[93] Bahner et al., *supra* note 91, at 690, 696.

to unintentional bias.[94] A reproducible set of empirical findings show certain physiological features consistently correlate with subconscious associations that affect human decision making.[95] Legal ADS, on the other hand, will only render decisions on the parameters for which they were programmed. The benefits of using legal ADS to mitigate accidental human biases far outweigh the bias concerns raised by technological due process advocates, which can be largely addressed through proven countermeasures.

B. In Sum

While the technological due process scholars are clearly correct about the need for proper software development, testing, and user training, their advocacy of radical transparency and minute human oversight misses the mark for several reasons—even if we cast aside the crucial issue of cost savings. First, automated systems are able to deal with highly complex and multifaceted legal frameworks that human operatives simply cannot holistically oversee. Moreover, even if humans had the capacity to individually review every action of complex legal ADS, manual oversight and human transparency in traditional legal processes often fall far short of the platonic ideal ascribed to them and would not incentivize automated systems to operate with greater accuracy. Second, properly designed and tested legal ADS, in fact, offer one of the most promising prospective methods to short circuit both tacit and explicit human biases, offering consistent legal outputs to all parties. In spite of these clear objective benefits, what may bother many critics are the potential subjective fairness concerns apparently raised by such systems. We turn to these questions next.

III
Social Psychology and Automated Decision Systems in Law

Even acknowledging the objective advantages of automated decision systems in law, it is unlikely those advantages can ever be realized unless users *subjectively* perceive automated legal systems to be fair.[96]

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[94] Kimberly Papillon, *The Court's Brain: Neuroscience and Judicial Decision Making in Criminal Sentencing*, 49 Ct. Rev. 48, 49 (2013) (discussing the neuroscience behind administering criminal sanctions and noting the propensity to activate parts of the neuroanatomy that use biases).

[95] *Id.* at 51.

[96] *See* Tyler, *supra* note 85, at 284 (discussing how the efficacy of administrative or judicial institutions is linked to public perceptions of their fairness); *see also* E. Allan Lind & Tom R. Tyler, The Social Psychology of Procedural Justice 19–21 (1988) (discussing a study on the effect of human biases on outcomes when conducting a repeat inquiry).

The body of research guiding the analysis below, known as the social psychology of procedural justice, consists of several decades' worth of studies on what factors lead individuals to perceive legal or procedural systems as fair.[97] A core set of findings developed in this literature are worth paying attention to because they have been consistently reproduced in both field studies and laboratory experiments.[98] This Part argues that ADS in law perform well on empirical measures of subjective fairness today. Furthermore, IT's scalability and malleability means that systems designers can make future legal ADS even more responsive to subjective fairness indicators in the future.[99] This Part first evaluates the favorable performance of legal ADS on several social psychology frameworks that measure subjective fairness of legal structures, before discussing how legal ADS will likely become more responsive to subjective fairness drivers moving forward.

A. Frameworks to Evaluate Subjective Fairness

Several frameworks aspire to comprehensively account for the major factors that are determinative of an individual's perceptions of legal fairness. Gerald Leventhal developed one of the better known models in a 1980 paper that chronicled six "fairness factors."[100] These

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[97] It should be noted that the core hypotheses of the characteristics of procedural justice remain fairly constant across different cultures. Tyler, *supra* note 85, at 306–07 (noting how the efficacy of administrative or judicial institutions is partially linked to public perceptions of fairness).

[98] *See* LIND & TYLER, *supra* note 96, at 203–06 (listing a range of studies to show that procedural justice effects have been validated in field and laboratory studies). For more contemporary confirmations of the core hypotheses, see Lorraine Mazerolle et al., *Procedural Justice and Police Legitimacy: A Systematic Review of the Research Evidence*, 9 J. EXPERIMENTAL CRIMINOLOGY 245, 246–48 (2013), discussing several decades of scholarship, in the context of citizens' perceptions of the legitimacy of police action, confirming fundamental social psychology of procedural justice hypotheses, and Kristina Murphy & Tom R. Tyler, *Procedural Justice and Compliance Behaviour: The Mediating Role of Emotions*, 38 EUR. J. SOC. PSYCHOL. 652, 655 (2008), exploring the relationship between procedural justice, emotional reactions, and later compliance with orders of legal authorities.

[99] System designers may be in a better position to understand what is needed from a fairness perspective. LIND & TYLER, *supra* note 96, at 220 (noting that experts, in some circumstances and fields, prefer procedures leading to greater objective fairness, but alternative procedures will be subjectively favored by the general population, leading to a choice). The literature has also chronicled the notion of "false consciousness" regarding certain norms of fairness that are inculcated by the ruling classes for their own benefit. *See id.* at 4 ("[W]e will refer frequently to the problem of 'false consciousness' of procedural justice, by which we mean that people believe a given procedure to be structured and enacted fairly when in fact, by objective standards, it is not.").

[100] *See id.* at 131–32 (discussing Leventhal's six procedural justice rules for what makes a procedure fair); *see also* Gerald S. Leventhal, Jurgis Karuza, Jr. & William Rick Fry, *Beyond Fairness: A Theory of Allocation Preferences*, *in* JUSTICE & SOCIAL INTERACTION

include: consistency,[101] bias suppression,[102] accuracy of information,[103] correctability,[104] representativeness,[105] and ethicality.[106]

For the reasons discussed in Part II, users would rank properly designed and built legal ADS high on "consistency" and "bias suppression," given that their decisional algorithms are applied identically in every case and decisions are made solely on the parameters encapsulated in the coding. Disputants' sense of fairness resulting from "accuracy of information" and "correctability," on the other hand, have inspired key criticisms of legal ADS and will be discussed in detail below. The final two parameters of Leventhal's framework ("representativeness" and "ethicality") go beyond the scope of this paper because they touch upon the substantive content of particular legal norms rather than the technological or human mechanisms used to apply them.

A subsequent comprehensive framework articulated by Tom Tyler denoted four primary factors determinative of perceptions of legal fairness: 1) the chance for presentation and consideration of a disputant's voice;[107] 2) the neutrality of decisionmaking;[108] 3) the

167, 195–96 (Gerold Mikula ed., 1980) (discussing the criteria that individuals use to evaluate the fairness of a procedure).

101 LIND & TYLER, *supra* note 96, at 131 ("For a procedure to be fair, it must be applied consistently across persons and across time.").

102 *Id.* ("[P]rocedures are unfair if the decision maker has a vested interest in any specific decision. . .. [P]rocedures are [also] unfair if. . . the decision maker is so influenced by his or her prior beliefs that all points of view do not receive adequate and equal consideration.").

103 *Id.* at 132 ("[P]rocedures are perceived to be unfair if they appear to be basing decisions on inaccurate information.").

104 *Id.* ("[T]he fairness of a procedure is enhanced to the extent that it contains some provisions for correcting bad decisions.").

105 *Id.* (specifying that procedural rules should account for the "basic concerns, values, and outlook of important subgroups in the population" (quoting Gerald S. Leventhal, *What Should Be Done with Equity Theory? New Approaches to the Study of Fairness in Social Relationships*, *in* SOCIAL EXCHANGE: ADVANCES IN THEORY AND RESEARCH 27, 43–44 (Kenneth J. Gergen et al. eds., 1980))).

106 *Id.* ("[P]rocedural justice depends on the extent to which an allocation procedure conforms to personal standards of ethics and morality.").

107 *See* Tom R. Tyler, *Social Justice: Outcome and Procedure*, 35 INT'L J. PSYCHOL. 117, 121–22 (2000) ("People feel more fairly treated if they are allowed to participate in the resolution of their problems or conflicts by presenting their suggestions about what should be done.").

108 *See id.* at 122 ("People are influenced by judgments about the honesty, impartiality, and objectivity of the authorities with whom they are dealing.").

trustworthiness of the decision maker;[109] and 4) the degree to which the treatment of disputants is respectful and dignified.[110]

As with Leventhal's framework, legal ADS receive favorable, but not perfect, marks on Tyler's parameters. The second and third factors reflect favorably on legal ADS, given that the lower risk of explicit or implicit bias for properly designed and built systems likely make them neutral and trustworthy. Moreover, as discussed above, for extremely complex or confusing legal regimes, parties may actually obtain singularly trustworthy outcomes when machines help determine legal outputs. The first and fourth parameters, on the other hand, appear more problematic, as automated decision systems have traditionally been seen as restrictive of human voice and indifferent to respectful treatment of individuals. Despite these concerns, many recent advances in system design increasingly respond to these perceived shortcomings, as will be discussed below.

Taken together these frameworks demonstrate that legal ADS in law can deliver high perceptions of subjective fairness, even if meeting some of the fairness standards appears more challenging. Despite this, the rapidly evolving use of IT in our society suggests that few of these shortcomings are completely intractable. Ongoing changes in system design seek to address the shortcomings highlighted above, so as to improve subjective fairness perceptions of legal ADS over time for the reasons discussed below.

B. Voice and Process Control in Automated Decision Systems

As suggested by Tyler's framework, one crucial driver of subjective fairness is the ability of individuals to have their voices directly heard in the legal process. This means being able to tell their side of a story, as well as perceive that the decision maker substantively engages with their explanations and arguments.[111] This finding emerged from an extensive set of studies comparing subjective fairness in inquisitorial and adversarial systems, which concluded that disputants generally perceived the adversarial system as more fair because it offered greater control over process and the introduction of

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[109] *See id.* ("Another factor shaping people's views about the fairness of a procedure is their assessment of the motives of the third-party authority responsible for resolving the case.").

[110] *See id.* ("People value having respect shown for their rights and for their status within society."); *see also* Hollander-Blumoff & Tyler, *supra* note 16, at 12–18 (exploring the necessary steps for more flexible, less formal, alternative dispute resolution mechanisms and rule of law values to exist simultaneously in society).

[111] *See* LIND & TYLER, *supra* note 96, at 103–06 (concluding from a group of studies that "[t]he perception that one has had an opportunity to express oneself and to have one's views considered by someone in power plays a critical role in fairness judgments".

new facts.[112] Subsequent empirical studies have confirmed this general hypothesis in diverse circumstances to suggest that influence over process and the opportunity to speak, together, help determine perceptions of legal fairness.[113] At first glance, this appears problematic for legal ADS. The very paradigm that permits ADS's increased efficiency is standardizing and automating repetitive legal processes, which would inherently seem to remove disputants' control over process.

While automated legal decision systems (as well as human-based ones) must limit the range of facts and legal narratives considered in order to focus a dispute,[114] recent changes in how digital technology is used mean that digitally based legal decision systems are not necessarily more restrictive of participant expression than their manual counterparts and may, in the future, even enhance it. Today's technology is fundamentally changing how humans tell stories by offering a diversity of new social media, still image, video, and location-based tools to enhance expression.[115] This means that people make sense of their

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[112] *See generally id.* at 21–26 (describing a study where attorneys (played by law students) in the adversarial system were perceived to perform a more in-depth investigation when compared with their counterparts in the inquisitorial system). It is worth noting that greater subjective perceptions of fairness do not necessarily equate with greater objective fairness. Other research suggests that the adversarial system does not generally produce a more thorough investigation of the facts than an inquisitorial system, except in limited circumstances. *See id.* at 22–25.

[113] *See* Tom R. Tyler & Steven L. Blader, *The Group Engagement Model: Procedural Justice, Social Identity, and Cooperative Behavior*, 7 PERSONALITY & SOC. PSYCHOL. REV. 349, 351 (2003) (noting studies where participants who had the opportunity to speak rated the process as more fair even if they knew what they had to say had "little or no influence"); *see also* Mengyan Dai, James Frank & Ivan Sun, *Procedural Justice During Police-Citizen Encounters: The Effects of Process-based Policing on Citizen Compliance and Demeanor*, 39 J. CRIM. JUST. 159, 165–66 (2011) (discussing a study where noncompliance in police encounters diminished by 60% when officers took citizens' opinions into consideration).

[114] *See* OSCAR G. CHASE, LAW, CULTURE, AND RITUAL: DISPUTING SYSTEMS IN CROSS-CULTURAL CONTEXT 40–41 (2005) ("Although the kinds of information accepted as evidence vary among legal regimes, all modern systems rely on a specially filtered category of documents and statements through which an agreed-upon version of the past is constructed.").

[115] *See* Howard Rheingold, *Using Participatory Media and Public Voice to Encourage Civic Engagement*, *in* CIVIC LIFE ONLINE: LEARNING HOW DIGITAL MEDIA CAN ENGAGE YOUTH 97, 97 (W. Lance Bennett ed., 2008) ("[I]ncreasing numbers of young people seek to master the use of media tools to express themselves, explore their identities, and connect with peers—to be active creators as well as consumers of culture. . .."); *About StoryCenter*, STORYCENTER, http://www.storycenter.org/about/ (last visited Sept. 16, 2016) (describing an organization that offers workshops and other support for digital storytelling with the goal of encouraging social change). *See generally* DIGITAL STORYTELLING, MEDIATIZED STORIES: SELF-REPRESENTATIONS IN NEW MEDIA (Knut Lundby ed., 2008) (exploring how storytelling has developed in recent years in light of new social digital technologies).

lives through new kinds of digitally-enabled expression that can more readily be incorporated into legal ADS.[116]

One good example of this evolution in digital voice can be found with the Modria dispute resolution platform discussed above. The system is designed to maximize the intake of digital expression in such a way as to both improve decisional accuracy, as well as maximize users' subjective perceptions of fairness. This is accomplished in several ways. When a user initially flags a dispute, the system provides ample space for a disputant to articulate their perceived wrong—allowing them to upload text-based or even video files.[117] However, before this record is shared as the basis for a potentially counter productive free-for-all exchange between the parties, and to avoid unnecessary ill will, the recipient of the complaint is given a chance to respond to a short-form version of the complaint.[118] Only if this does not resolve the dispute does the process continue for the Modria software to identify the issues implicated in any given dispute.[119] The inputs used by the software include not only the textual submissions of the disputants, but also other kinds of data harvested from the underlying commerce platform—such as eBay—regarding the parties' past behavior or disputes, quantities and timing of transaction and payments, and previous communication by the parties over the platform.[120] The key takeaway here is that Modria seeks to leverage the advantages of standardization and automation, but in a way that takes account of participants' digital voice, both by incorporating the written (or visual) complaints they submit, as well as their previous digital expressions made while using the platform.[121] As the human voice and its stories become increasingly digital, ADS in law will be able to more fully incorporate participants' digital expression with concomitant potential for improving subjective fairness by giving users greater process and voice control.

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116 The amazing dominance of new forms of digital narrative in our daily lives has led to the widely-held notion that events that are not reported on social media have either not happened at all or, even if they have, lack social relevance. Jacob Silverman, *"Pics or It Didn't Happen" — The Mantra of the Instagram Era: How Sharing Our Every Moment on Social Media Became the New Living*, GUARDIAN (Feb. 26, 2015, 12:59 AM), http://www.theguardian.com/news/2015/feb/26/pics-or-it-didnt-happen-mantra-instagram-era-facebook-twitter.

117 Lardinois, *supra* note 50.

118 MODRIA, *supra* note 42 (noting that some outcomes will be automatically approved per the inputted policy and some disputes will require the parties to communicate directly).

119 *Id.*

120 *Id.*

121 *See* Raymond & Shackelford, *supra* note 4, at 491–92 (describing eBay and PayPal's success with an automated resolution system).

C. *Addressing Perceived Errors with Limited Human Oversight*

Even accepting that automated decision making systems in law offer the potential for greater accuracy and consistency over huge volumes of disputes,[122] as Leventhal's framework predicts, one of the concerns that crucially motivates the technological due process movement regards how to catch and correct erroneous automated decisions.[123] Even an objectively accurate and reliable system may appear subjectively very unfair if no mechanism exists to address patently erroneous outcomes. This risk is amplified with automated decision systems, where users may feel completely trapped by the system's mechanistic operation—like when an automatic 800-number call answering system prevents you from speaking to a human representative to address a problem not included in the automated menu.

Technological due process scholars writing about this concern emphasize the importance of inserting more human oversight, namely lawyers, into the digital processes.[124] In truth, human oversight and participation can never be fully removed from these systems. As we saw above, both the Modria and CalWIN systems rightly include mechanisms for limited human review of automated decisions if flagged either by internal procedures or system users.[125] While a human backstop must remain to some degree, to realize the efficiency and accuracy gains offered by legal ADS, administrators must make a constant effort to reduce the proportion of issues brought before a human decision maker. If not, every automated dispute will eventually become a manual one, largely obviating the labor-saving and accuracy advantages of implementing IT in law.

The difficult balancing act of providing sufficient human oversight to assure users perceive a subjectively fair process, but not so much as to destroy the benefits of automation, does not offer any easy answers. With this in mind, several important themes emerge as potential best practices. First, Modria carefully models and analyzes all disputes that users have elevated for human review to identify repeatable areas of disagreement for the purpose of making their

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122 *See supra* Section III.A.

123 *See* Citron, *supra* note 13, at 1256–58, 1280–81 (describing failed automated decisions and proposing possible solutions); Crawford & Schultz, *supra* note 12, at 121 ("Various due process scholars have also conceptualized the [technological due process movement] as a form of systemic management technique that should focus less on individual harm and more on discovering errors, identifying their causes, and implementing corrective actions.").

124 Citron, *supra* note 13, at 1305–08 (proposing numerous methods of protecting due process through better training programs for human officials and more human involvement).

125 Pich v. Lightbourne, 164 Cal. Rptr. 3d 388 (Ct. App. 2013).

software responsive to a broader set of issues over time.[126] Second, recent growth in platforms like Yelp or Angie's List illuminate the subjective fairness benefits of allowing customers to autonomously enter their feedback, criticisms, or complaints—even if doing so does not guarantee formal redress for a particular problem.[127] Along these lines, permitting users to rate or otherwise comment on their experiences with legal ADS on a curated website, for example, could crucially satisfy individuals' need to be heard, while also making their substantive feedback available to improve the system's objective function. Finally, administrators of legal ADS must have highly trained human representatives who deeply understand the functioning of the automated system in order to definitively and persuasively explain the system's results to dissatisfied users. Users may quickly sense poorly trained or uninformed human overseers and therefore presume their incompetence reflects that of the system—whether true or not. Minute human oversight and second guessing of every decision made by legal ADS cannot be the solution because such an approach would inherently destroy automation's efficiency and consistency advantages. On the other hand, approaches being developed at several technology companies, such as careful modeling to prevent duplicative human consideration of similar issues, automated mechanisms for public user comment that do not require human involvement, and training for empathetic but rigorous human overseers, can all help achieve this balance.

D. Fairness in Promptness

Though not included in the above-discussed comprehensive frameworks, another well-documented driver of subjective fairness is promptness and lack of delay in legal processes. While the legal profession has demonstrated ongoing concern for the pernicious effects of undue delay,[128] public perceptions suggest a sustainable solution has not been found to this concern.[129] Social psychology research confirms

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[126] MODRIA, *supra* note 42.

[127] *New Ways to Complain: Airing Your Gripes Online Can Get You Satisfaction — or Trouble*, CONSUMER REP. (Aug. 2011), http://www.consumerreports.org/cro/money/consumer-protection/new-ways-to-complain/overview/index.htm.

[128] *See* C.H. van Rhee, *The Law's Delay: An Introduction*, *in* THE LAW'S DELAY: ESSAYS ON UNDUE DELAY IN CIVIL LITIGATION 1–4 (C.H. van Rhee ed., 2004) ("Even though there have been many more reform attempts and measures have been taken during the last 800 years in both Civilian and Anglo-American jurisdictions to accelerate civil litigation, complaints [of delays] are still being voiced today.").

[129] INST. FOR THE ADVANCEMENT OF THE AM. LEGAL SYS., CIVIL CASE PROCESSING IN THE FEDERAL DISTRICT COURTS 1 (2009) ("In a recent national survey of nearly 1500 experienced litigation attorneys, 69% of respondents agreed that the civil justice system

that disputants perceive a system that resolves issues more rapidly to be fairer,[130] possibly because it is more respectful of individuals' time and less disruptive of their lives. This research finding highlights yet another point of tension between the fairness enhancing potential of automating legal processes and the technological due process school's advocacy for substantially more manual oversight. Beyond simply faster processing, the scalability of automated decision systems means they can readily address peaks in activity without a need to substantially expand, redesign, or sacrifice accuracy by rushing adjudication or skipping process steps. The streamlining and scaling advantages of ADS permit prompt and consistent application of legal rules to disputes, even during periods of unexpected spikes in demand. For a legal system in which delay frustrates many participants, embracing legal ADS can serve to reduce delay and associated subjective costs. On the other hand, requiring substantially greater human oversight of legal ADS, as proposed by critics, would undermine automation's timeliness advantages.

E. In Sum

Technological due process scholars raise many hypothetical fairness concerns about legal ADS. What they fail to consider is how automating law can drive overall systematic improvements in perceptions of legal fairness. Part III seeks to elucidate this potential by considering legal ADS's functioning in light of empirical social psychology findings that explore the very question of what characteristics make a legal system appear subjectively fair. Legal ADS inher-

takes too long. . . , and 92% agreed that the longer a case goes on, the more it costs. The survey results echo findings from previous studies stretching back to the 1950s."). Congress and the bar have been increasingly preoccupied by the excessive delays (which impose real world economic burdens) engendered by changes in the number of civil and criminal lawsuits as well as relevant procedural factors. *But see* Patrick E. Higginbotham, *The Present Plight of the United States District Courts*, 60 DUKE L.J. 745, 762 (2010) (arguing that ongoing procedural reforms have effectively managed cost and delay concerns despite contrary views held by Congress and other members of the public).

[130] LIND & TYLER, *supra* note 96, at 87–88 (noting one study where "speed of resolution" was found to be one of the top criteria for a user-designed dispute procedure). One area where the impact of promptness of process upon perceptions of procedural justice has been studied most widely involves customer complaint processes. *See* Amy K. Smith, Ruth N. Bolton & Janet Wagner, *A Model of Customer Satisfaction with Service Encounters Involving Failure and Recovery*, 36 J. MARKETING RES. 356, 359 (1999) ("[T]he speed with which problems and complaints are handled has been identified as an important dimension of procedural justice."); *see also* Jeffrey G. Blodgett, Donna J. Hill & Stephen S. Tax, *The Effects of Distributive, Procedural, and Interactional Justice on Postcomplaint Behavior*, 73 J. RETAILING 185, 189, 201 (1997) (discussing the background principle of the procedural justice implications of timeliness, while finding promptness did not overwhelmingly affect negative comments or repatronage decisions in this study).

ently promote neutrality and consistency at scale in a manner wholly impossible for masses of discrete human legal operatives to achieve. Automated systems also allow for more prompt resolutions of disputes, even during spikes in demand, so as to be more respectful of individuals' time. Even on those fairness parameters where legal ADS perform less well, technological changes are quickly bringing improvement. Legal ADS companies are devising new ways to engage with users' digital voices and correct errors with limited human involvement, so as to not destroy the benefits of automation. Taken together, rather than being a threat to legal fairness or legitimacy, reference to the characteristics experimentally determined to undergird legal fairness suggests that properly designed and built legal ADS can be more responsive to these factors than many manual alternatives.

Conclusion

Despite objections to the use of legal ADS by technological due process scholars, such systems offer the potential to capitalize on automated legal processes that can be both objectively and subjectively more fair than manual alternatives. With respect to objective fairness, the crushing complexity of many modern regulatory regimes and the ability of automated systems to apply the same decisional framework with minute consistency across huge volumes of cases suggest legal ADS can offer uniquely fair outcomes—a truth readily acknowledged by some courts. In part due to these objective reasons, legal ADS appear to rank favorably on many—but not all—empirically measured parameters associated with subjective perceptions of legal fairness.[131] Technological advances will permit legal ADS creators to rapidly improve on those fairness parameters where their systems perform less well. This suggests that legal ADS offer a sustainable and scalable way to address simultaneously our nation's outsized spending on legal services, its growing thicket of complex laws and regulations, and its ongoing access to justice crisis. As such, legal ADS could serve as a valuable complement to the many talented lawyers, judges, and administrators behind today's legal system.

Reframing the analysis of legal ADS in light of its demonstrable objective benefits, the empirically measured drivers of subjective fairness, and outsized legal spending in the United States indicates, despite scholarly criticisms to the contrary, that legal automation of a

[131] It should be noted that the empirically measured drivers of subjective fairness discussed above correspond loosely to the World Justice Project's parameters for measuring the effectiveness of justice systems. *See* World Justice Project, *supra* note 5, at 8–18.

growing portion—but not all—of legal processes offers enormous societal benefits. The fact that some limited glitches have inevitability arisen in a handful of such systems is a poor reason to restrict their wider use. While some rightly fear the "ominous social ramifications of a surveillance society governed by heartless algorithmic machines,"[132] human beings choose how to build these systems and how to apply our technological capacity. Most importantly, as the above examples sought to illustrate, the easily scalable and highly malleable nature of information technology means that its thoughtful application in law opens totally novel horizons for crafting hybrid computer-human processes that hew more closely to our collective aspirations for how the law should function. The very digital systems that many fear as heartless and mechanical may in many instances actually drive human values of justice that respect the time, financial limitations, and subjective feelings of system participants better than traditional manual legal practices.

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[132] Omer Tene & Jules Polonetsky, *Judged by the Tin Man: Individual Rights in the Age of Big Data*, 11 J. TELECOM. & HIGH TECH. L. 351, 352 (2013).