

# DATA AND DETENTION: BIG DATA AND LOCATION INFORMATION IN PRETRIAL SERVICES

MADALEINE GRAY

The growing presence of cellular devices, along with the ever-changing trends in technology and a globalized economy, has resulted in the innovation of devices that are amply adorned with features that appeal to users looking to minimize and multitask—a goal achieved through applications that reduce the need for items such as cameras, maps, and address books. Cell phones are “such a pervasive and insistent part of daily life that carrying one is indispensable to participation in modern society.”<sup>1</sup> On an hourly basis, users create, store, and transmit data about nearly every aspect of their personal lives.<sup>2</sup> Today, users rely on their devices to store more personal data than ever before.<sup>3</sup>

The data users entrust to their cellular devices includes photographs, text messages, emails, and contact information.<sup>4</sup> Technology giants like Facebook, AT&T, and Instagram receive extensive amounts of this information from a user’s daily use of devices and their accompanying applications. “If you start typing something and change your mind and delete it, Facebook keeps those and analyzes them, too,” Zeynep Tufekci, a prominent techno-sociologist, said in a 2017 TED talk.<sup>5</sup> In addition to photographs and contacts, another type of data is gathered from users: location information. Location information is not actively user-created; instead, it is automatically generated when a cellular device is

---

<sup>1</sup> *Carpenter v. United States*, 138 S. Ct. 2206, 2220 (2018) (quoting *Riley v. California*, 134 S. Ct. 2473, 2484 (2014)).

<sup>2</sup> E.g., Kathryn Nobuko Horwath, A Check-In on Privacy After *United States v. Jones*: Current Fourth Amendment Jurisprudence in the Context of Location-Based Applications and Services, 40 *Hastings Const. L.Q.* 925, 925-26 (2013) (Describing just a portion of the information a typical person distributes via Twitter, Facebook, etc. throughout a typical day).

<sup>3</sup> Richard M. Thompson II, CRS report (prepared for members and committees of Congress) *The Fourth Amendment Third Party Doctrine*, CONGRESSIONAL RESEARCH SERVICE (June 5, 2014), <https://fas.org/sgp/crs/misc/R43586.pdf>; Jonathan Shaw, Why “Big Data” is a Big Deal, *Harvard Magazine*, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> March-April 2014 (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>4</sup> Richard M. Thompson II, CRS report (prepared for members and committees of Congress) *The Fourth Amendment Third Party Doctrine*, CONGRESSIONAL RESEARCH SERVICE (June 5, 2014), <https://fas.org/sgp/crs/misc/R43586.pdf>.

<sup>5</sup> See <https://www.chicagotribune.com/business/ct-facebook-privacy-policy-20180325-story.html>; See also [https://www.ted.com/talks/zeynep\\_tufekci\\_we\\_re\\_building\\_a\\_dystopia\\_just\\_to\\_make\\_people\\_click\\_on\\_ads](https://www.ted.com/talks/zeynep_tufekci_we_re_building_a_dystopia_just_to_make_people_click_on_ads).

powered on.<sup>6</sup> Location data obtained through cellular devices reveals a significant amount of private and precise information about a person.<sup>7</sup>

As cellular devices, and social media, become an integral part of society, companies know more about consumers than ever before. In 2019, Facebook had 2.41 billion monthly active users, with 2.7 billion people using at least one of the company's core products, including Facebook, WhatsApp, Instagram, or Messenger, each month.<sup>8</sup> The daily data collected from 2.7 billion Facebook users helps supplement extensive data sets. These data sets, and their subsequent analysis, are referred to as "Big Data."<sup>9</sup> Big Data enables businesses—and sociologists—to better understand and predict consumers' habits and tendencies; from their dating preferences to their shopping habits.<sup>10</sup> Big Data specialists express a fundamental belief that scientifically-derived evidence is the most powerful instrument society has "to design enlightened policy and produce a positive social transformation."<sup>11</sup>

While critics object to the collection and distribution of user data,<sup>12</sup> the third-party doctrine allows companies to share the vast amount of user information that was previously undiscoverable due to protections afforded by the 4<sup>th</sup> Amendment of the United States Constitution.<sup>13</sup> The third-party doctrine permits companies like AT&T to function under privacy policies allowing them to collect and use consumer data for the prevention of illegal activities, among other things.<sup>14</sup> In fact, Facebook's privacy policy states that the

---

<sup>6</sup>Stephanie K. Pell and Christopher Soghoian, *Can You See Me Now? Toward Reasonable Standard for Law Enforcement Access to Location Data That Congress Could Enact*, 27 *Berkely Tech. L.J.* 117, 127-8 (2012) (explaining how cell phone companies and law enforcement can cooperate to generate ping data).

<sup>7</sup>Stephanie K. Pell and Christopher Soghoian, *Can You See Me Now? Toward Reasonable Standard for Law Enforcement Access to Location Data That Congress Could Enact*, 27 *Berkely Tech. L.J.* 117, 127-8 (2012) (explaining how cell phone companies and law enforcement can cooperate to generate ping data).

<sup>8</sup> Active users are those which have logged in to Facebook during the last 30 days.

<https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>

<sup>9</sup>Dacia Green, Article, *Big Brother is Listening to You: Digital Eavesdropping in the Advertising Industry*, 16 *Duke L. & Tech. Rev.* 352 (2018).

<sup>10</sup>Dacia Green, Article, *Big Brother is Listening to You: Digital Eavesdropping in the Advertising Industry*, 16 *Duke L. & Tech. Rev.* 352 (2018).

<sup>11</sup>Jonathan Shaw, *Why "Big Data" is a Big Deal*, *Harvard Magazine*,

<http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> March-April 2014 (featuring the thoughts of Gary King, director of Harvard's Institute for Quantitative Social Science, a hub of expertise for interdisciplinary projects aimed at solving problems in human society.").

<sup>12</sup> See generally Dom Galeon, "We Know You Don't Really Read Privacy Policies. This is A.I. Can Do It For You," Article Intelligence – Futurism, <https://futurism.com/ai-reads-your-privacy-policies> (February 10th, 2018) ("Despite internet users claiming to have read a privacy policy, only about 20 percent actually do. Even then, they don't necessarily understand the legal language embroidered with verbosity in every policy.").

<sup>13</sup> *Br. Of the American Civil Liberties Union et al. as Amici Curiae at \*4-10, United States v. Davis*, 2014 WL 7006394 (11<sup>th</sup> Cir. 2015) (en banc); *United States v. Karo*, 468 U.S. 705, 714-715 (1984); *Kyllo v. United States*, 533 U.S. 27, 36 (2001).

<sup>14</sup> AT&T Privacy Policy (last visited Dec 5, 2018), [https://about.att.com/sites/privacy\\_policy](https://about.att.com/sites/privacy_policy)

company “may access, preserve and share your information if [it has] a good faith belief it is necessary to: detect, prevent, and address fraud and other illegal activity.”<sup>15</sup> Since third parties are able to share user data with other businesses and the government, data is available for use in all stages and sectors of the criminal justice system. Constructively employing data that is lawfully and routinely captured from users could alleviate some of the negative consequences arising from the application of the third-party doctrine in today’s technological era.<sup>16</sup>

This note advocates for a two-pronged solution to one of the biggest issues in the criminal justice system: the reliance on money bail in pretrial detention. First, this note proposes the use of Big Data in a risk-assessment tool to determine a defendant’s “dangerousness.” Second, this note suggests the use of location information as an alternative to pretrial detention for monitoring those defendants who have been deemed mid- to low-risk by the risk-assessment tool. Part I of this note explains the general history of bail reform. Part II of this note discusses the flaws in the current pretrial detention system. Part III of this note addresses the consequences of pretrial detention on defendants, taxpayers, and the government. Part IV of this note introduces the concept and sources of Big Data and advocates for the analysis of large data sets to more accurately predict a defendant’s dangerousness. Part V of this note explains cellular location information and advocates for the use of location information monitoring as an intermediary alternative to pretrial detention. Part VI of this note illustrates the benefits and feasibility of introducing Big Data analytics and location information tracking in the pretrial detention system. Ultimately, the introduction of Big Data and location information would reduce the negative effects of pretrial detention on defendants, drastically slash the burden on taxpayers, and mitigate the public safety and risk of flight concerns that originally substantiated preventative detention.

## I. A GENERAL INTRODUCTION TO BAIL

With the highest incarceration rate in the world, the United States maintains a criminal justice system that has historically faced the challenges that come with detaining the accused before adjudication.<sup>17</sup> The challenges arise from strong interests in establishing a pretrial detention system that: (1) protects the public from future criminal activity; (2) reduces both the financial burden and human costs of incarceration; and (3) maintains

---

<sup>15</sup> See *Data Use Policy*, FACEBOOK, <http://www.facebook.com/policy.php> (last updated Apr. 19, 2018)

<sup>16</sup> Critics who argue that the third party doctrine no longer fits into today’s technological society stress that users typically agree to policies without reading the contents; however, this is outside the scope of this article. Florian Schaub, *Nobody Reads Privacy Policies—Here’s How to Fix That*, *The Conversation*, <http://theconversation.com/nobody-reads-privacy-policies-heres-how-to-fix-that-81932> (October 9, 2017) (“In 2008, a study estimated that it would take 244 hours a year for the typical American internet user to read the privacy policies of all websites he or she visits.”).

<sup>17</sup> See generally, Malcolm M. Feeley, *Court Reform on Trial: Why Simple Solutions Fail*, 44-53 (1983) [hereinafter Feeley, *Court Reform on Trial*].

individual privacy rights.<sup>18</sup> This struggle is best evidenced by the radical history of bail reform in the United States.

#### **A. Bail Reform in the 1960s**

Prior to the 1960s, the stated function of the pretrial system was to ensure the appearance of the accused at trial.<sup>19</sup> To encourage this, the accused person deposited a security with the court to guarantee his appearance.<sup>20</sup> Typically, security deposits involved an amount that functioned to compel released defendants to return and reclaim the collateral.<sup>21</sup> As long as the defendant appeared for his scheduled court appearance, the collateral was returned to him at the conclusion of the case.<sup>22</sup>

This method was employed throughout the early 1900's with little contest until researchers began to inquire into the effectiveness of the pretrial detention system. Several bail studies reported that a high number of arrestees could not afford nominal bail amounts and remained incarcerated as a result.<sup>23</sup> Additionally, it was not uncommon for arrestees to plead guilty in order to be released from incarceration.<sup>24</sup> After learning of these studies, a young social worker in New York City convinced a philanthropist friend to provide funding for a pretrial release program that depended on release on recognizance ("ROR") with a promise to appear at trial—instead of requiring defendants to secure their release with payment of collateral.<sup>25</sup> The results of the program spread across the country and support for bail reform increased. Eventually, the national movement achieved changes to federal legislation with the enactment of the 1966 Bail Reform Act (the "1966 Act").<sup>26</sup>

#### **B. Introduction of Pretrial Services**

With bail reform came progressive attempts to create a mechanism to weigh various characteristics for use in pretrial release determinations; the initial effort was made by the Vera Foundation's Manhattan Bail Project in the 1960's.<sup>27</sup> Project staff interviewed detained defendants prior to arraignment to determine if they were appropriate candidates

<sup>18</sup> See generally WAYNE H. THOMAS, JR., *BAIL REFORM IN AMERICA* (1976) (describing results of bail reform movement).

<sup>19</sup> See, e.g., Haldane Robert Mayer, *Preventive Detention and the Proposed Amendment to the Bail Reform Act of 1966*, 11 WM. & Mary L. Rev. 525, 529 (1969) ("Our pretrial bail laws have always had as their sole purpose the ensuring of the defendant's appearance at trial.").

<sup>20</sup> *Id.*

<sup>21</sup> See generally WAYNE H. THOMAS, JR., *BAIL REFORM IN AMERICA* (1976) (describing results of bail reform movement).

<sup>22</sup> E.g., Charles E. Ares et al., *The Manhattan Bail Project: An Interim Report on the Use of Pre-trial Parole*, 38 N.Y.U. L. REV. 67, 67-71 (1963).

<sup>23</sup> Arthur L. Beeley, *The Bail System in Chicago* 29, 155 (Univ. of Chi. Press 1966) (1927) (describing how approximately twenty percent of arrestees were unable to post bail set in 1923 Chicago).

<sup>24</sup> Caleb Foote, *Foreword: Comment on the New York Bail Study*, 106 U. Pa. L. Rev. 685, 686 (1958); *Compelling Appearance in Court: Administration of Bail in Philadelphia*, 102 U. Pa. L. Rev. 1031, 1048 (1954).

<sup>25</sup> Freeley, *Court Reform on Trial: Why simple Solutions Fail*, *supra note* 17, 44-53 (1983)

<sup>26</sup> Candace McCoy, *Caleb Was Right: Pretrial Decisions Determine Mostly Everything*, 12 Berkeley J. Crim. L. 135, 138 (2008).

<sup>27</sup> See ARTICLE: DRUG-RELATED BEHAVIOR AS A PREDICTOR OF DEFENDANT PRETRIAL MISCONDUCT, 25 Tex. Tech L. Rev. 1019 (1994)

for pretrial release on nonfinancial conditions.<sup>28</sup> To facilitate this determination, staff gathered information about a defendant regarding their family relationships, residency, employment status or enrollment in school, and any current charges or prior criminal record.<sup>29</sup>

For defendants passing this initial screening, project staff utilized a scoring system. For example, maximum points were awarded to a defendant if he had no prior convictions, lived in an established family home and visited other family members, had maintained his current job for one year or more, or was currently in school and attending regularly, and had been at his current residence at least one year.<sup>30</sup> Negative points could be assigned depending on the defendant's prior record.<sup>31</sup> Although the final decision remained with the judge, release recommendations and denials became an increasingly important factor in the court's ultimate determination.<sup>32</sup>

The Manhattan Bail Project's success in increasing pretrial release with little negative impact on pretrial misconduct encouraged many jurisdictions to adopt the same point system—or some variation of it.<sup>33</sup> Federal funding transformed pretrial release programs into “pretrial service agencies,”<sup>34</sup> and the programs initially responsible for informing courts about an arrestee's ties to the community morphed into programs responsible for pretrial supervision, including administering drug tests, running drug treatment programs, and monitoring attendance at school, work, and treatment programs.<sup>35</sup> In effect, these pretrial service agencies facilitated pretrial probation for the accused awaiting trial.

### C. Bail Reform in the 1980s

Despite the benefits of pretrial service agencies, the bail reform of the 1960's resulted in higher crime rates.<sup>36</sup> New laws made it much more difficult for judges to utilize past practices known as *sub rosa* preventive detention—a method of preventing “dangerous” defendants from getting out of jail by setting unattainable bail amounts.<sup>37</sup> To conquer the

---

<sup>28</sup> See generally WAYNE H. THOMAS, JR., BAIL REFORM IN AMERICA (1976) (describing results of bail reform movement).

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> See ARTICLE: DRUG-RELATED BEHAVIOR AS A PREDICTOR OF DEFENDANT PRETRIAL MISCONDUCT, 25 Tex. Tech L. Rev. 1019 (1994).

<sup>32</sup> See generally WAYNE H. THOMAS, JR., BAIL REFORM IN AMERICA (1976) (describing results of bail reform movement).

<sup>33</sup> See generally Ares et al., (discussing the results of the Manhattan Bail Project); Bernard Botein, *The Manhattan Bail Project: Its Impact on Criminology and the Criminal Law Processes*, 43 TEX. L. REV. 319 (1964) (same).

<sup>34</sup> See Carole Wolff Barnes, Rodney Kingsnorth & Tina Hodgins, *The 1984 Bail Reform Act: Organizational and Mandated Factors in the Decision to Detain*, 3 Crim. Just. Pol'y Rev. 257, 258 (1989).

<sup>35</sup> *Id.*

<sup>36</sup> See generally WAYNE H. THOMAS, JR., BAIL REFORM IN AMERICA (1976) (describing results of bail reform movement).

<sup>37</sup> Concerns about this practice were one motivation for the first-wave reform. See, e.g., *Hairston v. United States*, 343 F.2d 313, 316 (D.C. Cir. 1965) (Bazlon, C.J., dissenting) (“Setting high bail to deny release discriminate[s] between the dangerous rich and the dangerous poor and masks the

inadequacies of the 1966 Act, Congress enacted the Bail Reform Act of 1984 (the BRA).<sup>38</sup> The BRA allows for pretrial detention of only a “small but identifiable group of particularly dangerous defendants.”<sup>39</sup> Section 3142 of the BRA provides that defendants should be released “unless...such release will not reasonably assure the appearance of the person...or will endanger the safety of any other person or the community.”<sup>40</sup>

Factors to be considered include: (1) the nature and circumstances of the offense charged, including whether the offense is a crime of violence or involves a narcotic drug; (2) the weight of the evidence against the person; (3) the history and characteristics of the person, including: (a) his character, physical and mental condition, family ties, employment, financial resources, length of residence in the community, community ties, past conduct, history relating to drug or alcohol abuse, criminal history, and record concerning appearance at court proceedings; and (b) whether, at the time of the current offense or arrest, the person was on probation, on parole, or on another form of release pending trial, sentencing, appeal, or completion of a sentence for an offense under federal, state, or local law; and (4) the nature and seriousness of the danger to any person or the community that would be posed by the person’s release.<sup>41</sup>

## II. PRETRIAL DETENTION SYSTEM TODAY

Pretrial detention risk assessments may be the single most important decision made in criminal proceedings, but reality illustrates the current system’s inability to detain only those defendants who pose a risk to society if released.<sup>42</sup> Today, America has an astonishing 500,000 individuals being detained pretrial—an amount substantially higher than both France and Canada’s detention rate of fewer than 50 people for every 100,000

---

difficult problems of predicting future behavior . . .” (internal quotation marks and citation omitted)); BERNARD BOTEIN ET AL., NAT’L CONFERENCE ON BAIL & CRIMINAL JUSTICE, PROCEEDINGS AND INTERIM REPORT xxxix (1965) (“A substantial body of opinion supports the view that setting high bail to detain dangerous offenders is unconstitutional.”); Miller & Guggenheim, *Pretrial Detention and Punishment*, 75 Minn. L. Rev. 335, 344 (1990) (suggesting that the decline in the use of *sub rosa* detention may have encouraged legislators to develop a more “express ground for detention”).

<sup>38</sup> 18 U.S.C. 3142(g).

<sup>39</sup> See NOTE: Limiting Preventive Detention Through Conditional Release: The Unfulfilled Promise of the 1982 Pretrial Services Act, 97 Yale L.J. 320, 335 (citing S. REP. NO. 225, 98<sup>th</sup> Cong., 1<sup>st</sup> Sess. (1983), reprinted in 1984 U.S. CODE CONG. & ADMIN. NEWS 3181).

<sup>40</sup> 18 U.S.C. §3142(b) (1988).

<sup>41</sup> 18 U.S.C. 3142(g).

<sup>42</sup> John S. Goldkamp, *Two Classes of Accused: A Study of Bail and Detention in American Justice* (1979) noting the “state interest in protecting the community”); Baradaran, *supra* note 1, at 745 n.131, 752 (documenting state court decisions allowing consideration of dangerousness and noting that “[o]ver time, states increasingly changed their positions” to consider community safety and other factors); Samuel Wiseman, *Discrimination, Coercion, and the Bail Reform Act of 1984: The Loss of the Core Constitutional Protections of the Excessive Bail Clause*, 36 FORDHAM URB. L.J. 121 (2009) (documenting and criticizing the federal shift toward dangerousness determinations).

individuals.<sup>43</sup> While the majority of arrestees have money bail set for them, there is a systematic detention of poor defendants.<sup>44</sup>

#### ***A. Reliance on Money Bail***

In most states, money bail is the primary mechanism used in pretrial detention; the traditional bail system's reliance on collateral remains central.<sup>45</sup> The modern bail system typically employs two types of bonds: (1) personal bonds, where an individual, friend, or family member pays the money, or a percentage of the money, to the court; and (2) commercial bonds, where a bondsman becomes responsible for the amount of the bond and charges the defendant a percentage of the bond amount as a fee.<sup>46</sup> In a study of data from 1990 to 2004, the Bureau of Justice Statistics noted a "direct relationship between the bail amount and the probability of release."<sup>47</sup> When bail was set at \$100,000 or more, only ten percent of defendants were released. At bail amounts between \$10,000 and \$24,999, approximately forty-five percent of defendants who received bail were released. Only when bail dropped to \$5,000 to \$9,999 did more than fifty percent of defendants obtain release.<sup>48</sup> Even at the lowest bail amounts, pretrial detention rates remain alarmingly high.<sup>49</sup> An increasing number of individuals await trial in jail because they are unable to afford the amount of bail set on a judge's determination.<sup>50</sup>

#### ***B. Dangerousness Determinations and Detention Alternatives***

In practice, judicial discretion is inhibited by budget constraints and other variables that frequently result in a deference to pretrial detention. Two factors contribute to the ineffectiveness of pretrial detention: the difficulty in predicting "dangerousness" under Section 3142 of the BRA<sup>51</sup> and the limited availability of detention alternatives. These two factors, along with the elective nature of judicial office and the margin of error in

<sup>43</sup> See Dan Kopf, *America's Peculiar Bail System*, Pricenomics (May 26, 2015), <https://priceconomics.com/americas-peculiar-bail-system/>.

<sup>44</sup> Note, *Preventive Detention Before Trial*, 79 Harv. L. Rev. 1489, 1506-07 (1966) (concluding that "given the current state of behavior prediction., judges should be restricted but not necessarily removed).

<sup>45</sup> Only four states have banned commercial bail. See Thomas H. Cohen & Brian A. Reaves, *Pretrial Release of Felony Defendants in State courts*, Bureau Just. Stat. 1, 4 (Nov. 2007), <http://bjs.ojp.usdoj.gov/content/pub/pdf/prfdsc.pdf>.

<sup>46</sup> See, e.g., Dayla S. Pepi & Donna D. Bloom, *Take the Money or Run: The Risky Business of Acting as Both your Client's Lawyer and Bail Bondsman*, 27 St. Mary's L.J. 922, 938-39 (2006) (describing the options available to Texas defendants).

<sup>47</sup> Thomas H. Cohen & Brian A. Reaves, *Pretrial Release of Felony Defendants in State courts*, Bureau Just. Stat. 1, 3 (Nov. 2007), <http://bjs.ojp.usdoj.gov/content/pub/pdf/prfdsc.pdf>.

<sup>48</sup> Thomas H. Cohen & Brian A. Reaves, *Pretrial Release of Felony Defendants in State courts*, Bureau Just. Stat. 1, 3 (Nov. 2007), <http://bjs.ojp.usdoj.gov/content/pub/pdf/prfdsc.pdf>.

<sup>49</sup> See *Dangerous Defendants*, 127 Yale L.J. 490 (2018).

<sup>50</sup> See Douglas J. Klein, *The Pretrial Detention "Crisis" The Causes and the Cure*, 52 Wash. U. J. Urb. & Contemp. L. 281 (1997).

<sup>51</sup> 18 U.S.C. 3142.

“dangerousness” determinations, suggest the need for support in pretrial detention decisionmaking.

The absence of a statutory definition for “dangerousness” in Section 3142 of the BRA<sup>52</sup> creates ambiguity and promotes inconsistency in determination decisions. Without a clear-cut statutory definition, judges determine “dangerousness” subjectively and make pretrial custody decisions accordingly.<sup>53</sup> Studies on “dangerousness” decisions indicate an exacerbated tendency to overpredict “dangerousness” with predictions showing success only one-third of the time.<sup>54</sup>

Further, the limited availability of detention alternatives results in an excessive—and often adverse—use of pretrial detention. Alternatives to detention are available in the forms of ankle monitoring devices and drug recourse facilities, but access is frequently limited by restrictions on space and funding.<sup>55</sup> Limited resources leave many defendants subject to pretrial detention instead of benefitting from the existence of alternatives.<sup>56</sup> Consequently, a judge’s determination regarding the detention of a defendant may be influenced by economic limitations on probationary tools, not simply the judge’s true determination of a defendant’s “dangerousness.”

### C. *Political Pressure and Error in Detention Determinations*

Additional implications arise due to the elective nature of judicial office. The nature of a judge’s position urges actions that attract citizen approval and increase the likelihood of reelection. While judges face the possibility of public scorn for releasing a defendant who subsequently flees, current pretrial policy centers around detaining defendants that pose a risk to the public.<sup>57</sup> As a result, judges often bear the brunt of public outrage when released defendants commit high-profile crimes; conversely, judges rarely face public condemnation for detaining defendants.<sup>58</sup> The role of public approval in electing judges risks interference with pretrial detention determinations. If decisions are made to avoid societal backlash, release may become unattainable to defendants who even fractionally pose a risk to public welfare.

Today, prisons are inappropriately filled with two categories of defendants: those who are expressly deemed “low-risk” by a judge but are unable to afford bond; and those who are detained because they are considered a danger to the public. The Department of Justice estimates that nondangerous defendants, or low-risk defendants, make up about two-thirds of the 500,000 defendants held pretrial in jails.<sup>59</sup> Research into the effectiveness

---

<sup>52</sup> 18 U.S.C. 3142(g).

<sup>53</sup> See generally, Sandra G. Mayson, *Article: Dangerous Defendants*, 127 Yale L.J. 492 (2018).

<sup>54</sup> See Jack F. Williams, *Process and Detention: A Return to a Fuzzy Model of Pretrial Detention*, 79 Minn. L. Rev. 325, 343-44 (1994).

<sup>55</sup> See, ESSAY: Pretrial Detention and the Right to Be Monitored, 123 Yale L.J. 1344, 1346

<sup>56</sup> *Id.*

<sup>57</sup> See generally *Dangerous Defendants*, 127 Yale L.J. 490

<sup>58</sup> See Samuel R. Wiseman, *Fixing Bail*, 84 Geo. Wash. L. Rev. 417.

<sup>59</sup> See Criminal Justice Section, *State Policy Implementation Project*, A.B.A. 2, [http://www.americanbar.org/content/dam/aba/administrative/criminal\\_justice/spip\\_handouts.pdf](http://www.americanbar.org/content/dam/aba/administrative/criminal_justice/spip_handouts.pdf) [hereinafter *A.B.A Study*] (“Two thirds of the 500,000 individuals incarcerated in jail and awaiting

of pretrial detention decisions revealed that none of the conditions of release that researchers reviewed were related to a defendant's likelihood of re-arrest while on pretrial release.<sup>60</sup> In fact, most defendants that the government feared would commit an act of violence did not do so.<sup>61</sup> In theory, judicial discretion allows for flexibility based on circumstance; however, application proves that flexibility based on circumstance leads to a deference to detention; circumventing the legislative intent behind bail statutes and unnecessarily detaining individuals with a high margin of error.

### III. CONSEQUENCES OF THE CURRENT PRETRIAL SYSTEM

Despite the large percentage of defendants that are eligible for bail, many of the 500,000 individuals detained are not released pretrial.<sup>62</sup> These defendants are exposed to a number of negative effects that extend well beyond the interval between charging and disposition,<sup>63</sup> and the nondangerous individuals jailed to prevent flight suffer from the same harmful effects as those detained for safety reasons.<sup>64</sup> Evidence has proven that pretrial detention disparately harms poor defendants and their families, increases recidivism rates, and wastes limited criminal justice resources.<sup>65</sup> In other words, failing to appropriately determine the level of risk that a defendant poses impacts future crime and violence and carries enormous costs—both human and financial.<sup>66</sup>

---

trial are *low bail risk* . . . pos[ing] no significant risk to themselves or the community as well as representing a low risk of flight.” (emphasis added).

<sup>60</sup> Bechtel, Kristin and Holsinger, Alexander and Lowenkamp, Christopher and Warren, Madeline, A Meta-Analytic Review of Pretrial Research: Risk Assessment, Bond Type, and Interventions (March 3, 2016). Available at SSRN: <https://ssrn.com/abstract=2741635> or <http://dx.doi.org/10.2139/ssrn.2741635>.

<sup>61</sup> See Thomas Bak, Admin. Office of the United States Courts, *Defendants Who Avoid Detention – A Good Risk?* (1994).

<sup>62</sup> See generally Eric Holder, Att’y Gen., U.S. Dep’t of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html>.

<sup>63</sup> See Samuel R. Wiseman, *Fixing Bail*, 84 Geo. Wash. L. Rev. 417.

<sup>64</sup> See, e.g., Laura I. Appleman, Justice in the Shadowlands: Pretrial Detention, Punishment, and the Sixth Amendment, 69 Wash. & Lee. L. Rev. 1297, 1320-21, 1363 (2012) (noting that “many . . . nonviolent offenders do become dangerous after being exposed to violent criminals in jail or prison”);

See also, e.g. Arthur R. Angel et al., Preventive Detention: An Empirical Analysis, 6 Harv. C.R.-C.L.L. Rev. 300, 352 (1971) (noting that being jailed with criminals “leaves many defendants hardened, embittered, and more likely to recidivate once released”);

see also, Richard C. McCorkle, Personal Prosecutions to Violence in Prison, 19 Crim. Just. & Behav. 160, 165 (1992) (noting that approximately seventy percent of prisoners surveyed in one maximum security facility “got tough” with another inmate in self-defense.).

<sup>65</sup> See Miller, M. & Guggenheim, M., *Pretrial Detention and Punishment*, 75 Minn. L. Rev. 335, 339 n.33 (1990).

<sup>66</sup>[https://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF-research-summary\\_PSA-Court\\_4\\_1.pdf](https://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF-research-summary_PSA-Court_4_1.pdf)

### A. *Economic and Criminogenic Impacts on Defendants*

With a system that relies on money bail, low-income defendants unable to afford bail amounts incur economic burdens that wealthy individuals are not subject to.<sup>67</sup> Essentially, financial status can ensure a defendant is not only released pretrial, but also refunded the full amount of bail posted; individuals who are able to put up the full amount of bail may redeem it upon showing up for court. However, indigent defendants are significantly more likely to remain incarcerated due to an inability to pay bail or forfeit a nonrefundable fee to a bail bondsman. Both incarceration and forfeiture of fees impart direct and indirect effects on low-income defendants and their families.

Even when a period of incarceration does not result in a conviction, pretrial detainees are unable to provide financial and emotional support to their families.<sup>68</sup> Families often suffer substantial financial burdens where incarceration impedes a detainee's ability to contribute to household and living expenses. Many defendants lose their means of employment while incarcerated and detainees often lose their jobs even if jailed for a short period of time.<sup>69</sup> Former Attorney General Eric Holder noted that nonviolent defendants "could be released ... and allowed to pursue or maintain employment, and participate in educational opportunities and their normal family lives—without the risk of endangering their fellow citizens or fleeing from justice."<sup>70</sup> Without adequate income, a defendant and their family is at risk of exhausting savings, missing crucial payments, and lose housing, transportation, medical care, and other resources.<sup>71</sup> Money bail means indigent defendants and their family members are faced with choosing between freedom and the ability to afford basic necessities.

Pretrial detention also imposes severe criminogenic effects on defendants. While a significant number of inmates detained pretrial have been accused of low-level or nonviolent crimes,<sup>72</sup> nonviolent detainees are ultimately jailed with both high-risk

---

<sup>67</sup> See Miller, M. & Guggenheim, M., *Pretrial Detention and Punishment*, 75 Minn. L. Rev. 335, 339 n.33 (1990).

<sup>68</sup> See Miller, M. & Guggenheim, M., *Pretrial Detention and Punishment*, 75 Minn. L. Rev. 335, 339 n.33 (1990).

<sup>69</sup> See, e.g., *A.B.A. Study*, *supra* note 3, at 5 (listing "job loss, inability to pay child support and eviction" as collateral consequences of pretrial confinement); Laura Sullivan, *Bail Burden Keeps U.S. Jails Stuffed with Inmates*, Nat'l Pub. Radio (Jan. 21, 2010, 2:00 P.M.), <http://www.npr.org/2010/01/21/122725771/Bail-Burden-Keeps-U-S-Jails-Stuffed-With-Inmates> (noting that a defendant charged with stealing a television had lost his job, apartment, and truck while detained pretrial).

<sup>70</sup> See Eric Holder, Att'y Gen., U.S. Dep't of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html>.

<sup>71</sup> See Laura Sullivan, *Inmates Who Can't Make Bail Face Stark Options*, Nat'l Pub. Radio (Jan. 22, 2010, 12:00 A.M.), <http://www.npr.org/templates/story/story.php?storyId=122725819> (describing a defendant whose child's mother has not been able to pay the bills without his income.)

<sup>72</sup> See Eric Holder, Att'y Gen., U.S. Dep't of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html>.

defendants who await trial and convicted criminals.<sup>73</sup> Placing pretrial detainees in the same environment as convicted criminals increases the likelihood that new detainees will adopt criminal tendencies.<sup>74</sup> For example, nonviolent criminals are frequently forced to acclimate to tumultuous prison environments in an effort to protect themselves; and these defense mechanisms tend to be employed almost immediately upon incarceration.<sup>75</sup> As defendants continue to remain incarcerated pretrial, the chances that they will permanently adopt criminal tendencies only intensifies.<sup>76</sup>

### B. Case Outcomes

In addition to exposing defendants to an environment that induces participation in criminal behaviors, the current pretrial system appears to elicit a high rate of convictions. The Manhattan Bail Project concluded that “a person’s inability or unwillingness to post bail may result in more than a temporary deprivation of his liberty,” finding that those detained pretrial were more likely to be convicted and imprisoned than those released on bail, regardless of whether they had been previously charged or imprisoned.<sup>77</sup>

While studies have found that a large percentage of detainees are found guilty, research does not support the notion that judges assessing flight risk and “dangerousness” also accurately predict guilt.<sup>78</sup> Several factors contribute to the correlation between detained defendants and guilty dispositions.<sup>79</sup> One factor is the challenge in preparing an

---

<sup>73</sup> See, e.g., Laura I. Appleman, *Justice in the Shadowlands: Pretrial Detention, Punishment, & the Sixth Amendment*, 69 WASH. & LEE L. REV. 1297, 1320-31, 1363 (2012) (noting that “many nonviolent offenders do become dangerous after being exposed to violent criminals in jail or prison”).

<sup>74</sup> See, e.g., Arthur R. Angel et al., *Preventive Detention: An Empirical Analysis*, 6 Harv. C.R.-C.L. L. REV. 300, 352 (1971) (“The indelible impact of this incarceration, the exposure to those whose way of life is crime and to persons who have lost all hope and are resigned to failure, leave many defendants hardened, embittered, and more likely to recidivate once released, than they were before incarceration.” (footnotes omitted)).

<sup>75</sup> See, e.g., Arthur R. Angel et al., *Preventive Detention: An Empirical Analysis*, 6 Harv. C.R.-C.L. L. REV. 300, 352 (1971) (noting that being jailed with criminals “leave[s] many defendants hardened, embittered, and more likely to recidivate once released”).

<sup>76</sup> See, e.g. Roger Bowles & Mark Cohen, *Pre-Trial Detention: A Cost-Benefit Approach*, Dept for Int’l Dev. 34 (2009),

[http://www.opensocietyfoundations.org/sites/default/files/justice\\_20081124d\\_0.pdf](http://www.opensocietyfoundations.org/sites/default/files/justice_20081124d_0.pdf) (noting that pretrial detention “could create a long-term cost of crime itself”).

<sup>77</sup> *Id.*

<sup>78</sup> See Jeffrey Manns, *Liberty Takings: A Framework for Compensating Pretrial Detainees*, 26 *Cardozo L. Rev.* 1947, 1962 (2005) (pointing to “[n]umerous empirical studies”—most from the 1970s or 1980s—showing the longer the pretrial detention, the higher the likelihood of conviction, “even after controlling for factors such as the seriousness of the charges” and “prior convictions”); Thomas E. Scott, *Pretrial Detention Under the Bail Reform Act of 1984: An Empirical Analysis*, 27 *Am. Crim. L. Rev.* 1, 15 (1989) (“Both in 1987 and in 1988 approximately 85 percent of all detainees were ultimately convicted of a criminal charge.”).

<sup>79</sup> Anne Rankin, *The Effect of Pretrial Detention*, 39 *N.Y.U. L. REV.* 641, 641 (1964); see also Charles E. Ares, Anne Rankin & Herbert Sturz, *The Manhattan Bail Project: An Interim Report*

adequate defense from jail and the related impact on the likelihood of success at trial.<sup>80</sup> Defendants detained pretrial are taken from their support systems and physically barred from the outside world—restricted to limited visits from family members and legal counsel.<sup>81</sup> Limited visiting hours have an impact on a defendant’s ability to meet and strategize with their lawyers—an important part of any case.<sup>82</sup> Further, detained defendants are forced to rely on friends or family members to assist with collecting exculpatory evidence and tracking down exonerating witnesses.<sup>83</sup>

In situations where a defendant is detained, the power of plea bargaining in the pretrial process is extraordinary; only 4% to 6% of defendants ever make it to the trial stage.<sup>84</sup> One empirical study found that of the federal pretrial detainees in 1987 and 1988, about eighty-five percent were criminally convicted and that a majority of these

---

*on the Use of Pre-Trial Parole*, 38 N.Y.U. L. REV. 67 (1963) (describing the Manhattan Bail Project).

<sup>80</sup> See Miller, M. & Guggenheim, M., *Pretrial Detention and Punishment*, 75 Minn. L. Rev. 335, 339 n.33 (1990). (“The differences in the ability of a defendant [released pretrial to ... prepare for the defense of criminal charges are substantial.”). *see also* MALCOLM M. FEELEY, *THE PROCESS IS THE PUNISHMENT: HANDLING CASES IN A LOWER CRIMINAL COURT* 205 (1979) (noting that even after controlling for the “seriousness of the offenses and other factors,” pretrial “[d]etainees were less likely to receive nolle than were those who were released”); *see also* Thomas H. Cohen & Brian A. Reaves, *Pretrial Release of Felony Defendants in State courts*, Bureau Just. Stat. 1, 7 (Nov. 2007), <http://bjs.ojp.usdoj.gov/content/pub/pdf/prfdsc.pdf>. (in a survey of state pretrial release and detention in the seventy-five largest U.S. counties, finding that sixty percent of released defendants were later convicted as compared to seventy-eight percent of detained defendants).

<sup>81</sup> *See generally* Douglas L. Colbert, *Prosecution Without Representation*, 59 Buff. L. Rev. 333, 428 (2011) (describing the need for guaranteed representation “at the initial assessment of bail” for indigent defendants).

<sup>82</sup> *See, e.g.*, Stephanos Bibas, *Plea Bargaining Outside the Shadow of Trial*, 117 Harv. L. Rev. 2463, 2493 (2004) (noting that “[d]etained defendants find it harder to meet and strategize with their lawyers and to track down witnesses”); *see generally* Douglas L. Colbert, *Prosecution Without Representation*, 59 Buff. L. Rev. 333, 400 (noting that “people accused of crimes in the ten states that deny representation at the defendant’s initial bail determination face delays, generally ranging from two to sixty days, before they obtain a lawyer’s assistance”); Douglas J. Klein, Note, *The Pretrial Detention “Crisis”: The Causes and The Cure*, 52 J. Urb. & Contemp. L. 281, 293 & n.71 (1997) (noting that “prisoners, including pretrial detainees, may be incarcerated in facilities far away from the district in which they are tried,” which “can inhibit a defense attorney from consulting with the pretrial detainee,” and providing an extreme example of a defendant awaiting trial who was moved from New York to Texas).

<sup>83</sup> *See Cost of Pre-Trial Detention in City Jails Takes bite out of Big Apple’s Budget*, N.Y.C. Indep. Budget Off., <https://ibo.nyc.ny.us/newsfax/nws56pretrialdetention.html> (last visited Nov 2, 2018).

<sup>84</sup> *See* Miller, M. & Guggenheim, M., *Pretrial Detention and Punishment*, 75 Minn. L. Rev. 335, 339 n.33 (1990); <https://www.nytimes.com/2012/03/23/us/stronger-hand-for-judges-after-rulings-on-plea-deals.html>

convictions appeared to have resulted from some sort of plea bargaining.<sup>85</sup> The desire to be released was one of the most influential factors in a detainee's decisionmaking, even overshadowing the collateral consequences of pleading guilty, such as eviction from public housing, the removal of voting rights, suspension of occupational licenses and certifications, ineligibility for food stamps or other federal support, and restrictions on adoption.<sup>86</sup> Defendants are incentivized to plead guilty even if they are innocent, particularly for low-level crimes with relatively short sentences. In some cases, the period that defendants spend in jail awaiting trial is equal to, or greater than, the sentence they could potentially receive if found guilty at trial.<sup>87</sup> If defendants receive credit for the time spent in jail waiting for a case disposition, they may have completed the required sentence by the time they agree to a plea deal.<sup>88</sup>

### C. Detention on the Public

Aside from the damaging impact of pretrial detention on defendants and their families, pretrial detention imposes high financial burdens on the public. Former Attorney General Holder estimated the annual cost of pretrial detention on taxpayers at around 9 billion dollars.<sup>89</sup> The American Bar Association notes that "the taxpayer implications of pretrial detention are significant given the expenses of operating detention facilities."<sup>90</sup> The costs of feeding, clothing, and providing medical care for millions of pretrial defendants is high

---

<sup>85</sup> See Thomas E. Scott, **Pretrial** Detention Under the Bail Reform Act of 1984: An Empirical Analysis, 27 Am. Crim. L. Rev. 1, 15 (1989) ("Both in 1987 and in 1988 approximately 85 percent of all detainees were ultimately convicted of a criminal charge.").

<sup>86</sup> See Edkins, V.A., & Dervan, L. E. (2018, February 5). Freedom Now or a Future Later: Pitting the Lasting Implications of Collateral Consequences Against Pretrial Detention in Decisions to Plead Guilty. *Psychology, Public Policy, and Law*. Advance online publication. <http://dx.doi.org/10.1037/law0000159>.

<sup>87</sup> See Stephanos Bibas, ARTICLE: DESIGNING PLEA BARGAINING FROM THE GROUND UP: ACCURACY AND FAIRNESS WITHOUT TRIALS AS BACKSTOPS, 57 Wm. & Mary L. Rev. 1055.

<sup>88</sup> See Stephanos Bibas, ARTICLE: DESIGNING PLEA BARGAINING FROM THE GROUND UP: ACCURACY AND FAIRNESS WITHOUT TRIALS AS BACKSTOPS, 57 Wm. & Mary L. Rev. 1055.

<sup>89</sup> See Eric Holder, Att'y Gen., U.S. Dep't of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html> (noting that many pretrial detainees have been "charged with crimes ranging from petty theft to public drug use," and that they are detained "because they simply cannot afford to post the bail required - very often, just a few hundred dollars - to return home until their day in court arrives").

<sup>90</sup> See Criminal Justice Section, *State Policy Implementation Project*, A.B.A. 2, [http://www.americanbar.org/content/dam/aba/administrative/criminal\\_justice/spip\\_handouts.pdf](http://www.americanbar.org/content/dam/aba/administrative/criminal_justice/spip_handouts.pdf) [hereinafter *A.B.A. Study*]

and society expends substantial resources paying the costs of constructing and operating jails.<sup>91</sup>

The practice of incarcerating both convicted individuals and pretrial detainees creates difficulties in housing inmates. Space in existing facilities is often limited and states and counties build new detention facilities to accommodate the escalating prison populations.<sup>92</sup> Jail cost estimates range between \$84 million<sup>93</sup> and \$124 million<sup>94</sup> annually, with estimated costs as high as \$860 million per year.<sup>95</sup> Daily estimated housing costs range from \$50 to \$123 per detainee, depending on the jurisdiction,<sup>96</sup> and New York City alone spends approximately \$45,000 annually to house a single pretrial detainee.<sup>97</sup>

Moreover, the removal of productive workers from the labor pool negatively impacts the economy. In cases where a detainee is responsible for providing the majority of the household income, families are crippled by the absence of the typical earnings. With work-eligible citizens detained awaiting trial, their families have less support—increasing the need for public assistance and placing the burden on taxpayers.<sup>98</sup> Former Attorney General Holder noted that many of the individuals detained pretrial “are nonviolent, non-felony offenders ... and a disproportionate number of them are poor. They are forced to remain in custody—for an average of two weeks, and at considerable expense to taxpayers—because they simply cannot afford to post the bail required.”<sup>99</sup> Even if a detainee is freed from custody before trial, short periods of incarceration can have lasting economic consequences.<sup>100</sup>

---

<sup>91</sup> See Criminal Justice Section, *State Policy Implementation Project*, A.B.A. 2, [http://www.americanbar.org/content/dam/aba/administrative/criminal\\_justice/spip\\_handouts.pdf](http://www.americanbar.org/content/dam/aba/administrative/criminal_justice/spip_handouts.pdf) [hereinafter *A.B.A Study*]

<sup>92</sup> See Douglas J. Klein, *The Pretrial Detention “Crisis” The Causes and the Cure*, 52 Wash. U. J. Urb. & Contemp. L. 281, 291. (1997).

<sup>93</sup> Stacia Willson, *Bexar County Jail Inmates Cost Taxpayers More than \$80 Million*, KENS5 SAN ANTONIO (Jan. 5, 2011, 7:48 AM), <http://www.kens5.com/new/Bexar-County-Jail-population-is-costing-tax-payers-more-than-80-million-112918419.html>.

<sup>94</sup> See *UT Dallas Study to Help Curb Jail Costs, Cut Repeat Offenses*, U. Tex. Dall. News Center (Dec. 1, 2011) [http://www.utdallas.edu/news/2011/12/1-14451\\_UT-Dallas-Study-to-Help-Curb-Jail-Costs-Cut-Repeat\\_article-wide.html](http://www.utdallas.edu/news/2011/12/1-14451_UT-Dallas-Study-to-Help-Curb-Jail-Costs-Cut-Repeat_article-wide.html) (estimating \$57 in daily costs per inmate in Dallas County).

<sup>95</sup> See *Cost of Pre-Trial Detention in City Jails Takes bite out of Big Apple’s Budget*, N.Y.C. Indep. Budget Off., <https://ibo.nyc.ny.us/newsfax/nws56pretrialdetention.html> (last visited Nov 2, 2018).

<sup>96</sup> *Id.*

<sup>97</sup> See Criminal Justice Section, *State Policy Implementation Project*, A.B.A. 2, [http://www.americanbar.org/content/dam/aba/administrative/criminal\\_justice/spip\\_handouts.pdf](http://www.americanbar.org/content/dam/aba/administrative/criminal_justice/spip_handouts.pdf) [hereinafter *A.B.A Study*].

<sup>98</sup> See Samuel R. Wiseman, *Pretrial Detention and the Right to be Monitored*, 123 Yale L.J. 1344, 1356-57 (describing the economic effects of pretrial detention and providing additional sources).

<sup>99</sup> Eric Holder, Att’y Gen., U.S. Dep’t of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html>.

<sup>100</sup> Laura Sullivan, *Bail Burden Keeps U.S. Jails Stuffed with Inmates*, Nat’l Pub. Radio (Jan. 21, 2010, 2:00 P.M.), <http://www.npr.org/2010/01/21/122725771/Bail-Burden-Keeps-U-S-Jails->

#### IV. BIG DATA IN BAIL DETERMINATIONS

Risk assessments in pretrial detention have an influence on critical dynamics: whether or not a defendant is sentenced to jail or prison, how long he or she is incarcerated, and how likely he or she is to resort to violence or other criminal activity in the future.<sup>101</sup> With more information available than ever before, new methods of empirical inquiry support credible risk assessments.<sup>102</sup> Through data collection and analysis of large amounts of raw information, new wave data analytics provides incredible insight. In one instance, Google analyzed clusters of search terms by region in the United States to predict flu outbreaks faster than was possible using hospital admission records.<sup>103</sup> Data-driven, objective assessments of the risk that individual defendants pose to public safety can significantly improve the accuracy and consistency of pretrial detention judgments.<sup>104</sup>

##### A. *Big Data Generally*

Big Data is used to identify and understand phenomena in a variety of fields. It is described as “the trendy moniker for powerful new forms of data analytics”—the term Big Data has become nearly synonymous with data analysis.<sup>105</sup> Big Data analytics depends on small data inputs including information about people, places, and things collected by sensors, cell phones, and click patterns.<sup>106</sup> These small data inputs are collected from every integral aspect of an American’s daily life: cell phones, credit cards, computers, and televisions. On a daily, and sometimes hourly, basis consumers create, store, and transmit electronic

---

Stuffed-With-Inmates (noting that a defendant charged with stealing a television had lost his job, apartment, and truck while detained pretrial).

<sup>101</sup> See Eric Holder, Att’y Gen., U.S. Dep’t of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html>; see also [https://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF-research-summary\\_PSA-Court\\_4\\_1.pdf](https://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF-research-summary_PSA-Court_4_1.pdf)

<sup>102</sup> See Samuel R. Wiseman, *ARTICLE: The Criminal Justice Black Box*, 78 Ohio St. L.J. 349, 350 (2017).

<sup>103</sup> See Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> march-april 2014 (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>104</sup> Id.

<sup>105</sup> See Paul Ohm, Response, *The Underwhelming Benefits of Big Data*, 161 U.P.A. L. REV. ONLINE 339, 339-40 (2013) (describing big data as “the trendy moniker for powerful new forms of data analytics,” and noting that the term has “become nearly synonymous with ‘data analysis’”).

<sup>106</sup> Neil M. Richards & Jonathan H. King, *Three Paradoxes of Big Data*, 66 STAN. L. REV. ONLINE 41, 42 (2013) (“Big data analytics depend on small data inputs, including information about people, places, and things collected by sensors, cell phones, click patterns, and the like. These small data inputs are aggregated to produce large datasets which analytic techniques mine for insight.”).

data pertaining to nearly every feature of their lives.<sup>107</sup> At approximately a billion social media posts every day, these posts represent the largest increase ever in the capacity of the human race to express itself.<sup>108</sup> Over the past two years, the total accumulation of data—a zettabyte—dwarfs that of the entire existing record of human civilization.<sup>109</sup>

Experts on Big Data are less impressed with the amount of data available as they are by how the data can be utilized.<sup>110</sup> The revolution lies in improved statistical and computational methods like algorithms: a set of rules that can be used to solve a problem.<sup>111</sup> Algorithms are able to solve problems a thousand times faster than other conventional computer methods.<sup>112</sup> In the past, researchers would approach a data set with a hypothesis and use standard statistical techniques to test the hypothesis.<sup>113</sup> These researchers brought background knowledge, theoretical understanding, and intuitions into the process of hypothesis creation and hoped to find patterns in data that would verify the hypothesis.<sup>114</sup>

---

<sup>107</sup> E.g., Kathryn Nobuko Horwath, A Check-In on Privacy After *United States v. Jones*: Current Fourth Amendment Jurisprudence in the Context of Location-Based Applications and Services, 40 *Hastings Const. L.Q.* 925, 925-26 (2013) (Describing just a portion of the information a typical person distributes via Twitter, Facebook, etc. throughout a typical day).

<sup>108</sup> *Id.*

<sup>109</sup> See Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> march-april 2014 (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>110</sup> “There is a movement of quantification rumbling across fields in academia and science, industry and government and nonprofits ....” Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> march-april 2014 (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>111</sup> Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> march-april 2014 (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>112</sup> Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> march-april 2014 (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>113</sup> See Article: Standards of Fairness for Disparate Impact Assessment of Big Data Algorithms, 48 *Cumb. L. Rev.* 67, 74 (2017).

<https://advance.lexis.com/document/?pdmfid=1000516&crid=a735a8d2-3d4f-4396-86d9-c5ba60ff9692&pddocfullpath=%2Fshared%2Fdocument%2Fanalytical-materials%2Furn%3AcontentItem%3A5SBV-VG50-00CW-41V0-00000-00&pddocid=urn%3AcontentItem%3A5SBV-VG50-00CW-41V0-00000-00&pdcontentcomponentid=140713&pdteaserkev=sr0&pditab=allpods&ecomp=byvLk&earg=sr0&prid=fc726068-2d67-4c2d-8a75-d3d48bb5ccd5>

<sup>114</sup> See Article: Standards of Fairness for Disparate Impact Assessment of Big Data Algorithms, 48 *Cumb. L. Rev.* 67, 74 (2017).

<https://advance.lexis.com/document/?pdmfid=1000516&crid=a735a8d2-3d4f-4396-86d9-c5ba60ff9692&pddocfullpath=%2Fshared%2Fdocument%2Fanalytical->

In contrast, new analytic techniques based on algorithms discover connections in data that researchers were unable to accomplish before.<sup>115</sup> Big Data analysis leads to completely novel and unexpected connections between factors that were previously thought to be unrelated.<sup>116</sup>

### B. Existing Uses of Big Data

There are a number of applications for Big Data analytics: distributing police resources by predicting where and when crimes are most likely to occur; finding correlations between air quality and health conditions; or using genomic analysis to speed the breeding of crops like rice for drought resistance.<sup>117</sup> In marketing, use of Big Data analytics includes “recommendation engines” like those used by companies such as Netflix and Amazon to make purchase or viewing suggestions based on the prior interests of one customer when compared to millions of other customers’ data.<sup>118</sup> Target infamously used an algorithm to detect a woman’s pregnancy by tracking purchases of items such as unscented lotions and using the information to offer special discounts and coupons to the new, and easy to detect, patron.<sup>119</sup> Credit card companies have found unusual connections in the course of data analytics that can evaluate the risk of default; consumers who buy anti-scurf pads for their furniture are much more likely to make payments on their credit

---

[materials%2Furn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pddocid=urn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pdcontentcomponentid=140713&pdteaserkey=sr0&pditab=allpods&ecomp=byvLk&earg=sr0&prid=fc726068-2d67-4c2d-8a75-d3d48bb5ccd5](https://advance.lexis.com/document/?pdmfid=1000516&crd=a735a8d2-3d4f-4396-86d9-c5ba60ff9692&pddocfullpath=%2Fshared%2Fdocument%2Fanalytical-materials%2Furn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pddocid=urn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pdcontentcomponentid=140713&pdteaserkey=sr0&pditab=allpods&ecomp=byvLk&earg=sr0&prid=fc726068-2d67-4c2d-8a75-d3d48bb5ccd5)

<sup>115</sup> See Article: Standards of Fairness for Disparate Impact Assessment of Big Data Algorithms, 48 Cumb. L. Rev. 67, 74 (2017).

<https://advance.lexis.com/document/?pdmfid=1000516&crd=a735a8d2-3d4f-4396-86d9-c5ba60ff9692&pddocfullpath=%2Fshared%2Fdocument%2Fanalytical-materials%2Furn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pddocid=urn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pdcontentcomponentid=140713&pdteaserkey=sr0&pditab=allpods&ecomp=byvLk&earg=sr0&prid=fc726068-2d67-4c2d-8a75-d3d48bb5ccd5>

<sup>116</sup> See Article: Standards of Fairness for Disparate Impact Assessment of Big Data Algorithms, 48 Cumb. L. Rev. 67, 74 (2017).

<https://advance.lexis.com/document/?pdmfid=1000516&crd=a735a8d2-3d4f-4396-86d9-c5ba60ff9692&pddocfullpath=%2Fshared%2Fdocument%2Fanalytical-materials%2Furn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pddocid=urn%3AcontentItem%3A5SBV-VG50-00CW-41V0-0000-00&pdcontentcomponentid=140713&pdteaserkey=sr0&pditab=allpods&ecomp=byvLk&earg=sr0&prid=fc726068-2d67-4c2d-8a75-d3d48bb5ccd5>

<sup>117</sup> Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> (2014)

<sup>118</sup> See generally ARTICLE: BLEEDING DATA IN A POOL OF SHARKS: THE ANATHEMA OF PRIVACY IN A WORLD OF DIGITAL SHARING AND ELECTRONIC DISCOVERY, 64 S.C. L. Rev. 717, 726 (2013).

<sup>119</sup> See generally ARTICLE: BLEEDING DATA IN A POOL OF SHARKS: THE ANATHEMA OF PRIVACY IN A WORLD OF DIGITAL SHARING AND ELECTRONIC DISCOVERY, 64 S.C. L. Rev. 717, 726 (2013).

cards.<sup>120</sup> Big Data is even capable of sorting through the billion social media posts made daily.<sup>121</sup>

Big Data is being used in the criminal justice system, too. In Los Angeles, California, police use computerized “predictive policing” to anticipate criminal activity and allocate officers accordingly.<sup>122</sup> In Fort Lauderdale, Florida, algorithms are used to set bail amounts.<sup>123</sup> In states across the country, data-driven estimates of the risk of recidivism are being used to set jail sentences.<sup>124</sup> Algorithms have even been applied to determine case outcomes that rely on legal principles. Kevin Quinn, former Assistant Professor of Government at Harvard University, hosted a competition comparing his statistical model to the qualitative judgments of 87 law professors to determine which could best predict the outcome of all the Supreme Court cases in a year.<sup>125</sup> Despite the law professors’ knowledge of each justices’ interpretation style, past opinions, and precedent, the statistical model was more accurate in predicting the Supreme Court case outcomes than the 87 law professors were.<sup>126</sup>

### C. *Big Data in Pretrial Services*

In response to the issues in today’s pretrial detention system, current reformers aspire to abolish money bail, untethering pretrial detention from wealth and instead conditioning release on statistical risk.<sup>127</sup> In the past, judges charged with setting bail and making pretrial custody decisions have assessed risk subjectively<sup>128</sup> based on information provided to them by pretrial services agencies.<sup>129</sup> The inconsistencies in these decisions, and the resulting disparities, motivates a reform that advocates for pretrial detention to be

<sup>120</sup> I See generally ARTICLE: BLEEDING DATA IN A POOL OF SHARKS: THE ANATHEMA OF PRIVACY IN A WORLD OF DIGITAL SHARING AND ELECTRONIC DISCOVERY, 64 S.C. L. Rev. 717, 726 (2013).

<sup>121</sup> Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> (2014)

<sup>122</sup> See Hal Eisner, *Predictive Policing*, FOX NEWS LOS ANGELES (Nov. 9, 2015, 10:38 PM), <http://www.foxla.com/news/local-news/predictive-policing>.

<sup>123</sup> See Julie Angwin, Jeff Larson, Surya Mattu & Lauren Kitchner, *Machine Bias*, PROPUBLICA (May 23, 2016). <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

<sup>124</sup> See Anna Maria Barry-Jester, Ben Casselman & Dana Goldstein, *Should Prison Sentences Be Based on Crimes That Have not Been Committed Yet?*, FIVETHIRTYEIGHT (Aug. 4, 2015), <https://fivethirtyeight.com/features/prison-reform-risk-assessment/>.

<sup>125</sup> Jonathan Shaw, *Why “Big Data” is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> (Apr. 2014) (featuring the thoughts of Gary King, director of Harvard’s Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>126</sup> Id.

<sup>127</sup> See *Dangerous Defendants*, 127 Yale L.J. 490.

<sup>128</sup> Article: *Dangerous Defendants*, 127 Yale L.J. 492 (2018).

<sup>129</sup> Bail reform generated consequences. For an overview, see Carole Wolf Barnes, Rodney Kingsnorth & Tina Hodgins, *The 1984 Bail Reform Act: Organizational and Mandated Factors in the Decision to Detain*, 3 Crim. Just. Pol’y Rev. 257, 258 (1989).

conditioned on more accurate risk determinations.<sup>130</sup> Integrating Big Data analytics into pretrial detention determinations can provide an increasingly accurate method for determining a defendant's risk level. Studies across disciplines show a vast array of uses for Big Data<sup>131</sup> and indicate that Big Data is capable of resolving the inaccuracies that lead to inequalities in pretrial detention proceedings.

Research in the field of pretrial detention is rapidly growing as experts explore the use of sophisticated risk-assessment instruments in conjunction with information from Big Data sources; including promising to predict a defendant's likelihood of appearing in court and their risk of dangerousness.<sup>132</sup> The Laura and John Arnold Foundation hired leading criminal justice researchers to identify "1.5 million cases drawn from more than 300 U.S. jurisdictions," a data set that was then narrowed to 746,525 defendants that had been released pretrial.<sup>133</sup> Researchers combined information about these defendants, such as prior criminal records, with information on whether the defendants committed a crime while released or failed to appear in court, studying "hundreds of risk factors" that could predict flight and pretrial crime.<sup>134</sup> Ultimately, nine risk factors demonstrating the strongest predictive force were used to create a nationally applicable model.<sup>135</sup> All counties in Kentucky began using the foundation's model in 2013, and in the first six months of use, the state increased its release of defendants from 68% to 70% and pretrial crime rates declined by 15%.<sup>136</sup>

Any new information that could help assist in considerations of these pretrial detention factors would be best utilized in pretrial services agencies—the use of this information fits within the existing responsibilities of the agencies and fulfills the intended

---

<sup>130</sup> See *Dangerous Defendants*, 127 *Yale L.J.* 490 (2018).

<sup>131</sup> See Viktor Mayer-Schonberger & Kenneth Cukier, *BIG DATA*, 83-84 (2013) (describing Google's project, announced in 2004, to scan and digitize every book, and observing that by 2012, Google had electronically captured "more than 15 percent of the world's written heritage").

<sup>132</sup> The literature in this field is growing rapidly. For an overview and meta-analysis of pretrial risk assessment instruments, see generally Kristin Bechtel et al., *A Meta-Analytic Review of Pretrial Research: Risk-Assessment, Bond Type, and Interventions* (Mar. 6, 2016) (unpublished manuscript), <https://ssrn.com/abstract=2741635> [<https://perma.cc/MKD9-X8YD>].

<sup>133</sup> *DEVELOPING A NATIONAL MODEL FOR PRETRIAL RISK ASSESSMENT 4* (Nov. 2013), [http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJ\\_AF-research-summary\\_PSA-Court\\_4\\_1.pdf](http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJ_AF-research-summary_PSA-Court_4_1.pdf) [<https://perma.cc/R7VZ-37LS>].

<sup>134</sup> *DEVELOPING A NATIONAL MODEL FOR PRETRIAL RISK ASSESSMENT 4* (Nov. 2013), [http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJ\\_AF-research-summary\\_PSA-Court\\_4\\_1.pdf](http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJ_AF-research-summary_PSA-Court_4_1.pdf) [<https://perma.cc/R7VZ-37LS>].

<sup>135</sup> *DEVELOPING A NATIONAL MODEL FOR PRETRIAL RISK ASSESSMENT 4* (Nov. 2013), [http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJ\\_AF-research-summary\\_PSA-Court\\_4\\_1.pdf](http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJ_AF-research-summary_PSA-Court_4_1.pdf) [<https://perma.cc/R7VZ-37LS>].

<sup>136</sup> *More Than 20 Cities And States Adopt Risk Assessment Tool To Help Judges Decide Which Defendants To Detain Prior To Trial*, *LJAF* (June 26, 2015), <http://www.arnoldfoundation.org/more-than-20-cities-and-states-adopt-risk-assessment-tool-to-help-judges-decide-which-defendants-to-detain-prior-to-trial/> [<https://perma.cc/9Q9W-MMCW>].

purpose of pretrial services.<sup>137</sup> The majority of pretrial services agencies have continued to consider a wide range of characteristics when making release recommendations to judges including: current and previous residency information, employment or educational status, existing family relationships, physical or mental impairments, property ownership, drug or alcohol abuse, the status of any pending cases, prior criminal record, and history of appearing in court.<sup>138</sup> Pretrial services agencies could implement Big Data in a risk-assessment tool that utilizes a point system mirroring the Vera Project's scoring mechanism or the factors of The Laura and John Arnold Foundation's model.

## V. LOCATION INFORMATION IN PRETRIAL DETENTION

After obtaining a risk determination through the use of Big Data in a risk-assessment tool, location information offers an affordable alternative to pretrial detention; it can be used as a conditional alternative for mid- to low-risk defendants and has the potential to remedy the burdens caused by excessive pretrial detention. Location information provides accurate data that can be used to closely monitor pretrial defendants' locations—allowing them the opportunity to continue employment, maintain family relations, and consult at ease with counsel. In a world where scientists can monitor and recapture wolves,<sup>139</sup> snakes,<sup>140</sup> and even manatees<sup>141</sup> in the wild, and AT&T Wireless offers family member tracking for just ten dollars a month,<sup>142</sup> ensuring a nondangerous defendant's presence at trial is easily achieved with today's technology.

---

<sup>137</sup> See Betsy Kushlan Wanger, NOTE: LIMITING PREVENTATIVE DETENTION THROUGH CONDITIONAL RELEASE: THE UNFULFILLED PROMISE OF THE 1982 PRETRIAL SERVICES ACT, 97 Yale L.J. 320.

<sup>138</sup> DONALD E. PRYOR, PRETRIAL SERVICES RESOURCE CENTER, PRACTICES OF PRETRIAL RELEASE PROGRAMS: REVIEW AND ANALYSIS OF THE DATA 31, 80 (1982) (117 responses); Kristen L. Segebarth, NAPSA, Pretrial Services and Practices in the 1990s: Findings from the Enhanced Pretrial Services Project: Final Report 72-77 (1991) (unpublished manuscript on file with the Pretrial Services Resource Center) (192 responses with approximately 10% using some other recommendation system or making no recommendation).

<sup>139</sup> See Nancy Jo Tubbs, What is Radio Telemetry?, Int'l Wolf Center, [http://www.wolf.org/wolves/experience/telemsearch/telem\\_defined.asp](http://www.wolf.org/wolves/experience/telemsearch/telem_defined.asp) (last visited Dec. 12, 2018).

<sup>140</sup> See Julius Whigham II, Burmese Python Carrying 87 Eggs Sets State Record at 17 feet, 7 inches, Palm Beach Post, Aug. 13, 2012, <http://www.palmbeachpost.com/news/news/local/burmese-python-sets-state-record-at-17-feet-7-inch/nQ9wf>.

<sup>141</sup> See, e.g., Nancy Sadusky, Stormy: A Success Story, Save the Manatee Club, <http://savethemanatee.org/news/stormy.html> (last visited Aug. 22, 2018).

<sup>142</sup> AT&T FamilyMap, AT&T FamilyMap, AT&T, <https://familymap.wireless.att.com/finder-att-family/welcome.html> (last visited Dec. 3, 2018).

### A. Cell Site Location Information (CSLI)

Cell site location information (CSLI) refers to the information collected when a cell phone uses radio to communicate with a service provider's network.<sup>143</sup> Cell phone carriers maintain large numbers of radio base stations, also called "cell sites," across their geographic coverage areas.<sup>144</sup> Through the use of radio, a user's cell phone periodically reports to the nearest cell sites—generally located on "cell towers"—which in turn, identify the phone's approximate location.<sup>145</sup> Cell sites enable wireless carriers to reach the device and deliver a call as the device moves about a provider's coverage area.<sup>146</sup> When a cell phone moves away from the initiating cell site, the next closest cell site acquires the call from the previous cell site without interruption—all unbeknownst to consumers using the device.<sup>147</sup> Data is continuously transmitted from cellular devices and the proximately-located cell sites.<sup>148</sup>

CSLI is categorized as historical and prospective, or active, and modern technology permits CSLI to show both the past and current locations of a cell phone user.<sup>149</sup> Historical CSLI is often used by law enforcement to piece together past events, such as placing a suspect at a crime scene, while prospective CSLI can be used to trace the current whereabouts of a suspect, serving as a tool to facilitate the arrest of alleged criminals.<sup>150</sup> Cellular service providers retain detailed logs that include technical information, such as the location of the particular cell site a phone was near at the time of a call, for diagnostic, billing, and other purposes.<sup>151</sup>

---

<sup>143</sup> Stephanie K. Pell and Christopher Soghoian, *Can You See Me Now? Toward Reasonable Standard for Law Enforcement Access to Location Data That Congress Could Enact*, 27 Berkely Tech. L.J. 117, 127-8 (2012) (explaining how cell phone companies and law enforcement can cooperate to generate ping data).

<sup>144</sup> Pell, Soghoian, *supra* note 173, at \*126.

<sup>145</sup> *Id.* at \*126.

<sup>146</sup> See Pell, Soghoian, *supra* note 27.; Eric Lode, *Validity of Use of Cellular Telephone or Tower to Track Prospective, Real Time, or Historical Position of Possessor of Phone Under Fourth Amendment*, 92 A.L.R. Fed. 2d 1, \*2, (2015).

<sup>147</sup> *The Electronic Communications Privacy Act: Government Perspectives on Protecting Privacy in the Digital Age: Hearing before the S. Comm. On the Judiciary*, 112<sup>th</sup> Cong. 5 (2011) [hereinafter *Senate Judiciary 2011 ECPA Hearing*] (statement of James A. Baker, Assoc. Deputy Attorney Gen., U.S. Dep't of Justice), available at <http://1.usa.gov/IsojNy>. See generally Nishith D. Tripathi, Jeffrey H. Reed & Hugh F. VanLandingham, *Handoff in Cellular Systems*, IEEE PERS. COMM., Dec. 1998, at 26, available at <http://www.scss.tcd.ie/Hitesh.Tewari/papers/tripathi98.pdf>.

<sup>148</sup> See, e.g., John Caniglia & Teresa Dixon Murray, *Amazon, Amazon-Related Apps Blamed for Some Verizon Data Overages*, CLEVELAND.COM (Sept. 29, 2016, 8:30 AM), [http://cleveland.com/business/index.ssf/2016/09/amazon\\_amazon-related\\_apps\\_bla.html](http://cleveland.com/business/index.ssf/2016/09/amazon_amazon-related_apps_bla.html).

<sup>149</sup> See Kyle Malone, Comment, *The Fourth Amendment and the Stored Communications Act: Why the Warrantless Gathering of Historical Cell Site Information Poses No Threat to Privacy*, 39 PEPP. L. REV. 701, 710 (2012).

<sup>150</sup> E.g., *United States v. Skinner*, 690 F.3d 772, 776 (6<sup>th</sup> Cir. 2012).

<sup>151</sup> See Declan McCullagh, *Feds Push for Tracking Cell Phones*, CNET NEWS (Feb. 11, 2010), [http://news.cnet.com/8301-13578\\_3-10451518-38.html](http://news.cnet.com/8301-13578_3-10451518-38.html).

In CSLI, the proximity of cell sites to each other in a geographic area contributes to the accuracy of the location data; the closer cell sites are located to each other, the more accurate the cell site location information.<sup>152</sup> For example, in urban areas, cell sites are typically located within a few blocks of each other.<sup>153</sup> As a result, service providers can pinpoint a device's location to an area within a few feet—sometimes as detailed as the specific floor of a building.<sup>154</sup> Precise CSLI is also achieved through “triangulation” which is “based on the strength, angle, and timing of that cell phone’s signal measured across multiple cell site locations.”<sup>155</sup> Cellular carriers and law enforcement can also access the location of a cell phone through “pinging.” Pinging establishes the location of a particular device by dialing the phone number assigned to the device and hanging up.<sup>156</sup> Unless a cell phone is off or signal reception is inhibited, a device is constantly pinging the nearest cell site and transmitting data, regardless of the consumer’s level of interaction with the device.<sup>157</sup> As the number of cellular users grows, service providers continue to expand the breadth of network coverage by adding more cell sites.<sup>158</sup>

### **B. Global Positioning Systems (GPS) and Wireless Internet (WiFi)**

In addition to CSLI, cell phones can be located through global positioning system (GPS) data.<sup>159</sup> Unlike CSLI, which involves two-way communication between a cellular device and a service provider’s cell sites, GPS functions through hardware that enables a device to receive one-way signals from a constellation of global positioning satellites.<sup>160</sup>

---

<sup>152</sup> See generally ECPA Reform and the Revolution in Location Based Technologies and Services: Hearing Before the Subcomm. On the Constitution, Civil Rights, and Civil Liberties of the H. Comm. on the Judiciary, 111<sup>th</sup> Cong. 81-85, 93-94 (2010), [hereinafter Location Hearing] (written statement of Judge Stephen Wm. Smith, U.S. Magistrate Judge), available at [http://judiciary.house.gov/hearings/printers/111th/111-109\\_57082.pdf](http://judiciary.house.gov/hearings/printers/111th/111-109_57082.pdf) (summarizing and collecting inconsistent decisions).

<sup>153</sup> *In re U.S. for an Order Directing a Provider of Electronic Communication Service to Disclose Records to the Government*, 543 F. Supp. 2d 585 (W.D. Pa. 2008).

<sup>154</sup> *Com. v. Princiotta*, 2014 WL 5317765 (Mass. Super. Ct. 2014); *ECPA Part II*, *supra* note 15, at 52, 56.

<sup>155</sup> See *In re Tel. info. Needed for a Criminal Investigation*, 119 F. Supp. 3d 1011, 1015 (N.D. Cal. 2015); See *Electronic Communications Privacy Act (ECPA) (Part II): Geolocation Privacy and Surveillance, Hearing Before the Subcomm. On Crime, Terrorism, Homeland Security, and Investigations, of the H. Comm. on the Judiciary*, 113<sup>th</sup> Cong. 50, 53 (2013) [hereinafter *ECPA Part II*].

<sup>156</sup> *Princiotta*, 2014 WL 5317765 (Mass. Super. Ct. 2014).

<sup>157</sup> U.S. DEP’T OF HOMELAND SEC., LESSON PLAN: HOW CELL PHONES WORK 7, 9 (2010), [https://www.eff.org/files/filenode/how\\_cell\\_phones\\_work.pdf](https://www.eff.org/files/filenode/how_cell_phones_work.pdf).

<sup>158</sup> See generally: COMMENT: THE FALSE HOPE OF MISSOURI’S AMENDMENT NINE AND THE REAL PROBLEMS WITH CONSTITUTIONAL PROTECTION OF ELECTRONIC DATA AND COMMUNICATIONS FROM GOVERNMENT INTRUSION, 60 St. Louis L.J. 733 (2016).

<sup>159</sup> See generally, Shaina Hyder, PRIVACY LAW: The Fourth Amendment and Government Interception of Unsecured Wireless Communications, 28 Berkeley Tech. L.J. 937, 937 (2013).

<sup>160</sup> *Id.*

Software can calculate location with a high degree of accuracy using the signals received from satellites.<sup>161</sup>

While GPS data provides wireless carriers with information to identify a device's current location—prospectively locating a device—cell phone companies generally do not retain historical GPS data. However, mobile phone users routinely install applications that regularly refresh and communicate data, even when not actively in use.<sup>162</sup> Installing a third-party application involves granting the application access to the smartphone's GPS functionality.<sup>163</sup> This action, done with a user's knowledge and consent, affords an application's developers and location service providers significantly higher accessibility to users' GPS location data than what is available to wireless carriers.<sup>164</sup>

In addition to CSLI and GPS, wireless internet (WiFi) networks serve as an alternative means for gathering location information.<sup>165</sup> WiFi can deliver details about a device's location using other nearby networks—at substantially less battery power than required by GPS.<sup>166</sup> Devices with WiFi capabilities can pinpoint location information via “access points.”<sup>167</sup> The information that locates access points is stored in databases supported by technology companies including Google, Apple, and Microsoft.<sup>168</sup> Databases contain lists

---

<sup>161</sup> Id.

<sup>162</sup> See Declan McCullagh, *Feds Push for Tracking Cell Phones*, CNET NEWS (Feb. 11, 2010), [http://news.cnet.com/8301-13578\\_3-10451518-38.html](http://news.cnet.com/8301-13578_3-10451518-38.html).

<sup>163</sup> See generally *Data Use Policy*, FACEBOOK, <http://www.facebook.com/policy.php> (last updated Apr. 19, 2018).

<sup>164</sup> See generally, Julia Angwin & Jennifer Valentin-Devries, *Apple, Google Collect User Data*, WALL ST. J. (Apr. 22, 2011), <http://on.wsj.com/zp2Eu0>.

<sup>165</sup> See Greg Stirling, *Google Ends Street View Wifi Data Collection, May Now Need Other Sources for Location*, SEARCH ENGINE LAND (Oct. 20, 2010), <http://searchengineland.com/google-ends-street-view-wifi-data-collection-potentially-needs-other-sources-for-location-53373> (“One of the purposes of collecting WiFi locations is to enable Google to identify user location through triangulation using a database of hotspots”); see also Julia Angwin & Jennifer Valentin-Devries, *Apple, Google Collect User Data*, WALL ST. J. (Apr. 22, 2011), <http://on.wsj.com/zp2Eu0>.

<sup>166</sup> Id.

<sup>167</sup> Fred Zahradnik, *Wi-Fi Positioning System*, About Tech (Dec. 4, 2014), [http://gps.about.com/od/glossary/g/wifi\\_position.htm](http://gps.about.com/od/glossary/g/wifi_position.htm) [<http://perma.cc/YZ39-VL2B>]. A recent case in federal district court dealt with patent infringement claims on the various technologies involved in calculating location this way. *Skyhook Wireless, Inc. v. Google, Inc.*, CIV.A. 10-11571-RWZ, 2014 WL 898595, at 1 (D. Mass. Mar. 6, 2014). Mozilla Location services blends CSLI and Wi-Fi location technologies. Overview, Mozilla Servs., <http://location.services.mozilla.com/> [<http://perma.cc/C9BG-MLRF>] (last visited Dec. 8, 2018).

<sup>168</sup> See Greg Stirling, *Google Ends Street View Wifi Data Collection, May Now Need Other Sources for Location*, SEARCH ENGINE LAND (Oct. 20, 2010), <http://searchengineland.com/google-ends-street-view-wifi-data-collection-potentially-needs-other-sources-for-location-53373> (“One of the purposes of collecting WiFi locations is to enable Google to identify user location through triangulation using a database of hotspots”); see also Julia Angwin & Jennifer Valentin-Devries, *Apple, Google Collect User Data*, WALL ST. J. (Apr. 22, 2011), <http://on.wsj.com/zp2Eu0> (Apple Inc.'s iPhones and Google Inc.'s Android smartphones regularly transmit their locations back to Apple and Google, respectively . . . as part of their race to build massive databases capable of pinpointing people's locations via their cell phones.”).

of WiFi network identities and signal strengths to create a WiFi network location database that broadens geolocation-based services.<sup>169</sup> Like GPS, WiFi location data is calculated when an application compares nearby network signals.<sup>170</sup>

### C. Existing Uses of Location Information

Electronic monitoring of location information has been used in the past as an alternative to pretrial detention.<sup>171</sup> Several examples indicate that location information technology, such as remote monitoring devices, serve as a successful alternative to flight-based pretrial detention. In the late 1980s, Marion County, Indiana, ran an experimental program of pretrial home detention and electronic monitoring for defendants unable to afford bail or meet release on personal recognizance conditions.<sup>172</sup> In discussing the benefits of the Marion County monitoring program, Indiana University professors noted that “awaiting trial at home is less restrictive than confinement in jail” and allowed “offenders to maintain employment and ties to their families.”<sup>173</sup>

Additionally, Cook County, Illinois has used electronic monitoring—a radio signal and home monitoring unit—for more than 300,000 non-violent defendants since 1989, some of whom were released in the pretrial context.<sup>174</sup> The Cook County Sheriff’s Electronic Monitoring Program was created to ease overcrowding in the Cook County Department of Corrections and participants are often granted permission to work, attend school, and participate in job skill programs.<sup>175</sup> The City of Mesa, Arizona releases and electronically monitors certain defendants pretrial using GPS satellite tracking devices.<sup>176</sup> Strafford County, New Hampshire tracks defendants on pretrial release—as well as sentenced

---

<sup>169</sup> See Shaina Hyder, *PRIVACY LAW: The Fourth Amendment and Government Interception of Unsecured Wireless Communications*, 28 *Berkeley Tech. L.J.* 937, 937 (2013).

<sup>170</sup> Location Services FAQ, Amazon, [http://www.amazon.com/gp/help/customer/display.html/ref=hp\\_terms\\_us?nodeId=201604200](http://www.amazon.com/gp/help/customer/display.html/ref=hp_terms_us?nodeId=201604200) [<http://perma.cc/XR5P-JUUG>] (last visited Dec. 8, 2018). Since Amazon can also collect and use this data for providing services to Kindle users, while other times it merely relays the data to other service providers, Amazon is sometimes a third party carrier/intermediary and sometimes a third party recipient. See *id.* Also note that Kindles equipped with 4G (cell phone) connectivity can also use CSLI to calculate their position.

<sup>171</sup> *ESSAY: Pretrial Detention and the Right to Be Monitored*, 123 *Yale L.J.* 1344, 1346

<sup>172</sup> Michael G. Maxfield & Terry L. Baumer, *Home Detention and Electronic Monitoring: Comparing Pretrial and Postconviction Programs*, 26 *Crime & Delinq.* 521, 523 (1990).

<sup>173</sup> Michael G. Maxfield & Terry L. Baumer, *Home Detention and Electronic Monitoring: Comparing Pretrial and Postconviction Programs*, 26 *Crime & Delinq.* 521, 523 (1990).

<sup>174</sup> *Electronic Monitoring Program*, Cook County Sheriff, <http://www.cookcountysheriff.org/cook-county-department-of-corrections/electronic-monitoring-program-placement/> (last visit Nov. 2, 2018).

<sup>175</sup> *Electronic Monitoring Program*, Cook County Sheriff, <http://www.cookcountysheriff.org/cook-county-department-of-corrections/electronic-monitoring-program-placement/> (last visit Nov. 2, 2018).

<sup>176</sup> *Electronic Monitoring Program*, Mesa, Ariz., <https://www.mesaaz.gov/city-hall/court/electronic-monitoring> (last visited Nov. 2, 2018).

offenders in community supervision—using GPS systems that allow officials to know within 10 meters where a person has been throughout the day.<sup>177</sup>

Federal courts supervise many defendants and convicted offenders in the community, either before trial, after release from incarceration, or while serving sentences that do not require imprisonment.<sup>178</sup> In 1991, Federal Pretrial Services began a national, pretrial home confinement programming using electronic monitoring.<sup>179</sup> Federal Pretrial Services use both radio and GPS tracking devices to enforce home confinement and other conditions of supervised release,<sup>180</sup> along with frequent, required interactions with supervising officers.<sup>181</sup>

Location information has also been utilized by bail bondsmen. A location data seller that operated until 2017, CerCareOne, sold cell phone data to bounty hunters.<sup>182</sup> According to internal documents obtained from CerCareOne, around 250 bounty hunters and related businesses had access to AT&T, T-Mobile, and Sprint customer location data.<sup>183</sup> One bail bond company used phone location services more than 18,000 times, and others used phone location services thousands and tens of thousands of times.<sup>184</sup> Between at least 2012 and 2017, CerCareOne allowed bounty hunters, bail bondsmen, and bail agents to access accurate, real-time location of devices on a “Google Maps-style interface.”<sup>185</sup> While this particular use of data was controversial, location information can be implemented in pretrial detention with transparency.

---

<sup>177</sup> *XML, GPS, RF: New-Age Crime Fighters*, 43 *Security*, May 2006, at 40.

<sup>178</sup> <https://www.uscourts.gov/services-forms/probation-and-pretrial-services/probation-and-pretrial-services-supervision>

<sup>179</sup> *Beginnings of Probation and Pretrial Services*, U.S. Cts., <http://www.uscourts.gov/FederalCourts/ProbationPretrialServices/History.aspx> (last visited Nov. 2, 2018).

<sup>180</sup> *Location Monitoring/Home Confinement (Tether Program)*, U.S. Pretrial Servs. Agency E.D. Mich., <http://www.miept.uscourts.gov/pages/monitoring.cfm> (last visited Nov. 2, 2018).

<sup>181</sup> *See Supervision*, U.S. CTS., <http://www.uscourts.gov/FederalCourts/ProbationPretrialServices/Supervision.aspx> (last visited Nov. 2, 2018) (stating that “[w]ith location monitoring, the court determines the extent to which people are restricted case by case, requiring some individuals to remain on 24-hour-a-day lockdown at home and allowing others to leave for preapproved and scheduled absences” and describing “frequent phone calls” and “frequent, unannounced face-to-face visits” from supervising officers).

<sup>182</sup> <https://docs.house.gov/meetings/IF/IF16/20190207/108845/HHRG-116-IF16-20190207-SD007.pdf>

<sup>183</sup> *See Joseph Cox, Hundreds of Bounty Hunters Had Access to AT&T, T-Mobile, and Sprint Customer Location Data for Years*, Feb. 6, 2019 (last visited June 17, 2019) <https://docs.house.gov/meetings/IF/IF16/20190207/108845/HHRG-116-IF16-20190207-SD007.pdf>

<sup>184</sup> <https://docs.house.gov/meetings/IF/IF16/20190207/108845/HHRG-116-IF16-20190207-SD007.pdf>

<sup>185</sup> <https://docs.house.gov/meetings/IF/IF16/20190207/108845/HHRG-116-IF16-20190207-SD007.pdf>

#### **D. Location Information in Pretrial Services Agencies**

Using location information for electronic monitoring presents a superior alternative to money bail for addressing flight risk.<sup>186</sup> While active monitoring may still face limitations because of the availability of network signals,<sup>187</sup> location information appears to be the best option available for both defendants and the government: it allows law enforcement to apprehend fleeing fugitives, provides a solution that lessens government expenditures by decreasing the number of defendants detained, and offers defendants a less restrictive alternative to pretrial detention.

Monitoring as an alternative to pretrial detention eliminates the need to incarcerate defendants who have been deemed a flight risk.<sup>188</sup> Location information has the ability to reduce fugitive rates by allowing a defendant to be easily located. Bail bonds of any type do not perfectly achieve the goal of ensuring a defendant's presence at trial, but location information reveals precise details about an individual's geographic location.<sup>189</sup> For low-risk defendants, location information could even be limited to use only once a defendant had failed to appear for trial. As technology advances, user engagement increases, and service providers expand the scope of their networks, the quality of existing service and the accuracy of location information continues to improve.<sup>190</sup>

Pretrial monitoring fits within pretrial services agencies' authority and responsibilities; a number of pretrial services programs are already conducting monitoring and data analysis in some contexts. In many jurisdictions, pretrial services programs are delegated with the authority to release arrested individuals before their first court appearance.<sup>191</sup> To reduce jail crowding, electronic monitoring and telephone contact, when necessary, is used by some pretrial services agencies to ensure that a defendant remains

---

<sup>186</sup> See Kyle Malone, Comment, *The Fourth Amendment and the Stored Communications Act: Why the Warrantless Gathering of Historical Cell Site Information Poses No Threat to Privacy*, 39 PEPP. L. REV. 701, 710 (2012).

ESSAY: Pretrial Detention and the Right to Be Monitored, 123 Yale L.J. 1344, 1346

See Kyle Malone, Comment, *The Fourth Amendment and the Stored Communications Act: Why the Warrantless Gathering of Historical Cell Site Information Poses No Threat to Privacy*, 39 PEPP. L. REV. 701, 710 (2012).

<sup>187</sup> See *GPS: Your Supervising Officer is Watching*, U.S. CTS.: THIRD BRANCH NEWS, [http://www.uscourts.gov/news/thethirdbranch/07-04-](http://www.uscourts.gov/news/thethirdbranch/07-04-01/gps_your_supervising_officer_is_watching.aspx)

[01/gps\\_your\\_supervising\\_officer\\_is\\_watching.aspx](http://www.uscourts.gov/news/thethirdbranch/07-04-01/gps_your_supervising_officer_is_watching.aspx) (last visited Nov. 2, 2018) (noting that, in Main, “[a]ctive GPS is difficult because large areas of the state have poor cell phone service”).

<sup>188</sup> See, e.g., Paul D. Schultz, *The Future Is Here: Technology in Police Departments*, Police Chief, June 2008,

[http://www.policechiefmagazine.org/magazine/index.cfm?article\\_id=1527&fuseaction=display&issue\\_id=62008](http://www.policechiefmagazine.org/magazine/index.cfm?article_id=1527&fuseaction=display&issue_id=62008) (noting that police “can locate a fleeing fugitive or a missing child in a field in a matter of minutes”).

<sup>189</sup> See M. Wesley Clark, *Cell Phones as Tracking Devices*, 41 VAL. U. L. REV. 1413, 1434 (2007).

<sup>190</sup> See M. Wesley Clark, *Cell Phones as Tracking Devices*, 41 VAL. U. L. REV. 1413, 1434 (2007).

<sup>191</sup> <https://www.ncjrs.gov/pdffiles1/nij/181939.pdf>

within a specified area.<sup>192</sup> Some programs utilize computer systems to analyze raw data from a defendant's record.<sup>193</sup> New technologies make it possible to communicate essential information to judicial officers and develop effective means for monitoring and supervising defendants released on nonfinancial conditions.<sup>194</sup>

## VI. FEASIBILITY

Rising pretrial detention rates and shrinking government budgets indicate the need for an affordable solution that abolishes the current system's reliance on money bail while balancing the purposes of bail and limiting unnecessary detention. While the basic contours of the bail system have not changed for decades, the available solutions have changed a great deal.<sup>195</sup> Advances in computing technology have changed the cost of storage, causing substantial innovation that can benefit individuals, society, and the government.<sup>196</sup>

### A. *Data for the Government*

Previous generations of bail reformers have found challenge in motivating the government to act for the benefit of the poor and against the commercial bail industry.<sup>197</sup> Today, technological innovation offers affordable instruments that promise to solve existing issues, and predict future problems, all at a fraction of the cost of the current pretrial system. Big Data can reduce the egregious expense of housing defendants awaiting trial, provide valuable information that can mold procedures and policies, and prevent citizens from suffering from criminogenic effects that often lead to recidivism. Prominent public officials have voiced the need for this technology in the context of pretrial detention; the Conference of Chief Judges and the Conference of State Court Administrators recently called for the use of more accurate pretrial assessments of dangerousness and flight risk, and for the release of nondangerous defendants.<sup>198</sup>

<sup>192</sup> <https://www.ncjrs.gov/pdffiles1/nij/181939.pdf>

<sup>193</sup> <https://www.ncjrs.gov/pdffiles1/nij/181939.pdf>

<sup>194</sup> <https://www.ncjrs.gov/pdffiles1/nij/181939.pdf>

<sup>195</sup> See, e.g., Arthur Lawton Beeley, *The Bail System in Chicago* 164 (1927).

<sup>196</sup> Jonathan Shaw, *Why "Big Data" is a Big Deal*, Harvard Magazine, <http://harvardmag.com/pdf/2014/03-pdfs/0314-30.pdf> (Apr. 2014) (featuring the thoughts of Gary King, director of Harvard's Institute for Quantitative Social Science (IQSS), a hub of expertise for interdisciplinary projects aimed at solving problems in human society.”).

<sup>197</sup> See, e.g., Betsy Kushlan Wanger, Note, *Limiting Preventive Detention Through Conditional Release: The Unfulfilled Promise of the 1982 Pretrial Services Act*, 97 Yale L.J. 320, 330-35 (1987) (explaining that many federal districts had not yet implemented reforms that would have expanded pretrial services).

<sup>198</sup> Arthur W. Pepin, *2012-2013 Policy Paper: Evidence-Based Pretrial Release*, Conf. St. Ct. Admins. 11 (2012), <http://cosca.ncsc.org/~media/Microsites/Files/COSCA/Policy%20Papers/Evidence%20Based%20Pre-Trial%20Release%20-Final.ashx>; Todd Ruger, *Chief Judges Group Calls for Changes in How Courts Determine Bail*, BLT: Blog LegalTimes (Feb. 6, 2013, 3:18 PM), <http://legaltimes.typepad.com/blt/2013/02/chief-judges-group-calls-for-changes-in-how-courts-determine-bail.html>.

While integrating Big Data in pretrial services could mean assigning the task of collecting data and building an algorithm to agencies directly, there is ample evidence that private contractors are frequently more productive and effective than comparable public agencies.<sup>199</sup> Governments frequently contract with companies, universities, and nonprofits to implement privately developed algorithmic processes.<sup>200</sup> Private contractors already facilitate a substantial number of governmental functions: running jails and prisons; operating electronic monitoring programs; supplying algorithms used to predict dangerousness in sentencing; probation and parole decisions;<sup>201</sup> and collecting fees and fines for local courts.<sup>202</sup> Using a private contractor—and their algorithm—pretrial services would be able to supply comprehensive pretrial reports with more efficiency than ever before; modern information technology should greatly increase the reliability and completeness of the information available for release decisions.

Regularizing the use of data and location information will also lead to government accountability. Cell phones are already unearthing information that impacts the government and its processes. In 2016, during the height of the presidential campaign, a cell phone traced to President Donald Trump's former lawyer, Michael Cohen, briefly sent signals to cell sites in the Prague area; leaving an electronic record to support claims that Cohen secretly met with Russian officials.<sup>203</sup> The information regarding the recovery of Cohen's cell phone location doesn't explain why he was there or who he was meeting with, but it is evidence that he was in or near Prague around the time of the meeting in controversy.<sup>204</sup> Data can deter unethical behavior in government employees and officials, protecting the integrity of federal and state government processes.

Additionally, location monitoring can be used to verify a defendant's compliance with court-ordered conditions of release. For example, it is difficult to verify a defendant's

---

<sup>199</sup> It should be noted that the same risk assessment instruments are used for predicting dangerousness for decisions in pretrial release, detention and sentencing. *See generally* John Monahan & Jennifer L. Skeem, Risk Assessment in Criminal Sentencing, 12 Ann. Rev. Clinical Psychol. 489 (2015).

<sup>200</sup> *See* Robert Brauneis, Ellen P. Goodman, *ARTICLE: Algorithmic Transparency for the Smart City*, 20 Yale J. L. & Tech. 103 (2018).

<sup>201</sup> It should be noted that the same risk assessment instruments are used for predicting dangerousness for decisions in pretrial release, detention and sentencing. *See generally* John Monahan & Jennifer L. Skeem, Risk Assessment in Criminal Sentencing, 12 Ann. Rev. Clinical Psychol. 489 (2015).

<sup>202</sup> *See* Malcolm M. Freely, *Entrepreneurs of Punishment: How Private Contractors Made and Are Remaking the Modern Criminal Justice System—an Account of Convict Transportation and Electronic Monitoring*, 17 Criminology Crim. Just. L. & Soc'y, no. 3, at 1, 13 (2016); Issie Lapowsky, *One State's Bail Reform Exposes the Promise and Pitfalls of Tech-Driven Justice*, *Wired* (Sept. 5, 2017, 7:00 AM), <https://www.wired.com/story/bail-reform-tech-justice/> [<https://perma.cc/R6SK-K94D>].

<sup>203</sup> *See* Peter Stone & Greg Gordon, *Cell signal puts Cohen outside Prague around time of purported Russian meeting*, MCCLATCHY D.C. BUREAU, (Dec. 27, 2018, 10:36 AM), <https://www.mcclatchydc.com/news/investigations/article219016820.html>.

<sup>204</sup> *See* Peter Stone & Greg Gordon, *Cell signal puts Cohen outside Prague around time of purported Russian meeting*, MCCLATCHY D.C. BUREAU, (Dec. 27, 2018, 10:36 AM), <https://www.mcclatchydc.com/news/investigations/article219016820.html>.

employment or efforts to seek employment; often, violations occur because of a defendant's failure to seek or maintain a job.<sup>205</sup> For as little as \$4.95 per day, passive GPS can be used to increase defendant accountability and confirm that he or she has traveled to their job site or is traveling to and from potential employment sites as directed.<sup>206</sup> Location monitoring can be an effective supervision tool for the purpose of verifying compliance rather than restricting or confining those under supervision.<sup>207</sup>

### B. *Data for the Deficit*

As the costs of technology decrease, new methods for data storage and analysis have the power to radically alter the systems of government and society.<sup>208</sup> Today, a "smart city" movement worldwide impresses on local governments the importance of gathering and deploying data more effectively.<sup>209</sup> One of the goals is to find patterns in Big Data sets—for example, the places and times crime is most likely to occur and generate predictive models to guide the allocation of public services.<sup>210</sup> Collecting Big Data for use in pretrial services, either through a private entity or by establishing a new function within pretrial services, can remedy the traditional criminal justice system's data deficit—particularly in development functions.<sup>211</sup>

---

<sup>205</sup> See Trent Cornish, *The Many Purposes of Location Monitoring*, Federal Probation, Vol. 74, No. 2. [https://www.uscourts.gov/sites/default/files/74\\_2\\_2\\_0.pdf](https://www.uscourts.gov/sites/default/files/74_2_2_0.pdf)

<sup>206</sup> See Trent Cornish, *The Many Purposes of Location Monitoring*, Federal Probation, Vol. 74, No. 2. [https://www.uscourts.gov/sites/default/files/74\\_2\\_2\\_0.pdf](https://www.uscourts.gov/sites/default/files/74_2_2_0.pdf)

<sup>207</sup> See Trent Cornish, *The Many Purposes of Location Monitoring*, Federal Probation, Vol. 74, No. 2. [https://www.uscourts.gov/sites/default/files/74\\_2\\_2\\_0.pdf](https://www.uscourts.gov/sites/default/files/74_2_2_0.pdf)

<sup>208</sup> See, e.g., JEFFREY ROSEN, *THE NAKED CROWD: Reclaiming Security and Freedom in an Anxious Age* 33-61 (2004) (critically describing modern police surveillance); CHRISTOPHER SLOBOGIN, *PRIVACY AT RISK: The New Government Surveillance and the Fourth Amendment* 3 (2007) (noting that surveillance has changed due to the "ease with which it can be conducted" and "the strength of the government's resolve to use it").

<sup>209</sup> [https://s3.amazonaws.com/academia.edu.documents/26074613/73efa931-0fac-4e28-ae77-8e58ebf74aa6.pdf?response-content-disposition=inline%3B%20filename%3DHelping\\_CIOs\\_Understand\\_Smart\\_City\\_Initi.pdf&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWOWYYGZ2Y53UL3A%2F20191104%2Fus-east-1%2Fs3%2Faws4\\_request&X-Amz-Date=20191104T204059Z&X-Amz-Expires=3600&X-Amz-SignedHeaders=host&X-Amz-Signature=d4b426f6b6d6d03cd708b507d0c58dbf8044bee5cc283cab028d55be2207c87d](https://s3.amazonaws.com/academia.edu.documents/26074613/73efa931-0fac-4e28-ae77-8e58ebf74aa6.pdf?response-content-disposition=inline%3B%20filename%3DHelping_CIOs_Understand_Smart_City_Initi.pdf&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWOWYYGZ2Y53UL3A%2F20191104%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20191104T204059Z&X-Amz-Expires=3600&X-Amz-SignedHeaders=host&X-Amz-Signature=d4b426f6b6d6d03cd708b507d0c58dbf8044bee5cc283cab028d55be2207c87d)

<sup>210</sup> See ANDREW GUTHRIE FERGUSON, *THE RISE OF BIG DATA POLICING: SURVEILLANCE, RACE, AND THE FUTURE OF LAW ENFORCEMENT* (2017); Andrew Guthrie Ferguson, *Policing Predictive Policing*, 94 WASH. U. L. REV. 1115 (2017); Elizabeth E. Joh, *The New Surveillance Discretion: Automated Suspicion, Big Data, and Policing*, 10 HARV. L. & POL'Y REV. 15, 38 (2016).

<sup>211</sup> See Malcolm M. Freely, *Entrepreneurs of Punishment: How Private Contractors Made and Are Remaking the Modern Criminal Justice System—an Account of Convict Transportation and Electronic Monitoring*, 17 *Criminology Crim. Just. L. & Soc'y*, no. 3, at 1, 16 (2016).

The systems in place for arresting, detaining, trying, imprisoning, and releasing criminal defendants are ideal for bulk data analytics.<sup>212</sup> Millions of individuals are cycled through the criminal justice system with common data points, such as a list of charges for each defendant; whether and when counsel was appointed, and why or why not; whether an individual was released on bail or held awaiting trial; the length of pretrial imprisonment; the final disposition; and the terms of any sentence imposed.<sup>213</sup> The empirical analysis of bulk criminal justice data has produced promising results in the limited contexts where it can currently be employed; accordingly, broader applications are hampered by a lack of access to necessary information.<sup>214</sup> Currently, criminal justice researchers have to rely on limited survey data or engage in the costly, cumbersome task of collecting and coding more complete data sets from a patchwork of federal, state, and local systems.<sup>215</sup> A large portion of this type of data is already collected and recorded by courts, but not electronically available.<sup>216</sup> As a result, knowledge of systemic problems in systems around the country remains underdeveloped.<sup>217</sup>

---

<sup>212</sup> Samuel R. Wiseman, *ARTICLE: The Criminal Justice Black Box*, 78 Ohio St. L.J. 349, 352 (2017).

<sup>213</sup> Samuel R. Wiseman, *ARTICLE: The Criminal Justice Black Box*, 78 Ohio St. L.J. 349, 352 (2017).

<sup>214</sup> For more, see generally *ARTICLE: CUMULATIVE RESEARCH KNOWLEDGE AND SOCIAL POLICY FORMULATION: The Critical Role of Meta-Analysis*, 2 Psych. Pub. Pol. and L. 324.

<sup>215</sup> See, e.g., Lauren Sudeall Lucas, *Reclaiming Equality to Reframe Indigent Defense Reform*, 97 MINN. L. REV. 1197, 1198 (2013) (documenting the continuing, widespread failure to provide counsel to indigent defendants and relying primarily on studies that conducted surveys and collected data to provide average estimates of expenditures on indigent defense but did not document the number of defendants who qualify for but do not receive indigent defense); Samuel R. Wiseman, *Pretrial Detention and the Right to Be Monitored*, 123 YALE L.J. 1344, 1352-54 (2014) (describing the frequent jailing of nondangerous defendants pretrial using the available statistics, which are primarily produced from Bureau of Justice Statistics surveys rather than bulk, raw data and systemic analysis of those data); Ann K. Wagner, Comment, *The Conflict over Bearden v. Georgia in State Courts: Plea Bargained Probation Terms and the Specter of Debtors' Prison*, 2010 U. CHI. LEGAL F. 383, 384-85 (describing the problem of debtors' prison). For the studies, see, for example, NAT'L RIGHT TO COUNSEL COMM., THE CONSTITUTION PROJECT, JUSTICE DENIED: AMERICA'S CONTINUING NEGLECT OF OUR CONSTITUTIONAL RIGHT TO COUNSEL 85-89 (Apr. 2009), <http://www.constitutionproject.org/wp-content/uploads/2012/10/139.pdf> [<https://perma.cc/M945-2GKC>], which provides examples of indigent defendants for whom a court failed to appoint counsel or appointed counsel too late but does not indicate the percentage or number of defendants nationwide for whom counsel was denied or provided too late.

<sup>216</sup> Samuel R. Wiseman, *ARTICLE: The Criminal Justice Black Box*, 78 Ohio St. L.J. 349, 352 (2017).

<sup>217</sup> OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT OF THE U.S., FISCAL YEAR 2015: ANALYTICAL PERSPECTIVES, BUDGET OF THE U.S. GOVERNMENT 294 (2015), <https://www.gpo.gov/fdsys/pkg/BUDGET-2015-PER/pdf/BUDGET-2015-PER.pdf> [<https://perma.cc/SS2F-GRKP>].

More than a decade ago, Professor Daniel Etsy noted how electronic data began to transform environmental decision-making, with electronic technologies making the collection, analysis, and dissemination of emissions and toxicology data less costly and far more effective.<sup>218</sup> Standardizing the use of data will supplement the current lack of information and lead to more transparency on issues within the criminal justice system.<sup>219</sup> The potential applications for improved criminal justice data are extensive and there is increasing recognition of the importance of data and statistics in criminal justice reform efforts.<sup>220</sup> If pretrial detention data was collected in a uniform manner and made electronically available, scholars, policymakers, and reform groups would have access to large amounts of comprehensive information without dedicating precious resources to time-intensive surveys, courtroom visits, interviews, and other research methods.<sup>221</sup> Ample criminal justice data can be utilized to detect and solve social and financial costs, benefitting defendants, the public, and the government.

### C. Data for Defendants

The importance of the pretrial period for defendants has been firmly established.<sup>222</sup> Considerable research has noted a ripple effect from decisions at the pretrial stage on final case dispositions and it has even been said that “pretrial decisions determine mostly everything.”<sup>223</sup> With roughly thirty percent of state court defendants assigned bonds of less than \$5,000 detained, lower income defendants experience a drastically different pretrial experience than wealthier defendants.<sup>224</sup> Simply put, defendants without assets cannot attain bail and are left incarcerated and incapacitated. As the American Bar Association

---

<sup>218</sup> Daniel C. Etsy, *Environmental Protection in the Information Age*, 79 N.Y.U. L. REV. 115, 156, 162 (2004).

<sup>219</sup> Daniel C. Etsy, *Environmental Protection in the Information Age*, 79 N.Y.U. L. REV. 115, 156, 162 (2004).

<sup>220</sup> ARTICLE: *The Criminal Justice Black Box*, 78 Ohio St. L.J. 349, 356

<sup>221</sup> ARTICLE: *The Criminal Justice Black Box*, 78 Ohio St. L.J. 349, 370.

<sup>222</sup> Bechtel, Kristin and Holsinger, Alexander and Lowenkamp, Christopher and Warren, Madeline, *A Meta-Analytic Review of Pretrial Research: Risk Assessment, Bond Type, and Interventions* (March 3, 2016). Available at SSRN: <https://ssrn.com/abstract=2741635> or <http://dx.doi.org/10.2139/ssrn.2741635>.

<sup>223</sup> Bechtel, Kristin and Holsinger, Alexander and Lowenkamp, Christopher and Warren, Madeline, *A Meta-Analytic Review of Pretrial Research: Risk Assessment, Bond Type, and Interventions* (March 3, 2016). Available at SSRN: <https://ssrn.com/abstract=2741635> or <http://dx.doi.org/10.2139/ssrn.2741635>.

<sup>224</sup> Five out of six defendants jailed pretrial are jailed because they cannot afford bail amounts. In some cases this reflects a judgment (in the form of a high bail setting) that the defendants are dangerous, but in other cases not. It is difficult to separate out these numbers because some states allow judges to impose higher bail amounts to control for dangerousness; it is likely safe to assume, however, that the low bail amounts at the state level are typically imposed on nondangerous defendants, and the statistics for this low-bond defendant class are compelling. See Thomas H. Cohen & Brian A. Reaves, *Pretrial Release of Felony Defendants in State Courts*, Bureau Just. Stat. 1 (Nov. 2007), <http://bjs.ojp.usdoj.gov/content/pub/pdf/prfdsc.pdf>.

concludes, “[d]etaining persons simply because they cannot afford bail is unwarranted ...”<sup>225</sup>

Data-driven instruments can remove the element of human bias from the criminal justice system, making it more effective and efficient.<sup>226</sup> Studies on predicting dangerousness indicate that determinations concerning a defendant’s risk are frequently inaccurate; there is a tendency to overpredict dangerousness, with a false positive rate of sixty percent.<sup>227</sup> In fact, ninety-nine percent of pretrial defendants on federal location monitoring remained free of any arrest for a violent offense during supervision.<sup>228</sup> Increasing the accuracy of dangerousness decisions and offering a practical alternative to pretrial detention means fewer defendants detained unnecessarily.

Additionally, during pretrial detention, defendant’s conversations are constantly monitored by guards and other inmates, their mail is searched, and they are subjected to frequent and invasive searches and pat-downs to ensure institutional security.<sup>229</sup> For those whom the government is allowed to imprison in pursuit of its goals, technology that achieves the purposes of bail while minimizing the intrusion on a defendant’s privacy is a nearly unalloyed good. Monitoring allows defendants more freedom to maintain employment and consult at ease with legal counsel, while relieving taxpayers and the government of the financial costs of pretrial detention.

With as many as ninety-two percent of Americans owning a cell phone in 2015,<sup>230</sup> cell phones are an accessible and affordable alternative to detention. For nondangerous defendants unable to attain bail due to financial constraints, location information can be used as an affordable alternative to detention; cellular devices can be obtained through purchase, donation, or be made temporarily available for loan during the span of a defendant’s pretrial release. Friends and family are more likely to be able to access an old or unused device or purchase a device for less than the amount of bail set. Several nonprofits currently exist that accept old cell phone donations for charity,<sup>231</sup> and defendants can benefit from resources like this without relying solely on money for release.

---

<sup>225</sup> Criminal Justice Section, State Policy Implementation Project, A.B.A. 2, [http://www.americanbar.org/content/dam/aba/administrative/criminal\\_justice/spip\\_handouts.pdf](http://www.americanbar.org/content/dam/aba/administrative/criminal_justice/spip_handouts.pdf)

<sup>226</sup> See Laurel Eckhouse, *Big data may be reinforcing racial bias in the criminal justice system*, THE WASHINGTON POST (Feb. 10, 2017), [https://www.washingtonpost.com/opinions/big-data-may-be-reinforcing-racial-bias-in-the-criminal-justice-system/2017/02/10/d63de518-ee3a-11e6-9973-c5efb7ccfb0d\\_story.html?noredirect=on&utm\\_term=.1d5ead53c286](https://www.washingtonpost.com/opinions/big-data-may-be-reinforcing-racial-bias-in-the-criminal-justice-system/2017/02/10/d63de518-ee3a-11e6-9973-c5efb7ccfb0d_story.html?noredirect=on&utm_term=.1d5ead53c286).

<sup>227</sup> See Jack F. Williams, *Process and Detention: A Return to a Fuzzy Model of Pretrial Detention*, 79 Minn. L. Rev. 325, 343-44 (1994).

<sup>228</sup> <https://www.uscourts.gov/services-forms/probation-and-pretrial-services/supervision/federal-location-monitoring>

<sup>229</sup> The highly intrusive strip searches challenged in *Florence v. Board of Chosen Freeholders* were a “standard part” of the intake practice at a pretrial detention facility. 132 S. Ct. 1510, 1518 (2012).

<sup>230</sup> *State v. Earls*, 94 A.L.R.6<sup>th</sup> 385 (2013); AARON SMITH, PEW RES. CTR., U.S. SMARTPHONE USE IN 2015 2 (2015), <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/>.

<sup>231</sup> See generally Give to Charity Without Spending a Dime: Donate your Old Cell Phone, <https://www.whistleout.com/CellPhones/Guides/Donate-your-old-cell-phone-to-a-good-cause>

#### D. Data for the Public

The cost of money bail to society has been the more practical basis behind bail reform efforts.<sup>232</sup> As prison populations remain high, states and counties continue to build new jails to accommodate escalating incarceration rates.<sup>233</sup> Taxpayers bear the costs of building these prisons; the Baltimore City Detention Center, where ninety percent of the women detained are awaiting trial, is valued as an \$181 million facility.<sup>234</sup> Increasing the accuracy of dangerousness determinations with Big Data will reduce the number of defendants incarcerated pretrial due to inaccurate dangerous determinations. With fewer defendants inaccurately labeled as dangerous, the costs affiliated with housing pretrial detainees and building new correctional facilities to accommodate for current overcrowding will be lessened.

Further, pretrial monitoring with location information offers a less expensive, and judicially administrable alternative to the increased detention rates caused by money bail.<sup>235</sup> It costs at least four times as much to jail a defendant as it does to monitor him.<sup>236</sup> When utilized in lieu of detention, location monitoring costs taxpayers approximately \$4 per day compared with \$87 a day for pretrial detention.<sup>237</sup> The use of algorithms to determine whether a defendant is an appropriate candidate for monitoring with location information would ultimately decrease pretrial detention, increasing the number of people on pretrial “probation” and lowering the number of individuals subject to pretrial incarceration.<sup>238</sup>

### VII. ADDRESSING CRITICISMS

Despite all the positive reasons for implementing Big Data and location information in the pretrial detention system, proponents of a technology-based solution in

---

<sup>232</sup> Cost concerns were also a focus of earlier scholarship. See, e.g., Arthur R. Angel et al., *Preventive Detention: An Empirical Analysis*, 6 Harv. C.R.-C.L. L. Rev. 300, 354-355 (1971) (noting that the per diem cost of supporting a prisoner in Massachusetts increased fifty percent between 1965 and 1968).

<sup>233</sup> <http://theconversation.com/why-prison-building-will-continue-booming-in-rural-america-71920>

<sup>234</sup> Fact Sheet: When More is Less: How a Larger Women’s Jail in Baltimore Will Reduce Public Safety and Diminish Resources for Positive Social Investments, Just. Pol’y Inst. 2 (Jan. 2011), [http://www.justicepolicy.org/images/upload/11-01\\_REP\\_WhenMoreisLess\\_MD-AC.pdf](http://www.justicepolicy.org/images/upload/11-01_REP_WhenMoreisLess_MD-AC.pdf)

<sup>235</sup> ESSAY: Pretrial Detention and the Right to Be Monitored, 123 Yale L.J. 1344, 1349.

<sup>236</sup> Marie VanNostrand & Gena Keebler, *Pretrial Risk Assessment in the Federal Court*, FED. PROBATION, Sept. 2009, at 3, 6 (indicating an average cost of \$19,000 per pretrial detainee and “between \$3,100 and \$4,600” per released defendant).

<sup>237</sup> <https://www.uscourts.gov/services-forms/probation-and-pretrial-services/supervision/federal-location-monitoring>

<sup>238</sup> See, e.g., Christopher T. Lowenkamp, Marie VanNostrand & Alexander Holsinger, Laura & John Arnold Found., *The Hidden Costs of Pretrial Detention* 3-4 (2013), [http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF\\_Report\\_hidden-costs\\_FNL.pdf](http://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF_Report_hidden-costs_FNL.pdf) [<https://perma.cc/854M-D8V3>] (reporting on results of study connecting length of pretrial detention and failure to appear at trial).

bail reform face criticisms. Concerns about the accuracy of location information, the reliability of risk assessment instruments, transparency in data collection practices, and individual privacy rights cause apprehension towards a greater reliance on technology. However, a money bail system that leads to widespread detention is excessive when equally effective and efficient alternatives are proposed. Without a corresponding increase in performance or savings, money bail cannot survive in the face of a less restrictive technological alternative that can address the same problem.<sup>239</sup>

#### A. *Accuracy of Location Information*

Monitoring defendants, and discouraging flight, is at the forefront of concern when discussing location information as an alternative to pretrial detention, but advancements in technology illustrate increasing precision in making location determinations. Most cellular devices periodically collect location data using a combination of GPS, nearby WiFi networks, cellular service networks, and device sensors for optimal accuracy.<sup>240</sup> For example, WiFi location information is used when GPS is limited by signal blockage indoors.<sup>241</sup> All of these sources of information allow Google to provide restaurant suggestions based on a user's previous selections, give real-time information about the best time to leave in order to beat traffic, and create photo albums based on places a user has visited.<sup>242</sup> Apple's "Find My Friends" application can be used to share precise, real-time locations with a user's friends or family members.<sup>243</sup> Application developers have even indicated an ability to deliver floor plans of buildings to 911 dispatchers.<sup>244</sup> In *Carpenter v. United States*, Chief Justice Roberts highlighted the accuracy of location information stating, "when the Government tracks the location of a cell phone it achieves near perfect surveillance, as if it had attached an ankle monitor to the phone's user."<sup>245</sup>

Further, sophisticated technology provides a portable and effective method for monitoring the whereabouts of defendants granted release conditioned on location tracking. Law enforcement agencies, including the Federal Bureau of Investigation, the Drug Enforcement Administration, and the National Security Agency, have access to devices called "cell-site simulators," or Stingrays.<sup>246</sup> Cell-site simulators are portable devices that masquerade as legitimate cell towers to pinpoint the location of phones with

---

<sup>239</sup> ESSAY: Pretrial Detention and the Right to Be Monitored, 123 Yale L.J. 1344, 1346

<sup>240</sup> <https://policies.google.com/technologies/location-data>

<sup>241</sup>

[https://transition.fcc.gov/pshs/911/Apps%20Wrkshp%202015/911\\_Help\\_SMS\\_WhitePaper0515.pdf](https://transition.fcc.gov/pshs/911/Apps%20Wrkshp%202015/911_Help_SMS_WhitePaper0515.pdf)

<sup>242</sup> <https://policies.google.com/technologies/location-data>

<sup>243</sup> <https://www.howtogeek.com/228380/how-to-share-your-exact-physical-location-with-family-and-friends/>

<sup>244</sup>

[https://transition.fcc.gov/pshs/911/Apps%20Wrkshp%202015/911\\_Help\\_SMS\\_WhitePaper0515.pdf](https://transition.fcc.gov/pshs/911/Apps%20Wrkshp%202015/911_Help_SMS_WhitePaper0515.pdf)

<sup>245</sup> *Carpenter v. United States*, 138 S. Ct. 2206, 2220 (2018) (quoting *Riley v. California*, 134 S. Ct. 2473, 2484 (2014)).

<sup>246</sup> <https://www.vocativ.com/389656/stingray-devices-in-trumps-america/>

greater accuracy than phone companies.<sup>247</sup> Active cell-site simulators broadcast signals stronger than legitimate cell sites to trigger cell phones within range to disconnect from their service provider's cell sites and establish a new connection with the cell-site simulator.<sup>248</sup> Police can use cell-site simulators to locate a suspect when their device's identifying information is already known.<sup>249</sup> "Cell-site simulator technology has been instrumental in aiding law enforcement in a broad array of investigations, including kidnappings, fugitive investigations, and complicated narcotics cases."<sup>250</sup> Cell-site simulators face criticism where they are implemented discreetly against public citizens; the devices have been shown to disproportionately affect low-income communities.<sup>251</sup> However, cell-site simulators could potentially serve as an effective method for monitoring defendants on pretrial release, and have an inverse effect on low-income communities when implemented in the pretrial context.

### ***B. Reliability of Instruments***

Some skeptics speculate that the algorithms used to predict future crimes may harbor racial biases.<sup>252</sup> Critics argue that the data that algorithms rely on is collected by a criminal justice system in which race makes a big difference in the probability of arrest.<sup>253</sup> Specifically, concerns focus on the notion that inputs derived from a biased system will result in biases against African American and Latino defendants; causing them to appear as a bigger risk than white defendants in predictions from algorithms using data tainted by disparity and exacerbating, rather than eliminating, racial bias in the criminal justice system.<sup>254</sup> Several organizations strive to evaluate and address the flaws in algorithms. For example, the Human Rights Data Analysis Group has spent the past three years applying advanced statistical models to evaluate algorithms used in the criminal justice system.<sup>255</sup>

Other concerns come from the unfamiliarity of Big Data—there is little information about exactly how these systems work because they are so new.<sup>256</sup> However, although there does not appear to be widespread recognition of data-driven instruments, a tradition of

---

<sup>247</sup> <https://www.eff.org/pages/cell-site-simulatorsimsi-catchers>

<sup>248</sup> <https://www.eff.org/pages/cell-site-simulatorsimsi-catchers>

<sup>249</sup> <https://www.eff.org/pages/cell-site-simulatorsimsi-catchers>

<sup>250</sup> <https://theintercept.com/2015/12/17/a-secret-catalogue-of-government-gear-for-spying-on-your-cellphone/>

<sup>251</sup> <https://www.eff.org/pages/cell-site-simulatorsimsi-catchers>

<sup>252</sup> See Julie Angwin, Jeff Larson, Surya Mattu & Lauren Kitchner, *Machine Bias*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

<sup>253</sup> *Id.*

<sup>254</sup> *Id.*

<sup>255</sup> <https://hrdag.org>

<sup>256</sup> See Laurel Eckhouse, *Big data may be reinforcing racial bias in the criminal justice system*, THE WASHINGTON POST (Feb. 10, 2017), [https://www.washingtonpost.com/opinions/big-data-may-be-reinforcing-racial-bias-in-the-criminal-justice-system/2017/02/10/d63de518-ee3a-11e6-9973-c5efb7ccfb0d\\_story.html?noredirect=on&utm\\_term=.1d5ead53c286](https://www.washingtonpost.com/opinions/big-data-may-be-reinforcing-racial-bias-in-the-criminal-justice-system/2017/02/10/d63de518-ee3a-11e6-9973-c5efb7ccfb0d_story.html?noredirect=on&utm_term=.1d5ead53c286).

scientific critique exists in other parts of the legal realm.<sup>257</sup> In *Daubert v. Merrell Dow Pharmaceuticals*<sup>258</sup>, the Supreme Court handed down a landmark ruling concerning the standard for admitting expert scientific testimony in a federal trial.<sup>259</sup> In a broader sense, *Daubert* reinforced the idea where scientific evidence is concerned—and prior to its admission into a trial where it can have legal consequences—it should be “not only relevant, but reliable.”<sup>260</sup> *Daubert* can serve as the basis for mandated review of risk-assessment instruments. The factors outlined in *Daubert* could be utilized to guide review; these factors include: whether the method producing the evidence, or data in this case, “can be (and has been) tested;”<sup>261</sup> whether it has been subjected to peer review and publication;<sup>262</sup> whether it has known or potential rate of error; and if the methodology is generally accepted in the relevant scientific community.<sup>263</sup>

### C. Transparency in Data Collection

Critics are also concerned with transparency in data collection. Fortunately, large technology companies like Facebook, Google, and Amazon are being held responsible for protecting user privacy.<sup>264</sup> The Federal Trade Commission (FTC) even issued the largest fine in FTC history, 5 billion dollars, to Facebook after an investigation into how the social media company lost control over massive amounts of data and miscommunicated with users.<sup>265</sup> The FTC’s unprecedented fine regarding Facebook’s privacy breach sets the tone for greater transparency and accountability for data collection—and condemning practices that are seen as unethical and manipulative by some politicians and users.<sup>266</sup> “The relief is designed not only to punish future violations but, more importantly, to change Facebook’s entire privacy culture to decreased the likelihood of continued violations.”<sup>267</sup> Additionally, demands for transparency are being answered by organizations like the inaugural Conference on Fairness, Accountability, and Transparency, a gathering of academics and policymakers seeking to ensure justice in algorithms.<sup>268</sup>

Normalizing the use of data in the criminal justice system will fix the current information deficit and lead to more transparency. An increased availability of information

<sup>257</sup> ARTICLE: Small Data Surveillance v. Big Data Cybersurveillance, 42 Pepp. L. Rev. 773, 806 (2015).

<sup>258</sup> See *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993).

<sup>259</sup> Specifically, the *Daubert* Court agreed that Federal Rule of Evidence 701 provided the correct standard for scientific testimony admissible in trial. *Id.* at 587; see also U.S.C.S. Fed. Rules Evid. R. 702.

<sup>260</sup> See *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 589 (1993).

<sup>261</sup> *Daubert*, 509 U.S. at 593.

<sup>262</sup> *Id.*

<sup>263</sup> *Id.* at 594.

<sup>264</sup> <https://www.cnn.com/2019/07/16/tech/tech-antitrust-hearing/index.html>

<sup>265</sup> <https://www.cnn.com/2019/07/24/tech/facebook-ftc-settlement/index.html>

<sup>266</sup> <https://www.cnn.com/2019/07/24/tech/facebook-ftc-settlement/index.html>

<sup>267</sup> Chairman, Joseph Simmons, commenting on the fine’s likely impacts. <https://www.cnn.com/2019/07/24/tech/facebook-ftc-settlement/index.html>

<sup>268</sup> <https://psmag.com/social-justice/justice-by-the-numbers-meet-the-statistician-trying-to-fix-bias-in-criminal-justice-algorithms>

can be used to determine whether risk assessment tools produce a pattern of racial disparity and any margin of error the instrument may yield. The foundations and organizations that develop risk-assessment tools can be required to release any information used as a basis for building the instruments. Publicizing information about the substance and procedure behind developing the tools will impose accountability. Researchers can evaluate the instruments for internal racial bias and problems with statistical interpretation. Ideally, researchers would have access to multiple sources of data to identify biases in data generation in the criminal justice system *before* the data is used to construct instruments for pretrial decisions.<sup>269</sup>

#### D. *Privacy Concerns*

It is important to note, despite concerns over eviscerating privacy rights, that plaintiffs litigating government mass surveillance programs in recent years have faced several jurisdictional and doctrinal hurdles.<sup>270</sup> Many challengers assert the 4th Amendment's proscription against unreasonable searches and seizures but overcoming the third-party doctrine has posed a particularly difficult hurdle.<sup>271</sup>

The third-party doctrine applies when an individual voluntarily gives information to third parties, such as banks, phone companies, and internet service providers; once an individual has voluntarily provided information to third parties, they have forfeited their 4th Amendment right to a "reasonable expectation of privacy."<sup>272</sup> In *Smith v. Maryland*, the Court held that there is no reasonable expectation of privacy in telephone numbers that individuals dial because the customer *knowingly* shares information and records with the telephone provider.<sup>273</sup> Justice Blackmun explained that Smith voluntarily waived his privacy right because he "conveyed numerical information to the phone company and ... assumed the risk that the company would reveal the information to the police."<sup>274</sup> As a result, the third-party doctrine works as an instrument for accessing a large amount of a defendant's personal information such as: the websites they visit; who they have emailed; the phone numbers they dial; and their utility, banking, and educational records.<sup>275</sup>

The far-reaching force of the third-party doctrine was subdued by the Supreme Court's decision in *Carpenter v. United States*. In *Carpenter*, the Court held that police must have a warrant to obtain information about individual behavior contained in a private party's database.<sup>276</sup> The Court promulgated a new three-factor test that applies to the

---

<sup>269</sup> *Id.*

<sup>270</sup> See Margaret Hu, *ARTICLE: Small Data Surveillance v. Big Data Cybersurveillance*, 42 *Pepp. L. Rev.* 773, 810.

<sup>271</sup> *Id.*

<sup>272</sup> *Katz v. United States*, 389 U.S. 347, 260 (1967) (Justice Harlan concurring to the reasonable expectation of privacy test).

<sup>273</sup> See *Smith v. Maryland*, 442 U.S. 735 (1979).

<sup>274</sup> See *Smith*, 442 U.S. at 744.

<sup>275</sup> Richard M. Thompson II, CRS report (prepared for members and committees of Congress) The Fourth Amendment Third Party Doctrine, CONGRESSIONAL RESEARCH SERVICE (June 5, 2014), <https://fas.org/sgp/crs/misc/R43586.pdf>

<sup>276</sup> *Carpenter v. United States*, 138 S. Ct. 2206

category of information requested. In conducting the test, a court should ask whether a given category of information: (1) has a deeply revealing nature; (2) possesses depth, breadth, and comprehensive reach; and (3) results from an inescapable and automatic form of data collection.<sup>277</sup> Imposing a warrant requirement on data requests preserves Fourth Amendment privacy protections and highlights the sensitive nature of information collected by technological devices.

However, a person lawfully detained in pretrial confinement is subject to certain restrictions on his liberty.<sup>278</sup> The Supreme Court has long restricted prisoners' Fourth Amendment rights holding that a prisoner has no reasonable expectation of privacy in his cell that would entitle him to Fourth Amendment protection from unreasonable searches and seizures.<sup>279</sup> The applicability of the Fourth Amendment is contingent upon whether the individual can claim that a "legitimate expectation of privacy" has been invaded by government actions.<sup>280</sup> In *Lanza v. New York*, the Court held that a prison is not an area protected by the Constitution because the continual surveillance of inmates does not meet the expectation of privacy inherent in a home or office.<sup>281</sup>

Further, the Court in *Bell v. Wolfish* acknowledged that "a person confined in a detention facility has no reasonable expectation of privacy with respect to his room or cell and therefore, the Fourth Amendment provides no protection for such a person."<sup>282</sup> As a result, pretrial detainees face enormous invasions of privacy; they are constantly monitored by guards and other inmates, their mail is searched, and they are subjected to frequent and invasive searches and pat downs.<sup>283</sup> Ultimately, Big Data and location information can mitigate the application of the third-party doctrine in today's society and provide a less-restrictive alternative to detention for defendants.

## VIII. CONCLUSION

"Every day in America, judges have to answer a critical question again and again: What are the chances that a recently arrested defendant, if released before trial, will commit a new crime, a new violent crime, or fail to appear for court."<sup>284</sup> As the American Bar Association and other organizations recognize the effects of pretrial detention, the suffering of nondangerous and indigent defendants at the hands of excessive detention practices

---

<sup>277</sup> *Carpenter v. United States*, 138 S. Ct. 2206, 2223.

<sup>278</sup> See *Hudson v. Palmer*, 468 U.S. 517, 545 (1984).

<sup>279</sup> See *Hudson v. Palmer*, 468 U.S. 517, 519-520 (1984).

<sup>280</sup> *Smith v. Maryland*, 442 U.S. 735, 746 (1978).

<sup>281</sup> *Lanza v. New York*, 370 U.S. 139, 143 (1962). In *Lanza*, the Supreme Court stated that a prisoner's due process rights were not violated when state officials secretly taped an incriminating conversation between the prisoner and his brother and later used a transcript of that taped conversation to interrogate the prisoner's brother before a legislative committee. *Id.* at 144.

<sup>282</sup> *Bell v. Wolfish*, 441 U.S. 520, 556-57 (1979).

<sup>283</sup> The highly intrusive strip searches challenged in *Florence v. Board of Chosen Freeholders* were a "standard part" of the intake practice at a pretrial detention facility. 132 S. Ct. 1510, 1518 (2012).

<sup>284</sup> [https://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF-research-summary\\_PSA-Court\\_4\\_1.pdf](https://www.arnoldfoundation.org/wp-content/uploads/2014/02/LJAF-research-summary_PSA-Court_4_1.pdf)

illustrates a pressing need for an alternative to money bail. Money bail is increasingly ineffective as an alternative to pretrial detention; often imprisoning those who can't afford the allotted amount. As bail amounts are set higher, and financial inequalities become wider, indigent individuals who are unable to pay are detained while awaiting trial.<sup>285</sup> Reformers agree that a system that conditions liberty on wealth is both unjust and inefficient, and at least ten states and forty countries have revised—or are in the process of revising—their pretrial law and policy.<sup>286</sup> The flaws present in the pretrial detention system can be attributed to statutory ambiguity, a lack of resources, and inaccuracy.<sup>287</sup>

Generally, money bail and the egregious pretrial detention rates associated with the current pretrial system impose high burdens on defendants, families, and society.<sup>288</sup> Poor, nondangerous criminal defendants are a discrete constituency in need of judicial protection;<sup>289</sup> restrictions on liberty due to financial status effectively act to limit individuals in critical ways. Being detained pretrial has a variety of quantifiable negative effects. It increases the likelihood that detainees will commit future crimes, places restrictions on the ability to build a strong legal defense and encourages acceptance of plea offers—all of which substantially increase the likelihood that a detainee will receive a conviction and face the risk of further incarceration. To compound the gravity of the harm, defendants are subjected to prolonged deprivation of liberty, privacy, and other fundamental elements of human existence. Despite speedy trial requirements, many defendants awaiting trial are detained for months.<sup>290</sup> The current treatment of defendants under the BRA, as well as the history of bail reform efforts that has repeatedly proved ineffective, evidences the need for a radical solution.

Technology-based solutions can enhance equality, privacy, and liberty at a much lower cost than the current system can offer.<sup>291</sup> The practical benefits of technological instruments have become more compelling than ever before.<sup>292</sup> The use of Big Data with a risk-assessment instrument in pretrial services agencies, and location information as an alternative to pretrial detention, provides necessary narrowness in both circumstances: a risk-assessment tool relies on copious amounts of data from expansive periods of time, producing increasingly accurate determinations; and location information monitoring serves as a feasible intermediary alternative between unconditioned release and detention.

---

<sup>285</sup> See Eric Holder, Att'y Gen., U.S. Dep't of Justice, Address at the National Symposium on Pretrial Justice (June 1, 2011), <http://www.justice.gov/iso/opa/ag/speeches/2011/ag-speech-110601.html> (noting that a “disproportionate number of [pretrial detainees] are poor” and are detained because they are indigent).

<sup>286</sup> Sandra G. Mayson, *Article: Dangerous Defendants*, 127 *Yale L.J.* 492 (2018).

<sup>287</sup> OPENING KEYNOTE ADDRESS: HOW TO THINK ABOUT CRIMINAL COURT REFORM, 98 *B.U.L. Rev.* 673, 685 (noting that the increase in arrests and that flooded courts as a result of the war on crime is not the only reason behind the failure of pretrial detention programs).

<sup>288</sup> ESSAY: *Pretrial Detention and the Right to Be Monitored*, 123 *Yale L.J.* 1344, 1361.

<sup>289</sup> *Id.*

<sup>290</sup> See Jeffrey Manns, *Liberty Takings: A Framework for Compensating Pretrial Detainees*, 26 *Cardozo L. Rev.* 1947, 1962 (2005) (noting that detention can be extended indefinitely if any one of eighteen open-ended exclusions is satisfied”).

<sup>291</sup> *Id.*

<sup>292</sup> See, ESSAY: *Pretrial Detention and the Right to Be Monitored*, 123 *Yale L.J.* 1344, 1349.

These propositions directly align with legislative intent of the BRA and assist in addressing the objectives of pretrial service agencies.<sup>293</sup> Big Data and location information should be employed to solve some of the major deficiencies that the current pretrial detention system faces—reducing the human and financial costs of a system that relies on money bail to function.

---

<sup>293</sup> Harris County, Texas – Pretrial Services, our mission  
<https://pretrial.harriscountytexas.gov/Pages/default.aspx>