PREDICTIVE PROSECUTION

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INTRODUCTION

Police in major metropolitan areas now use "predictive policing" technologies to identify and deter crime.[1] Based on algorithmic forecasts from past crime patterns and individual criminal risk factors, police claim to be able to identify places and persons more likely to be involved in criminal activity.[2] This data-driven approach impacts police patrols, investigations, and public health—like strategies to disrupt and monitor forecasted criminal activity.[3]

The early success of predictive policing has led a few prosecutors' offices to adopt quasi-"predictive prosecution" strategies.[4] Predictive prosecution involves identifying and targeting suspects deemed more at risk for future serious criminal activity, and then using that information to shape bail requests, charging decisions, and sentencing arguments.[5] The potential problem, however, is that the data used to inform predictive prosecution strategies may be subject to the same vulnerabilities currently limiting predictive policing.[6] Data can be bad, biased, or based on erroneous correlations.[7] Data-driven justice challenges

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1. *See, e.g.*, Ellen Huet, *Server and Protect*, FORBES, Mar. 2, 2015, at 46, 46.

2. *See, e.g.*, Guy Adams, *The Sci-Fi Solution to Real Crime*, INDEPENDENT (London), Jan. 11, 2012, at 32, 32; Erica Goode, *Sending the Police Before There's a Crime*, N.Y. TIMES, Aug. 16, 2011, at A11; Leslie A. Gordon, *A Byte Out of Crime*, A.B.A. J., Sept. 2013, at 18, 18; *Predictive Policing: Don't Even Think About It*, ECONOMIST, July 20, 2013, at 24, 24, 26.

3. *See, e.g.*, Darwin Bond-Graham & Ali Winston, *Forget the NSA, the LAPD Spies on Millions of Innocent Folks*, L.A. WKLY. (Feb. 27, 2014, 4:00 AM), http://www.laweekly.com/news/forget-the-nsa-the-lapd-spies-on-millions-of-innocent-folks-4473467; John Buntin, *Social Science: Facebook and Other Social Media Networks are Upending the Way Chicago Fights Gang Violence*, GOVERNING, Oct. 2013, at 26, 29; *Reducing Murder Rates*, PALANTIR TECHS., https://www.palantir.com/philanthropy-engineering/annual-report/2015/murder-reduction/ (last visited Sept. 16, 2016).

4. *See infra* Part I.

5. *See infra* Subpart I.C.

6. *See infra* Subpart II.A.

7. *See* Andrew Guthrie Ferguson, *Big Data and Predictive Reasonable Suspicion*, 163 U. PA. L. REV. 327, 329–30 (2015); Wayne A. Logan & Andrew

values of transparency, accountability, and autonomy.[8] And, while these problems matter when it comes to questions of where to send a patrol car, or even whom to investigate, they matter much more when data directly impacts a prosecutor's decision about individual liberty.

Fortunately, prosecutors, more so than police, may have the institutional capacity and power to ensure an equitable and accountable use of predictive technologies. Prosecutors, due to their ethic "to do justice,"[9] may be in a better position to ensure that issues of accuracy, transparency, validity, error, and exculpatory information are addressed before widespread adoption. Prosecutors may be able to capitalize on the innovation of predictive analytics and promote stronger accountability mechanisms that could benefit the entire criminal justice system.[10]

This Essay sets out the preliminary questions that prosecutors should ask before adopting any type of quasi-predictive prosecution system. Part I provides a brief overview of the growth of predictive policing and its evolution into predictive prosecution. While still an experimental concept, certain predictive policing techniques rely on prosecutorial involvement and action. Primary attention will focus on two examples of predictive policing/prosecution in Chicago, Illinois, and Manhattan, in New York.[11] The Chicago Police Department, in conjunction with sociologists, computer scientists, and social workers, has developed innovative strategies to identify individuals most likely to be victims of gun violence or perpetrators of gun violence.[12] Once identified, public health–like intervention

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Guthrie Ferguson, *Policing Criminal Justice Data*, 101 MINN. L. REV. (forthcoming 2017).

8. Ferguson, *supra* note 7, at 329–30.

9. Bruce A. Green, *Why Should Prosecutors "Seek Justice"?*, 26 FORDHAM URB. L.J. 607, 608 (1999).

10. *See infra* Part III.

11. *See infra* Subpart I.C.

12. *See* Monica Davey, *Chicago Tactics Put Major Dent in Killing Trend*, N.Y. TIMES, June 11, 2013, at A1; *see also* TRACEY MEARES ET AL., HOMICIDE AND GUN VIOLENCE IN CHICAGO: EVALUATION AND SUMMARY OF THE PROJECT SAFE NEIGHBORHOODS PROGRAM 1 (2009) ("Data analysis immediately revealed that a very small number of neighborhoods in Chicago are responsible for most of the city's violence trends. The 'city's' crime problem is in fact geographically and socially concentrated in a few highly impoverished and socially isolated neighborhoods. Data also revealed that most victims (and offenders) of gun violence in Chicago tend to be young African American men who live in neighborhoods on the West or South sides of the city."); Jeremey Gorner, *The Heat List*, CHI. TRIB., Aug. 21, 2013, at 1; Mark Guarino, *Can Math Stop Murder?*, CHRISTIAN SCI. MONITOR (July 20, 2014), http://www.csmonitor.com/USA/2014/0720/Can-math-stop-murder-video ("Armed with a plethora of statistics on everything from gun violations to individual parole and arrest histories, police here are trying to create a national model that will help them predict where shootings might occur and who might be involved—both victims and offenders."). *See generally* Andrew V. Papachristos et al., *Attention Felons:*

strategies are used to contact and monitor those targeted suspects.[13] Prosecutors warn targeted suspects of potential consequences of future criminal action and then enforce those warnings through enhanced bail, charging, and sentencing decisions.[14] In New York City, Manhattan District Attorney, Cyrus Vance Jr., created the Crime Strategies Unit to link and organize previously disparate prosecutorial databases into a "central nervous system"[15] of information about suspected criminal actors.[16] Under this "Moneyball" prosecution system, police and prosecutors have targeted approximately nine thousand suspects for investigation and prosecution.[17] Similar to the Chicago model, prosecutors shape bail, charging, and sentencing decisions based on the information provided.[18]

Part II looks at the promise and perils of predictive prosecution. This part examines three big questions about how predictive prosecution might impact: (1) prosecutorial decision-making; (2) prosecutorial role; and (3) crime suppression priorities. From one angle, predictive prosecution merely strengthens the type of predictions and risk assessments already employed across the criminal justice system, but with more extensive information-sharing capabilities.[19] From another angle, predictive prosecution might be seen as a repackaging of the longstanding "focused deterrence" theories used in some jurisdictions.[20] However, whether revolutionary or merely evolutionary, a risk assessment/public health model of prosecution may have unintended consequences. If sentencing decisions are ratcheted up because a suspect was placed on a target list, then prosecutors better be sure that the list is an accurate and valid basis for a sentencing enhancement. Correlation should not replace causation when it comes to actual liberty deprivations. Further, if police officers link their databases with

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Evaluating Project Safe Neighborhoods in Chicago, 4 J. EMPIRICAL LEGAL STUD. 223 (2007) (describing the impact of Chicago's Project Safe Neighborhoods on crime rates using quasi-experimental design).

13. *See* Gorner, *supra* note 12, at 6.

14. *See infra* Subpart I.C.

15. Aubrey Fox, *David O'Keefe, Head of the Manhattan District Attorney's Crime Strategies Unit*, CTR. FOR COURT INNOVATION (May 29, 2013), http://www.courtinnovation.org/research/david-okeefe-head-manhattan-district-attorneys-crime-strategies-unit.

16. *See infra* Subpart I.C.2.

17. Chip Brown, *The Data D.A.*, N.Y. TIMES MAG., Dec. 7, 2014, at 22, 24–25.

18. *See infra* Subpart I.C.2.

19. *See* Jurek v. Texas, 428 U.S. 262, 275 (1976) ("[P]rediction of future criminal conduct is an essential element in many of the decisions rendered throughout our criminal justice system.").

20. *See generally* Philip J. Cook, *The Great American Gun War: Notes from Four Decades in the Trenches*, 42 CRIME & JUST. AM. 19, 52–53 (2013) (discussing focused deterrence theory and gun violence).

prosecutors' offices, then prosecutors must take ownership of the quality and accuracy of that information. This Part also looks at the legal obligations of prosecutors relying on predictive systems. While generally consistent with ethical duties and within the broad grant of prosecutorial discretion, data-driven predictions should not be undertaken without internal accountability mechanisms to ensure the accuracy and validity of the predictions. In addition, the growing web of shared information may create *Brady* obligations for prosecutors to turn over collectively available exculpatory information.[21]

Part III concludes by suggesting that prosecutors may be in the best position to create mechanisms to ensure accountability, transparency, and validity consistent with due process and the fair administration of justice. Satisfactory answers to the questions raised in Part II will be the first step in evaluating the usefulness of predictive prosecution nationally. This Essay seeks to raise preliminary questions about predictive prosecution, saving for a future day any empirical assessment of its costs, benefits, and promise in practice.

I. THE INFLUENCE OF PREDICTIVE POLICING ON PREDICTIVE PROSECUTION

Predictive prosecution is an outgrowth of the reported success of predictive policing.[22] Predictive policing involves the use of data collection and analysis to predict areas of crime and individuals involved in crime.[23] The generic term "predictive policing" encompasses a variety of different techniques, proprietary products, and tactical uses.[24] Predictive-policing technologies are shaping police strategies in a diverse list of places, including major cities like Los Angeles, New York City, Chicago, Philadelphia, Miami, Seattle, Kansas City, and Memphis, and smaller cities like Reading, Pennsylvania and Alhambra, California.[25] The federal government

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21. *See* Brady v. Maryland, 373 U.S. 83, 87–88 (1963).

22. *See infra* Subpart I.C.

23. Beth Pearsall, *Predictive Policing: The Future of Law Enforcement?*, NAT'L INST. JUST. J., June 2010, at 16, 16 ("Predictive policing, in essence, is taking data from disparate sources, analyzing them and then using results to anticipate, prevent and respond more effectively to future crime.").

24. *Id.* at 16–17.

25. *See, e.g.*, *Chicago Police Department Adopts Predictive Crime-Fighting Model*, GEOGRAPHY & PUB. SAFETY, Mar. 2011, at 14, 14 (2011) ("In April 2010, the Chicago Police Department began piloting a crime prevention strategy called predictive analytics."); *Predictive Policing Helps Tennessee Officers Reduce Violent and Property Crimes*, GEOGRAPHY & PUB. SAFETY, Mar. 2011, at 15, 15 (2011) ("Use of a new policing strategy in Memphis, Tennessee, has helped lower the rate of violent, property, and UCR Part I crimes by an average of 15.8 percent."); Nate Berg, *Predicting Crime, LAPD-style*, GUARDIAN (June 25, 2014, 5:19 PM), http://www.theguardian.com/cities/2014/jun/25/predicting

has funded pilot programs,[26] and large and small companies are competing for city contracts.[27]

This section briefly details the history of predictive policing with a focus on why the purported success of the technology might be appealing to prosecutors. In three previous articles, I have described the full history of predictive policing.[28] This section merely sets the stage for a discussion of how predictive policing might impact predictive prosecution.

A. *A Brief History of Place-Based Predictive Policing*

The national emergence of predictive policing can be traced to Chief William Bratton's appointment as Chief of Police of the Los Angeles Police Department ("LAPD").[29] While the idea had been percolating before that moment,[30] Bratton promoted the idea in public forums and national media appearances.[31] Bratton had been a long-time believer in data-driven policing, having restructured the New York Police Department based on data-driven accountability metrics.[32] He brought his faith in data-driven policing to the West

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-crime-lapd-los-angeles-police-data-analysis-algorithm-minority-report; Zen Vuong, *Alhambra Police Chief Says Predictive Policing Has Been Successful*, PASEDENA STAR-NEWS (Feb. 11, 2014, 6:53 PM), http://www.pasadenastarnews.com/government-and-politics/20140211/alhambra-police-chief-says-predictive-policing-has-been-successful.

26. *See* Vince Beiser, *Forecasting Felonies: Can Computers Predict Crimes of the Future?*, MILLER-MCCUNE, July–Aug. 2011, at 20, 20, https://psmag.com/can-computers-predict-crimes-of-the-future-5dd5ecaab617#.o8gsmcvzt (discussing the influence of National Institute of Justice ("NIJ") grants).

27. *See, e.g.*, Rachael King, *IBM Analytics Help Memphis Cops Get 'Smart,'* BLOOMBERG (Dec. 5, 2011, 10:30 PM), http://www.bloomberg.com/news/articles/2011-12-05/ibm-analytics-help-memphis-cops-get-smart; Juliana Reyes, *Philly Police Will Be First Big City Cops to Use Azavea's Crime Predicting Software*, TECHNICAL.LY (Nov. 7, 2013, 12:30 PM), http://technical.ly/philly/2013/11/07/azavea-philly-police-crime-prediction-software.

28. *See* Ferguson, *supra* note 7, at 327; Andrew Guthrie Ferguson, *Policing Predictive Policing*, 94 WASH. U. L. REV. [hereinafter *Policing Predictive Policing*] (forthcoming 2017) (manuscript at 11); Andrew Guthrie Ferguson, *Predictive Policing and Reasonable Suspicion*, 62 EMORY L.J. 259, 265 (2012).

29. Joel Rubin, *Stopping Crime Before It Starts*, L.A. TIMES, Aug. 21, 2010, at A1 ("For patrol officers on the streets, mapping software on in-car computers and hand-held devices would show continuous updates on the probability of various crimes occurring in the vicinity, along with the addresses and background information about paroled ex-convicts living in the area.").

30. *See* Charlie Beck & Colleen McCue, *Predictive Policing: What Can We Learn from Wal-Mart and Amazon about Fighting Crime in a Recession?*, POLICE CHIEF (Nov. 2009), http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display_arch&article_id=1942&issue_id=112009.

31. *Former LAPD Chief Predicts the Future of Policing* (National Public Radio broadcast Nov. 26, 2011), http://www.npr.org/2011/11/26/142795951/former-lapd-chief-predicts-the-future-of-policing.

32. JAMES J. WILLIS ET AL., COMPSTAT IN PRACTICE: AN IN-DEPTH ANALYSIS OF THREE CITIES 1–2 (2003); John Douglass, *Tactical Deployment: The Next Great*

Coast and eventually partnered with a group of academics who had developed algorithms to predict future crimes.[33]

The algorithmic approach to crime prediction was based on decades of social science research showing that certain property crimes encouraged similar crimes in a predictable manner.[34] A burglary in one neighborhood might encourage additional burglaries in that same neighborhood.[35] An auto theft at a particular time in one area might suggest future thefts in the same area.[36] The reasons for such a "near repeat phenomenon"[37] or "boost theory"[38] have been debated, but the correlation of additional crime around the same area has been regularly demonstrated.[39] Building off this insight and adding lessons learned from environmental criminology,[40] hotspot policing,[41] and crime

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Paradigm Shift in Law Enforcement?, GEOGRAPHY & PUB. SAFETY, Jan. 2009, at 6, 7 n.1 (2009); Eli B. Silverman, *With a Hunch and a Punch*, 4 J.L. ECON. & POL'Y 133, 144–45 (2007).

33. *See* G. O. Mohler et al., *Self-Exciting Point Process Modeling of Crime*, 106 J. AM. STAT. ASS'N 100, 100–04 (2011); Martin B. Short et al., *Dissipation and Displacement of Hotspots in Reaction-Diffusion Models of Crime*, 107 PROC. NAT'L ACAD. SCI. 3961, 3961–62 (2010).

34. Kate J. Bowers & Shane D. Johnson, *Who Commits Near Repeats? A Test of the Boost Explanation*, W. CRIMINOLOGY REV., Nov. 2004, at 12, 13 ("[R]esearch . . . suggests that the risk of victimisation is communicable, with the risk of victimisation following an initial burglary not only affecting the burgled home but, in a similar way to the spread of a communicable disease, also extending to properties nearby.").

35. *See* Jerry H. Ratcliffe & George F. Rengert, *Near-Repeat Patterns in Philadelphia Shootings*, 21 SECURITY J. 58, 58 (2008) ("The near-repeat phenomenon states that if a location is the target of a crime such as burglary, the homes within a relatively short distance have an increased chance of being burgled for a limited number of weeks.").

36. *See* Josh Koehn, *Algorithmic Crimefighting*, SANJOSE.COM (Feb. 22, 2012), http://www.sanjose.com/2012/02/22/sheriffs_office_fights_property_crimes_with_predictive_policing/.

37. Wim Bernasco, *Them Again?: Same-Offender Involvement in Repeat and Near Repeat Burglaries*, 5 EUR. J. CRIMINOLOGY 411, 412 (2008); Bowers & Johnson, *supra* note 34, at 21.

38. Shane D. Johnson, *Repeat Burglary Victimisation: A Tale of Two Theories*, 4 J. EXPERIMENTAL CRIMINOLOGY 215, 216 (2008).

39. Spencer Chainey et al., *The Utility of Hotspot Mapping for Predicting Spatial Patterns of Crime*, 21 SECURITY J. 4, 5 (2008) ("Crime also does not occur randomly. It tends to concentrate at particular places for reasons that can be explained in relation to victim and offender interaction and the opportunities that exist to commit crime."); Shane D. Johnson et al., *Space-Time Patterns of Risk: A Cross National Assessment of Residential Burglary Victimization*, 23 J. QUANTITATIVE CRIMINOLOGY 201, 203–04 (2007).

40. Megan Yerxa, *Evaluating the Temporal Parameters of RiskTerrain Modeling with Residential Burglary*, 5 CRIME MAPPING 7, 7, 10–11 (2013) (discussing environmental criminology).

41. *See* Leslie W. Kennedy et al., *Risk Clusters, Hotspots, and Spatial Intelligence: Risk Terrain Modeling as an Algorithm for Police Resource Allocation Strategies*, 27 J. QUANTITATIVE CRIMINOLOGY 339, 358 (2011)

mapping,[42] academic researchers developed place-based predictive software to predict certain property crimes.[43]

In practice, police officers might be told to focus attention on particular geographic areas—usually block-sized, five hundred by five hundred foot areas—and told to patrol those designated areas during the free times in their shifts.[44] The areas would change daily depending on crime data.[45] The presence of additional police in targeted areas was meant to deter criminal activity.[46] Initial results showed a reduction in property crime, although longer term trends remain unclear.[47] Criticisms have also been leveled that certain crime reduction claims cannot be substantiated.[48]

These initial pilot projects eventually developed into a commercial business to sell the predictive software. The company, PredPol, began marketing its services to local police forces.[49] Santa Cruz, California became an early adopter and demonstrated impressive initial results.[50] National press about predictive policing fueled interest from other cities,[51] and PredPol soon boasted a

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("Hotspots policing relies on the identification, primarily through GIS analysis, of distinct places experiencing crime concentrations.").

42. *See* KEITH HARRIES, NAT'L INST. OF JUSTICE, MAPPING CRIME: PRINCIPLE AND PRACTICE 92 (1999), https://www.ncjrs.gov/pdffiles1/nij/178919.pdf; DEREK J. PAULSEN & MATTHEW B. ROBINSON, CRIME MAPPING AND SPATIAL ASPECTS OF CRIME 154–55 (2d ed. 2009); Andrew Guthrie Ferguson, *Crime Mapping and the Fourth Amendment: Redrawing "High Crime Areas,"* 63 HASTINGS L.J. 179, 182–84 (2011).

43. *See* Beiser, *supra* note 26, at 20–21.

44. Kalee Thompson, *The Santa Cruz Experiment*, POPULAR SCI., Nov. 2011, at 38, 97. The above description uses the PredPol technology and strategy as a representative example of place-based predictive policing. Other competing technologies use different methods to forecast risk areas for crime.

45. *Id.* at 40.

46. Patrick Healy, *Predictive Policing Forecasts Crime That Officers Then Try to Deter*, NBC (Jan. 8, 2013, 6:40 AM), http://www.nbclosangeles.com/news/local/LAPD-Chief-Charlie-Beck-Predictive-Policing-Forecasts-Crime-185970452.html.

47. *See* Mike Aldax, *Richmond Police Chief Says Department Plans to Discontinue 'Predictive Policing' Software*, RICH. STANDARD (June 24, 2015), http://richmondstandard.com/2015/06/richmond-police-chief-says-department-plans-to-discontinue-predictive-policing-software/ (quoting Richmond, California police Chief Chris Magnus, "In Richmond crime went down, yes, but now it's going back up . . . . We're seeing double digit increases."); Ben Poston, *L.A. Sees a Broad Increase in Crime*, L.A. TIMES, Dec. 31, 2015, at A1.

48. Darwin Bond-Graham & Ali Winston, *All Tomorrow's Crimes*, S.F. WKLY., Oct. 30–Nov. 5, 2013, at 11, 12–14.

49. *See generally* PREDPOL, http://www.predpol.com/ (last visited Aug. 27, 2016) (describing PredPol's services, technology, and results).

50. Tessa Stuart, *Santa Cruz's Predictive Policing Experiment*, SANTACRUZ.COM (Feb. 14, 2012), http://www.santacruz.com/news/santa_cruzs_predictive_policing_experiment.html; *see also* Koehn, *supra* note 36; Thompson, *supra* note 44, at 97.

51. Lev Grossman, *The 50 Best Inventions of the Year*, TIME, Nov. 28, 2011, at 55, 82.

national roster of large and mid-size cities as customers.[52] Other companies and technologies joined the quest to be able to predict place-based property crime, and then violent crime.[53] Researchers at Rutgers–Camden developed Risk Terrain Modeling ("RTM"),[54] which looks at environmental factors such as bars, liquor stores, bus routes, and other urban fixtures to map crime.[55] In a recent national study, RTM demonstrated significant crime reduction across several jurisdictions.[56] HunchLab combines the crime data focus of PredPol and the environmental focus of RTM and has developed its own proprietary software for prediction based on machine-learning technologies.[57]

Currently, more than half a dozen predictive policing companies, including large corporations like IBM, Hitachi, and Motorola, are competing for business.[58] These first predictive technologies have different names and different theories, but share five commonalities. The technology involves crime data, time, location, an algorithm, and a theory about why a particular area has a heightened likelihood of criminal activity.[59] Place-based

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52. Timothy B. Clark, *How Predictive Policing Is Using Algorithms to Deliver Crime-Reduction Results for Cities*, ROUTE FIFTY (Mar. 9, 2015), http://www.routefifty.com/2015/03/predictive-policing-santa-cruz-predpol/107013/; Will Frampton, *With New Software, Norcross Police Practice Predictive Policing*, CBS ATLANTA (Aug. 19, 2013), http://www.cbsatlanta.com/story/23178208/with-new-software-norcross-police-utilize-predictive-policing.

53. Joel M. Caplan et al., *Joint Utility of Event-Dependent and Environmental Crime Analysis Techniques for Violent Crime Forecasting*, 59 CRIME & DELINQ. 243, 243–45, 248 (2013).

54. RISK TERRAIN MODELING, http://www.riskterrainmodeling.com/ (last visited Aug. 27, 2016).

55. JOEL M. CAPLAN ET AL., RUTGERS CTR. ON PUB. SEC., INTEGRATING SPATIAL CRIME ANALYSIS TECHNIQUES FOR TACTICAL AND STRATEGIC ACTIONS 3 (2012), http://www.rutgerscps.org/uploads/2/7/3/7/27370595/jointutility_brief.pdf; Joel M. Caplan, *Mapping the Spatial Influence of Crime Correlates: A Comparison of Operationalization Schemes and Implications for Crime Analysis and Criminal Justice Practice*, 13 CITYSCAPE, no. 3, 2011, at 57, 68; Kennedy et al., *supra* note 41, at 343.

56. *See* Leslie Kennedy et al., *A Multi-jurisdictional Test of Risk Terrain Modeling and a Place-Based Evaluation of Environmental Risk-Based Patrol Deployment Strategies*, RUTGERS CTR. ON PUB. SECURITY, http://www.rutgerscps.org/uploads/2/7/3/7/27370595/nij6city_resultsexecsum_final.pdf (last visited Aug. 27, 2016). As a disclosure, I was an unpaid, uninvolved consultant on one federal RTM grant. I had no role in developing or testing the technology.

57. Laura Nahmias & Miranda Neubauer, *NYPD Testing Crime-Forecast Software*, POLITICO (July 8, 2015, 5:52 AM), http://www.politico.com/states/new-york/city-hall/story/2015/07/nypd-testing-crime-forecast-software-090820.

58. *See* Maurice Chammah, *Policing the Future*, VERGE, http://www.theverge.com/2016/2/3/10895804/st-louis-police-hunchlab-predictive-policing-marshall-project (last visited Aug. 27, 2016); Huet, *supra* note 1, at 46; King, *supra* note 27.

59. *See* Chainey et al., *supra* note 39, at 4–5; Dan Turkel, *'Predictive Policing' Tries to Stop Violent Crime Before It Happens*, BUS. INSIDER (Sept. 25,

algorithms have been used to target property crimes and violent crimes.[60] Many questions still remain about the application, effectiveness, and promise of the technology. But, as Commissioner Bratton stated in 2016, "Predictive policing used to be the future, and now it is the present."[61]

B. The Development of Person-Based Prediction

Person-based approaches to crime arose independently of predictive policing (at least as defined by PredPol, RTM, or HunchLab) and were largely based on a public health model of targeting crime.[62] For decades, sociologists identified the reality that a small subset of individuals in any community committed the vast majority of crimes.[63] Police recognized that targeting those individuals could result in a disproportionate reduction of crime rates.[64] For violent crimes, researchers studied shooting victims and, by tracking their social networks, could identify likely future victims or criminal actors.[65] The theory behind this approach was that most shootings involve a social network of retaliation between rival groups (such as gangs, neighborhood crews, and drug dealers) who respond in relatively predictable ways.[66] A shooting of a gang member would lead to a retaliatory act. That act, in turn, would continue the cycle of violence. Professor David Kennedy demonstrated that by targeting youth violence through a public health model, police could dramatically curtail shootings.[67] Andrew

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2015, 8:20 PM), http://www.businessinsider.com/predictive-policing-tries-to-stop-violent-crime-before-it-happens-2015-9.

60. Caplan et al., *supra* note 53, at 243–45, 248.

61. David Black, *Here Comes Predictive Policing: The Next Wave of Crimefighting Technology is Being Tested in New York City*, N.Y. DAILY NEWS (Jan. 24, 2016, 5:00 AM), http://www.nydailynews.com/opinion/david-black-predictive-policing-article-1.2506580.

62. Anthony A. Braga et al., *Problem-Oriented Policing, Deterrence, and Youth Violence: An Evaluation of Boston's Operation Ceasefire*, 38 J. RES. CRIME & DELINQ. 195, 195–200 (2001); David M. Kennedy et al., *Youth Violence in Boston: Gun Markets, Serious Youth Offenders, and a Use-Reduction Strategy*, 59 L. & CONTEMP. PROBS. 147, 147–49, 156 (1996).

63. *See* DAVID KENNEDY, DON'T SHOOT: ONE MAN, A STREET FELLOWSHIP, AND THE END OF VIOLENCE IN INNER-CITY AMERICA 269 (2011); Anthony A. Braga, *Pulling Levers Focused Deterrence Strategies and the Prevention of Gun Homicide*, 36 J. CRIM. JUST. 332, 332–34 (2008); Papachristos et al., *supra* note 12, at 239–42.

64. Davey, *supra* note 12, at A1; *see also* Guarino, *supra* note 12.

65. Andrew V. Papachristos et al., *Why Do Criminals Obey the Law? The Influence of Legitimacy and Social Networks on Active Gun Offenders*,102 J. CRIM. L. & CRIMINOLOGY 397, 436 (2012).

66. *See* Heather Mac Donald, Opinion, *A Smarter Way to Prosecute*, L.A. TIMES, Aug. 10, 2014, at A24.

67. David M. Kennedy, *Pulling Levers: Chronic Offenders, High-Crime Settings, and A Theory of Prevention*, 31 VAL. U. L. REV. 449, 449–51 (1997); Kennedy et al., *supra* note 62, at 147–49.

Papachristos, Anthony Braga, and David Hureau investigated similar social network intervention strategies between rival gangs.[68] Other scholars have investigated this same social network phenomenon.[69]

Despite arising from a different context, the social network model has largely been subsumed into the greater predictive policing discussion because media stories described person-based predictive techniques under the larger rubric of "predictive policing," and because police administrators benefited from the good will (i.e., good press) of predictive policing.[70] This Essay continues that blurring of predictive methodologies, but it recognizes that person-based prediction presents different issues than place-based prediction in terms of liberty, autonomy, and due process.

The best known person-based predictive policing system involves the Chicago Police Department. The Chicago Police Department developed a data-driven process to identify the most likely offenders of violent crime.[71] Entitled the "Heat List," the concept is to identify young people who might engage in violence or be victims of violence and intervene before the violence occurs.[72] This identification is conducted by police officers (called District Intelligence Officers) who evaluate past criminal activity, whether the target has been identified as part of a gang audit,[73] and whether the target has been placed on the "strategic subjects list" ("SSL").[74] An official Chicago Police Department Special Order S10-05 describes the SSL:

> The Strategic Subjects List (SSL) is a rank-order list of potential victims and subjects with the greatest propensity for violence. The SSL model looks at individuals with criminal records who are ranked according to their probability of being involved in a shooting or murder, either as a victim or an offender, known as a "Party to Violence" (PTV). The software is generated based on empirical data that lists attributes of a person's criminal record, including the record of violence

68. Andrew V. Papachristos et al., *Social Networks and the Risk of Gunshot Injury*, 89 J. URB. HEALTH 992, 993 (2012).

69. Papachristos et al., *supra* note 12, at 224, 253, 266–67.

70. This is primarily the function of the mass media that has used the concept of predictive policing and the fear of a Minority Report future as an attractive news headline. *See, e.g.*, Jack Smith IV, *'Minority Report' is Real—and It's Really Reporting Minorities*, MIC (Nov. 9, 2015), http://mic.com/articles/127739/minority-reports-predictive-policing-technology-is-really-reporting-minorities#.zwXVV93jm.

71. Gorner, *supra* note 12, at 1.

72. *Id.*

73. *See* CHI. POLICE DEP'T, CUSTOM NOTIFICATIONS IN CHICAGO, SPECIAL ORDER S10-05, at III.C (Oct. 6, 2015), http://directives.chicagopolice.org/directives/.

74. *See id.* at IV.B.

> among criminal associates, the degree to which his criminal activities are on the rise, and the types of intensity of criminal history.[75]

Once identified and placed on the "Heat List," a team of police officers, social workers, and community leaders conduct a "custom notification" which involves a face-to-face meeting and the delivery of a custom notification letter.[76] This letter details the individual's prior contacts with the criminal justice system, as well as potential future consequences for any continued criminal activity.[77] These custom notification meetings usually involve home visits.[78] Essentially, the young person is offered a choice: take advantage of social services to prevent involvement in future violence or face additional law enforcement surveillance—and perhaps punitive consequences.[79] Currently, the Chicago Police Department includes over 1300 names on its Heat List.[80]

This suspect and social network–focused approach to policing has—under different names and different programs—been adopted in Kansas City, Boston, New Orleans, Los Angeles, and other cities.[81] Juvenile courts have also begun to consider implementing similar identification processes for troubled youth.[82] The open question, however, is how the algorithm scores the criminal record, connections with associates, and intensity of criminal history, among other considerations. With few exceptions, the types of identification mechanisms have not been validated through scientific methods.[83]

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75. *Id.*

76. Gorner, *supra* note 12, at 1.

77. *See* CHI. POLICE DEP'T, *supra* note 73, at IV.A, D.

78. *Id.* at V.C.

79. *Id.* at III.A, B.

80. Monica Davey, *Chicago Police Predict Who May Shoot or Be Shot*, N.Y. TIMES (May 23, 2016), http://www.nytimes.com/2016/05/24/us/armed-with-data-chicago-police-try-to-predict-who-may-shoot-or-be-shot.html?_r=0.

81. *See, e.g.*, ANTHONY A. BRAGA ET AL., SMART APPROACHES TO REDUCING GUN VIOLENCE, at ii–iii (2014), http://www.smartpolicinginitiative.com/sites/all/files/SPI%20Gun%20Violence%20Spotlight%20FINAL.pdf; Jeffrey Goldberg, *A Matter of Black Lives*, ATLANTIC, Sept. 2015, at 70, 73; *Los Angeles Police Using CIA Software to Track Criminals, Ex-cons*, RT (Nov. 15, 2014, 3:30 AM), http://rt.com/usa/205727-lapd-criminals-data-collection/; *Reducing Murder Rates*, PALANTIR TECHS., https://www.palantir.com/philanthropy-engineering/annual-report/2015/murder-reduction/ (last visited Sept. 16, 2016).

82. Maya Rao, *Police Tool Targets At-Risk Teens*, STAR TRIB., Oct. 25, 2014, at B3; Matt Stroud, *Should Los Angeles County Predict Which Children Will Become Criminals*, PAC. STANDARD (Jan. 21, 2016), https://psmag.com/should-los-angeles-county-predict-which-children-will-become-criminals-ad67f1d217de#.3tmnq7l2j.

83. For more information, see *Policing Predictive Policing*, *supra* note 28.

C. *Early "Predictive Prosecution" Models*

The efficacy of predictive policing remains both alluring and unproven. Significant research studies have yet to be conducted in any systemic way.[84] Questions remain as crime rates have fluctuated in cities using the technologies.[85] Yet, despite the unknowns, prosecutor offices have embraced the insight that predictive analytics and information sharing can identify risk factors in a community and improve the prosecutorial function.[86] The same broad tactical shift toward proactive law enforcement has thus begun influencing proactive prosecutorial strategies. As the former head of the Manhattan Criminal Strategies Unit stated, the change is as much one of philosophy as technology.[87] The goal is to focus on crime, not cases. "Intelligence-driven" prosecutions seek to take already existing information in prosecution offices, organize it, manage it, and deploy it to target those most at risk of driving crime in a community.[88]

While still in the very early stages, two distinct predictive prosecution models have been developed. Here I describe them as the "Enforcer Model" and the "Investigator Model." Neither, to be clear, involves pure algorithmic or machine predictions. Just as predictive policing is more of a risk identification tool than a predictive guess, so, too, predictive prosecution seeks to proactively identify risk factors (areas and suspects) in a community and direct attention to those problems. Predictive prosecution involves data-driven, information-sharing innovations, but not pure algorithmic judgments about places or people. As will be discussed, some blending of predictive policing techniques and predictive prosecution techniques may occur in the future, but currently the prosecution side has relied on more human rather than algorithmic predictions.

1. *Enforcer Model*

The Enforcer Model arises from person-based predictive policing strategies. In this model, prosecutors play a role of enforcing warnings made to those predicted to be involved in criminal activity (especially violence). In some cases, this prosecutorial enforcement might be indirect, but in other cases, the prosecutors might directly

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84. *See generally id.* (discussing the state of objective, peer-review testing of the technologies).

85. Huet, *supra* note 1, at 46 ("It's impossible to know if PredPol prevents crime, since crime rates fluctuate, or to know the details of the software's black-box algorithm, but budget-strapped police chiefs don't care.").

86. *See* Mac Donald, *supra* note 66, at A24.

87. Telephone Interview with David O'Keefe & Kerry Chicon, Manhattan Dist. Attorney's Office (Mar. 30, 2016).

88. The Manhattan District Attorney's Office and others have adopted the terminology "intelligence-driven prosecution" as opposed to predictive prosecution. *See* Fox, *supra* note 15.

and personally provide verbal notice of harsher enforcement penalties.

For example, the Special Order detailing the process of custom notification in Chicago makes explicit reference to prosecutorial involvement.[89] The Special Order provides that when someone identified on the Heat List is rearrested, the police will recommend the highest possible charges to prosecutors, encourage community advocacy against bond release, and engage in direct coordination with state prosecutors' offices.[90] Section V.D reads in full:

> When a recipient of the custom notification engages in criminal activity for which he or she is arrested, the district commander will ensure:
>
> 1. [N]otification to and coordination with the appropriate Bureau of Detectives Area to ensure appropriate charging occurs. The highest possible charges will be pursued for any individual in the VRS Custom Notification Program.
>
> 2. Court advocacy volunteers are notified of the date, time, and place of the bond hearing or other court hearings and encourage attendance at the hearing to demonstrate the community's support in decreasing the violence.
>
> 3. [C]oordination with the Cook County's State's Attorney Community Justice Center Unit as appropriate.[91]

Prosecutors are, thus, directly influenced by a suspect's placement on the Heat List.

The Custom Notification Letters themselves "include a description of both federal and state sentencing options"[92] demonstrating how prosecutorial decisions will be impacted by this designation. In fact, in the definitions section, the Custom Notification Letter is defined as an information tool to make suspects aware of enhanced prosecution possibilities:

> The Custom Notification Letter will be used to inform individuals of the *arrest, prosecution, and sentencing consequences they may face if they choose to or continue to engage in public violence.* The letter will be specific to the identified individual and incorporate those factors known about the individual inclusive of prior arrests, impact of known associates, and *potential sentencing outcomes* for future criminal acts.[93]

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89. *See* CHI. POLICE DEP'T, *supra* note 73, at V.D.
90. *Id.*
91. *Id.*
92. *Id.* at IV.A.
93. *Id.* at IV.D (emphasis added).

The procedures and policy behind custom notification, thus, encourage prosecutors to follow through on the charging, bond, and sentencing warnings provided in the custom notification letters.

Prosecutors play a more direct enforcer role in other gang violence reduction strategies.[94] One strategy that has been adopted by law enforcement is called "focused deterrence."[95] Focused deterrence involves a targeted message to a small percentage of the population that prosecutors, police, and community members know who is engaged in violence and that they are committed to stopping it.[96]

For example, Chicago has developed a broad Gang Violence Reduction Strategy that identifies gang members through "gang audits" and the SSL.[97] Identified targets are then invited to "call-in" meetings with prosecutors, police, and community members. For example, if a young man is identified through a gang audit, the SSL, or some other targeting measure,[98] and asked to participate in a community forum, it is not uncommon for a prosecutor to be present.[99] These call-in meetings serve as a "scared straight" warning for individuals placed on the Heat List.[100] The prosecutor symbolically and sometimes literally describes the consequences for failing to heed the warning to stay away from crime. As described by Andrew Papachristos and David Kirk:

> A federal partner, typically from the U.S. Attorney's Office, explains how federal statutes might be leveraged against the faction, including continued criminal enterprise and armed career criminal statutes. The point of this message stresses the deterrent aspect of the program. Representatives from local police and prosecutors provide examples of recent cases and shootings to underscore the reach of the current violence

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94. *See* Heather Mac Donald, *Prosecution Gets Smart*, CITY J. (2014), http://www.city-journal.org/2014/24_3_intelligence-driven-crime-fighting.html.

95. *See* Andrew V. Papachristos & David S. Kirk, *Changing the Street Dynamic: Evaluating Chicago's Group Violence Reduction Strategy*, 14 CRIMINOLOGY & PUB. POL'Y 525, 533 (2015) ("[F]ocused deterrence posits that crime reduction is best achieved by concentrating deterrence efforts on those groups or individuals involved directly in the targeted type of crime.").

96. *Id.* at 533–34.

97. CHI. POLICE DEP'T, CUSTOM NOTIFICATIONS IN CHICAGO, GENERAL ORDER G10-01, at IV.A (Dec. 31, 2015), http://directives.chicagopolice.org/directives/ ("The cornerstone of the Gang Violence Reduction Strategy is the Gang Audit.").

98. *See id.* at V.A, B (discussing The Gang Intervention Probation Program ("GIPP") and the Targeted Repeat Offender and Apprehension and Prosecution ("TRAP") Program).

99. *See* Papachristos & Kirk, *supra* note 95, at 536.

100. John Eligon & Timothy Williams, *On Police Radar for Crimes They Might Commit*, N.Y. TIMES, Sept. 25, 2015, at A1 ("Call-ins are central to the program. The authorities invite about 120 of the group leaders they have identified (25 to 40 usually show up) to hear from a range of officials, including the local and federal prosecutors, the police chief and the mayor.").

> and how they are working in a coordinated fashion with others in the room.[101]

The message is made clear by prosecutors: if you violate the law again, you will be punished harder because you have been warned. One U.S. Attorney referenced a fifteen-year sentence for a single bullet for someone who had not heeded the warnings.[102] The point was made clear that those predicted to be at higher risk for crime had better turn their lives around or face additional sanction by prosecuting authorities.[103]

As described above, prosecutors, as enforcers for predictive policing techniques, remain in a fairly typical prosecutorial role with one exception: the enforcement threats are influenced by predictive data. Clearly, prosecutors have long held community meetings. Prosecutors have long held "scared straight" talks in community forums.[104] Prosecutors have long stood arm in arm with police to send a message that criminality will not be tolerated. The difference here is that the targets of the community forum, and thus the subjects of harsher punishment, were originally identified by predictive policing techniques and other data-driven mechanisms. If those algorithmic or social network correlations are in error, then the subsequent harsher punishment may be unjustified. Evidence is very clear that arrest records are filled with mistakes.[105] Similar

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101. *See* Papachristos & Kirk, *supra* note 95, at 536.

102. Eligon & Williams, *supra* note 100, at A17 ("Tammy Dickinson, the United States Attorney for the Western District of Missouri, related the story of a man in the program who was given a 15-year prison sentence for being caught with a bullet in his pocket.").

103. *To Stem Gun Crime, 'Moneyball,'* ST. LOUIS POST-DISPATCH, June 28, 2015, at A20 (quoting Circuit Attorney Jennifer Joyce: "'Here are the rules. The first group that commits a homicide, the first body that drops, we're coming after you and your friends. The group that does the most violence, we're coming after you.' Probation may be revoked, major and minor crimes will be prosecuted and so will minor ordinance violations, building code violations and civil issues like failure to pay child support.").

104. Maureen Fan, *Steering Youth Straight Sound Counsel From Mentor Cops, Prosecutors and Judges*, N.Y. DAILY NEWS (May 18, 1997, 12:00 AM), http://www.nydailynews.com/archives/boroughs/steering-youth-straight-sound-counsel-mentor-cops-prosecutors-judges-article-1.760985.

105. U.S. DEP'T OF JUSTICE, OFFICE OF THE ATTORNEY GEN., THE ATTORNEY GENERAL'S REPORT ON CRIMINAL HISTORY BACKGROUND CHECKS 3 (2006), http://www.bjs.gov/content/pub/pdf/ag_bgchecks_report.pdf; Robert Faturechi & Jack Leonard, *ID Errors Put Hundreds in County Jail*, L.A. TIMES, Dec. 25, 2011, at A1 (stating that more than 1480 people have been mistakenly arrested over five year period); Amanda Simon, *Garbage In, Unnecessary Arrests Follow*, DAILY KOS (Apr. 26, 2010, 12:20 PM), https://www.aclu.org/blog/speakeasy/garbage-unnecessary-arrests-follow; *see also* Briana Duggan, *The Rap-Sheet Trap: One Man vs. a Multitude of Errors*, CITY LIMITS (Mar. 3, 2015), http://citylimits.org/2015/03/03/the-rap-sheet-trap-one-man-vs-a-multitude-of-errors/#.

problems exist with gang databases[106] and offender registries.[107] If those "Heat Lists" are found to be flawed, then not only police surveillance, but prosecutorial judgment becomes distorted.

The Chicago Tribune interviewed a young man, Robert McDaniel, whose name appeared on the Heat List because a friend of his had been shot.[108] Mr. McDaniel's prior record consisted of a single misdemeanor conviction and a few minor arrests.[109] But, by being placed on the list, Mr. McDaniel was now associated with the worst of the worst. An enhanced sentence predicated in part on a connection to a Heat List that later turns out to be unwarranted would be a real unfairness to someone like Mr. McDaniel. If the prosecutor does not take on an independent duty to double check the data, then the harm from such a prediction could be significant.[110]

Prosecutors who are enforcing predictive policing or social network models depend on the accuracy of those models for guidance. As will be discussed in Part II, this enforcement role offers benefits and risks in its real world application.

2. Investigator Model

The Investigator Model of predictive prosecution involves a more organic prosecutor-led information-sharing system. Such a system, like the Crime Strategies Units being developed in Manhattan, San Francisco, Philadelphia, and Baton Rouge,[111] is data driven and targets identifiable criminal actors.[112] These systems are not based on algorithmic judgments, but on data of actual crime patterns in a city.[113] Using data, prosecutors identify geographic areas of concern based on reported shootings, thefts, or

106. K. Babe Howell, *Gang Policing: The Post-Stop-and-Frisk Justification for Profile-Based Policing*, 5 U. DENV. CRIM. L. REV. 1, 15–16 (2015); Joshua D. Wright, *The Constitutional Failure of Gang Databases*, 2 STAN. J. C.R. & C.L. 115, 122–23 (2005).

107. Herring v. United States, 555 U.S. 135, 155 (2009) (Ginsburg, J., dissenting) ("Inaccuracies in expansive, interconnected collections of electronic information raise grave concerns for individual liberty."); U.S. DEP'T OF JUSTICE, REVIEW OF DEPARTMENT OF JUSTICE'S IMPLEMENTATION OF THE SEX OFFENDER REGISTRATION AND NOTIFICATION ACT, at iii (2008), https://oig.justice.gov/reports/plus/e0901/final.pdf (noting widespread inaccuracies in state registry information); *see, e.g.*, Fredrick Kunkle, *Caught in a Neighborhood Web: Innocent Man Mistaken for Registered Offender*, WASH. POST, May 13, 2006, at A1.

108. Gorner, *supra* note 12, at 1.

109. *Id.*

110. *See* Mac Donald, *supra* note 66, at A24.

111. *Id.* ("Prosecutors in Richmond, Va., and Rockland County, N.Y., as well as San Francisco and Philadelphia, are building intelligence systems to drive crime down."); *New Baton Rouge Crime Strategies Unit Announced*, U.S. DEP'T OF JUST., http://www.justice.gov/usao-mdla/new-baton-rouge-crime-strategies-unit-announced (last visited Aug. 27, 2016).

112. Brown, *supra* note 17, at 24; Mac Donald, *supra* note 66, at A24.

113. Brown, *supra* note 17, at 24.

particular types of crime.[114] Suspects are identified as being engaged in violence or gang activity based on past criminal activity.[115] These individuals are monitored through social media and traditional law enforcement surveillance.[116] The predicted targets are then prosecuted using available prosecutorial leverage to extract enhanced pleas or sentences from those identified.[117]

In general, this type of intelligence-driven prosecution involves five modifications from the traditional police-prosecutor relationship. First, prosecutors identify geographical areas of concern based on reported crime patterns in a city.[118] The focus is again on crime, not cases, meaning even unsolved crimes also capture the attention of prosecutors. Second, prosecutors identify individuals who are considered the crime drivers in a community and include them in an "arrest alert system."[119] These individuals become the "primary targets" of prosecution, under the theory that by removing these violent actors, overall violence levels will fall.[120] As will be discussed, the arrest alert system triggers heightened attention for a prosecutor to incapacitate these predicted bad actors through existing legal mechanisms. Third, less traditional data points enter into the calculation of whom to target. Social media posts, a past lack of cooperation with police, status as a victim of violence, and other less formal bits of information are included in the risk assessments of whom to target.[121] Fourth, the information sharing between police and prosecutors is prioritized and strengthened.[122] Intelligence-driven prosecution is not just about being smarter, but developing actionable intelligence about crime patterns in an area. Finally, all of this information about past criminal activities is memorialized in a searchable dataset for future action.[123]

As one example, the Crime Strategies Unit in Manhattan has developed a new information-sharing system to proactively identify the "most wanted" of New York's criminal actors.[124] These individuals have significant past criminal records, but the data

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114. *Id.* at 24–25.
115. *Id.* at 24; Mac Donald, *supra* note 66, at A24.
116. *See* Mac Donald, *supra* note 66, at A24.
117. *See* Brown, *supra* note 17, at 28–29.
118. *Id.* at 24–25.
119. *See* Mac Donald, *supra* note 66, at A24.
120. *Id.*
121. Brown, *supra* note 17, at 25; Mac Donald, *supra* note 66, at A24.
122. *See* Mac Donald, *supra* note 66, at A24; James C. McKinley, Jr., *In Unusual Collaboration, Police and Prosecutors Team Up to Reduce Crime*, N.Y. TIMES, June 5, 2014, at A25.
123. Brown, *supra* note 17, at 24–25.
124. Mac Donald, *supra* note 94 ("Based on daily communication with local police commanders and precinct field-intelligence officers, the Crime Strategies Unit has compiled a database of Manhattan's most significant criminal players and other persons of interest (such as elusive or uncooperative witnesses).").

focuses on future criminal risk. The logic being that past instigators of criminal activity are at greater risk to be the future drivers of crime. This database of approximately nine thousand names has become critical to several major prosecutions.[125] In essence, prosecutors have predicted that incapacitating these criminal actors will lead to an overall reduction in crime. As explained by David O'Keefe, the past Head of the Manhattan District Attorney's Crime Strategies Unit ("CSU"), "Working with our partners in the precincts, we also identified hot spots and the names of the people committing the most crimes in each area. The question became, what can we do to incapacitate these people?"[126]

This focus on incapacitating "primary targets" has significant practical effects on traditional prosecution practices. Routinely now, if someone listed in the CSU arrest alert system is arrested, even for a low-level offense, the full power of the prosecutors' office is directed against them.[127] This means that ordinary arrests may result in extraordinary outcomes where those marked as predicted troublemakers are punished to the full extent of the law.[128]

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125. *See* Brown, *supra* note 17, at 24 ("They asked police commanders to submit a list of each precinct's 25 worst offenders—so-called crime drivers, whose 'incapacitation by the criminal-justice system would have a positive impact on the community's safety. Seeded with these initial cases, the C.S.U. built a searchable database that now includes more than 9,000 chronic offenders, virtually all of whom have criminal records.'"); Mac Donald, *supra* note 94 ("In 2012, police arrested a leading gang member in East Harlem for running toward people in a brawl brandishing a metal lock tied into a bandanna. The defendant had been shot in the past and had also likely witnessed a homicide, without cooperating with police after either crime. The attempted assault would ordinarily have gone nowhere, had the CSU not closely tracked the assailant. Instead, the prosecutor indicted him for criminal possession of a weapon in the third degree—a felony charge. After the charges were read, the defendant absconded while on bail. Arrested a second time on the open warrant, he was eventually sentenced to two to four years in prison on the weapon charge and two to four years on the bail-jump charge—outcomes that would have been unthinkable but for the information that the CSU had developed.").

126. Fox, *supra* note 15.

127. Brown, *supra* note 17, at 24 ("When someone in the Arrest Alert System is picked up, even on a minor charge or a parole violation, or is arrested in another borough, any interested prosecutor is automatically pinged with a detailed email."). While the final decision will be determined based on the particular facts of the individual and the case, and would remain within the broad grant of discretion given to prosecutors, the influence of the arrest alert system is significant.

128. Mac Donald, *supra* note 66, at A24 ("The unit has compiled a database of Manhattan's most significant criminal players—now numbering about 9,000—whose arrest anywhere in the city immediately triggers an alert to one of the Crime Strategies Unit attorneys. The attorney will then contact the local prosecutor who has been assigned the case—whether in Manhattan or another borough—to make sure the defendant is prosecuted to the full extent of the law rather than slipping through the cracks."); McKinley, Jr., *supra* note 122, at A25 ("The unit assembled what amounts to a list of prioritized targets for

The Investigator Model of predictive prosecution, thus, influences several aspects of the traditional prosecution process. First, the targeting system impacts bail decisions, as prosecutors might be instructed to ask for higher bail for those identified in the arrest alert system.[129] Before the arrest occurs, CSU drafts particularized bail applications on predicted individuals advocating for strict bail positions.[130] Second, targeted individuals could face enhanced criminal charges in order to maximize prosecutorial leverage.[131] This means that prosecutors would be instructed to seek the maximum charges justified under law.[132] These initial charging decisions obviously impact later plea deals and impede plea negotiations as defendants face much harsher potential punishments.[133] Sentencing decisions can also be ratcheted up as prosecutors seek to ensure the maximum penalty possible.[134] Maximum sentences on minor crimes result in extended incarceration. Even after convictions and sentencing, prosecutors have been known to weigh in on parole decisions and requirements of release.[135]

Beyond direct prosecution, CSU also impacts how uncooperative witnesses may be handled.[136] Whereas in the ordinary course, an

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prosecution in each precinct. When people on the list are arrested, even for minor crimes, prosecutors receive an electronic alert.").

129. *See* Mac Donald, *supra* note 66, at A24 ("The arrest alert system recognizes that a defendant's official history of arrests and convictions may fail to convey his position in the criminal food chain. A 16-year-old gang member may be responsible for numerous shootings, as attested to by his and others' Facebook pages, but never arrested for any of them because his victims and witnesses refused to cooperate with the police. If he is nabbed for shoplifting, the misdemeanor prosecutor will have a few minutes at most to decide whether to pursue the case. Seeing simply a petty criminal, the charging attorney might well let him walk free. But if that attorney is armed with intelligence gathered on the suspect, he can seek the maximum charge and argue to the judge for high bail."); Fox, *supra* note 15 ("It can help us prepare a bail application in advance, or help us plan the strategy to enable an arrest.").

130. *See* McKinley, Jr., *supra* note 122, at A25 ("Bail application letters detailing the defendant's history of other crimes have been prepared in advance, and at the arraignment, the prosecutor regularly pushes for higher bail and sometimes brings a more serious charge, if it can be justified by the evidence.").

131. *See* Mac Donald, *supra* note 94.

132. *See* McKinley, Jr., *supra* note 122, at A25 ("The office's strategy has been to pursue people believed to be drivers of crime, using whatever felony charge prosecutors can prove and seeking the maximum penalty.").

133. *See* Fox, *supra* note 15 ("This system has all sorts of useful applications. It can help shape the plea offers made to the court.").

134. *See* Gorner, *supra* note 12, at 6.

135. *See* Fox, *supra* note 15 ("We also have a great relationship with parole. It's all about using levers of influence. For example, if we have someone on our target list who's about to come out of prison, we can go to parole and ask if they're willing to put special conditions on the defendant.").

136. *Id.* ("It can also help us gain cooperation among crime victims, who are often reluctant to testify. If that person is arrested on another offense, the ADA

uncooperative witness might enter and rapidly leave the criminal justice system on a minor charge, now prosecutors will be alerted to the witnesses' arrest and legal predicament.[137] As one of the Chief Prosecutors in Manhattan explained in a news article on the CSU:

> Every morning, I talk to my five A.D.A.s, who are experts in their areas. We decide whom we should try to pull out for a debriefing. . . . We pull people arrested on low-level misdemeanor charges, maybe two or three a week. We read them their Miranda rights. About 80 percent of them will talk.[138]

These debriefings are not unusual or unethical, but the new alert system makes the ability of prosecutors to locate witnesses much easier. The simple truth is that additional leverage can make initially uncooperative witnesses more cooperative.[139]

The Crime Strategies Unit also provides additional information about crime patterns and criminal activities in localized geographic areas.[140] Prosecutors create intelligence reports on criminal hotspots, develop a violence timeline of crimes, and identify the primary violent actors, gangs, and community stakeholders in each location.[141] Police have begun tracking social media posts of some of the targeted individuals.[142] This social media focus has proven quite valuable in mapping out the social networks of gang activity in New York.[143] Detectives and prosecutors can now visualize the social relationships of gangs and communities in ways that explain and

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will get a notification and it might become a factor in encouraging him or her to agree to help out on the case.").

137. *See id.*

138. Brown, *supra* note 17, at 25.

139. *See* Fox, *supra* note 15 ("It can also help us gain cooperation among crime victims, who are often reluctant to testify.").

140. *See* John Eligon, *Top Prosecutor Creates a Unit on Crime Trends*, N.Y. TIMES, May 25, 2010, at A22 ("The Crime Strategies Unit will rely on a computer database developed by the district attorney's office to allow prosecutors to draw parallels among cases, unearth crime patterns in particular areas and make more informed decisions on how to handle defendants . . . ."); Mac Donald, *supra* note 94 ("[DA Cyrus] Vance then created a new entity called the Crime Strategies Unit, the sole purpose of which is to gather and deploy intelligence on Manhattan's crime patterns and serious offenders.").

141. *See* Brown, *supra* note 17, at 25; Fox, *supra* note 15 ("[W]e also identified hot spots and the names of the people committing the most crimes in each area.").

142. Mac Donald, *supra* note 94 ("The Crime Strategies Unit has been as quick as the NYPD to spot the crime-fighting usefulness of social media. Crime analysts in the unit constantly track the Internet footprints of suspects in the arrest-alert database. The indictments in the 2013 East Harlem gang conspiracy case, for instance, consist almost exclusively of the Facebook postings of the defendants, as well as recordings of their phone calls whenever they were confined at Rikers.").

143. *Id.*

predict tension, shootings, or other violence.[144] Threats on social media can help forecast the next shooting. Prosecutors, in collaboration with the police, have begun using traditional surveillance techniques (such as video cameras) to augment their monitoring of predicted criminals.[145] Facial recognition software linked to social media has led to the identification of suspects and witnesses.[146] Targets are not only mapped by their relationships, but actually tracked as they go through the criminal justice system from arrest through post-parole release.[147] Prosecutors, not just police, have gained access to traditionally investigative, as opposed to adjudicatory. tools.[148]

The result is a new type of prosecutor-police relationship that blurs traditional lines.[149] Prosecutors are focusing on future-oriented, intelligence-driven prosecutions.[150] Police are following suit. As reported by the *New York Times*, the CSU prosecutorial data system is intended to augment joint police-prosecution investigations:

> As part of a template for relations between the two agencies, the district attorney's office will provide the police with more

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111. *See id.* ("The prosecutors and police investigators had scanned more than a million social media pages to map out the web of criminality among the defendants . . . .").

145. *See id.* ("The Crime Strategies Unit will gain access to more of the police department's databases on suspects and to its network of security cameras, while police detectives will receive the granular intelligence about criminal conspiracies developed during trial preparation.").

146. *See, e.g.*, BERNARD MARR, BIG DATA: USING SMART BIG DATA ANALYTICS AND METRICS TO MAKE BETTER DECISIONS AND IMPROVE PERFORMANCE 130 (2015) (concerning the use of facial recognition software in the UK, "[V]ideo footage is now routinely used to create a 3D faceprint of a suspect which is then used to compare to images available on the Internet or social media sites.").

147. Eligon & Williams, *supra* note 100, at A17; Mac Donald, *supra* note 94.

148. McKinley, Jr., *supra* note 122, at A25 ("Prosecutors will have access, for instance, to the network of security cameras on city streets the department uses to solve crimes, as well as the mountains of data collected on police reports, while detectives will receive the granular intelligence about criminal conspiracies gathered by prosecutors as they prepare for trial.").

149. Mac Donald, *supra* note 94 ("Vital information about offender networks gleaned in the course of preparing a case for trial usually remains on a prosecutor's legal pad, rarely conveyed back to the police or shared with other prosecutors.").

150. Brown, *supra* note 17, at 24 (quoting Cyrus Vance: "I wanted to develop what I call intelligence-driven prosecution."); Conor Skelding, *Cy Vance on '21st Century Crime-Fighting'*, POLITICO (June 10, 2014, 11:45 AM), http://www.capitalnewyork.com/article/city-hall/2014/06/8546853/cy-vance-21st-century-crime-fighting (quoting Cyrus Vance Jr.: "'Like CompStat, the Crime Strategies Unit identifies the crime-drivers and crime hotspots,' he said. 'But that's just the beginning. C.S.U. collects, connects, and analyzes that, and other data, from seemingly unrelated cases. It makes sense of the enormous data that comes into our office and creates actionable intelligence.'").

> than $20 million from drug forfeiture cases to pay for new technology. That money will go for security cameras, fiber-optic information systems and hand-held tablets that will feed police officers data about suspects, Mr. Bratton said. The Police Department, in turn, will provide the district attorney's Crime Strategies Unit access to more of the data it collects not only on reported crimes but also on suspects, Mr. Bratton said. He called the new approach "extreme collaboration" and illustrated it by clasping his hands together.[151]

This process signifies a realignment to a more proactive method of prosecution[152] and one that encourages what Commissioner Bratton called a "seamless web" of information between prosecutors and the police.[153]

Before moving on to discuss the future of predictive prosecution, it must be made clear that much of what is being proposed is not fundamentally all that new. Police and prosecutors have long kept detailed dossiers on potential suspects.[154] As Wayne Logan and I have written about, our current data-driven criminal justice system has roots in 18th century innovations.[155] Data in the form of arrest logs, arrest warrants, offender registries, biometrics, and a host of court and community supervision records has long been available to police.[156] Further, police have recognized the need to identify and target potential "bad apples" since before there were police forces.[157] This information has regularly been shared with prosecutors who have built similarly extensive investigative files on potential offenders.[158] Predictive prosecution is merely an innovative way to identify and predict likely targets through the use of better data-sharing technologies.

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151. McKinley, Jr., *supra* note 122, at A25. This development has not yet occurred, as prosecutors are not yet adding information to police hand-held tablets or police databases.

152. *See* Fox, *supra* note 15 ("The Arrest Alert system has started to revolutionize the way cases are handled; I call it the "central nervous system" for intelligence-driven prosecution. . . . If a prosecutor has a case they're working on, they can add names of persons of interest to the list and they will get an alert in the form of an email if that person is arrested anywhere in New York City. Before arrest alerts, prosecutors would likely have no idea if the person they were prosecuting had been arrested again while the case was active, particularly if the arrest happened outside of Manhattan. The arrest alert system has allowed us to break out of a reactive approach to prosecution to one that is focused on coordination and proactive measures.").

153. Mac Donald, *supra* note 94 ("Bratton wants a "seamless web" of information between the prosecutors and the police, he told the *New York Times* in early June.").

154. Wayne A. Logan, *Policing Identity*, 92 B.U. L. REV. 1561, 1561 (2012).

155. Logan & Ferguson, *supra* note 7.

156. *Id.*

157. Logan, *supra* note 154, at 1564–66.

158. *See generally id.* (describing how, over time, governments sought more systematic means of identification for community members and felons alike).

Nevertheless, the impact of predictive analytics and social network technology on law enforcement and prosecution is real and needs to be examined. Predictive policing has gained a foothold in police administration. Predictive prosecution is only a few years behind. And so, the promise and perils need to be addressed as the technology and methodologies develop. The next section looks at three big questions facing predictive prosecution.

II. PRELIMINARY QUESTIONS ABOUT PREDICTIVE PROSECUTION

Predictive prosecution holds real promise for prosecutors' offices seeking to focus resources on those individuals thought to present the greatest risk to society. By prioritizing those identified to be most at risk, prosecutors—at least in theory—can utilize existing discretionary power in a manner that is more efficient, proactive, cheaper, and smarter. As this is a symposium devoted to *Implementing De-Incarceration Strategies: Policies and Practices to Reduce Crime and Mass Incarceration*, such an innovation deserves a serious look. At the same time, hard questions must be asked of this new method of prosecution. What are the impacts, distortions, or concerns?

This section examines three big questions surrounding predictive prosecution. First, how does predictive prosecution impact prosecutorial decision-making? Second, how does predictive prosecution impact prosecutorial role? And third, how will predictive prosecution impact crime suppression strategies? Due to the constraints of the symposium-essay format, the ideas discussed are initial impressions, not full explorations of complex and important topics.

A. Predictive Prosecution and Prosecutorial Decision-making

Predictive prosecution offers potential benefits in terms of prioritization, efficiency, and more informed judgments. Prosecutors must make difficult decisions every day, and more information might provide for better choices. In today's legal system, prosecutors possess almost unlimited discretion.[159] Prosecutors

159. Ellen S. Podgor, *Race-ing Prosecutors' Ethics Codes*, 44 HARV. C.R.–C.L. L. REV. 461, 462 (2009) ("Prosecutorial discretion is an accepted component of our criminal justice system."). *See generally* ANGELA J. DAVIS, ARBITRARY JUSTICE: THE POWER OF THE AMERICAN PROSECUTOR 148 (2007) ("As one former prosecutor stated, '[a] prosecutor's power to damage or destroy anyone he chooses to indict is virtually limitless.'"); Tracey L. Meares, *Rewards for Good Behavior: Influencing Prosecutorial Discretion and Conduct with Financial Incentives*, 64 FORDHAM L. REV. 851, 900 (1995) (describing prosecutorial misconduct because of the lack of discipline coming from regulatory entities); Ellen S. Podgor, *The Ethics and Professionalism of Prosecutors in Discretionary Decisions*, 68 FORDHAM L. REV. 1511 (2000) (discussing the duties of prosecutors in making discretionary decisions and the implications resulting from those decisions).

decide whom to prosecute.[160] Prosecutors decide how to charge and how to structure plea bargains.[161] And prosecutors decide recommendations for sentences.[162] Adding information from sources such as the predictive policing Heat List or organically developed intelligence does not present any direct ethical or constitutional concerns.[163]

If used to identify and proactively target actual crime drivers in a community, a predictive prosecution system could well provide an overall benefit to society. If resources could be redirected toward incapacitating more serious offenders (through bail, charging, and sentencing decisions), while concomitantly incapacitating fewer, less serious offenders, such a process could mean fewer overall people in jail. Such a system might also be more efficient, redirecting scarce prosecution resources. Of course, the current system of mass incarceration that has developed over the last several decades has not lacked for efficiencies in prosecuting and convicting defendants.[164] Mandatory minimums, harsh drug sentences, plea bargains, and other processing efficiencies have created an overly efficient process for incarcerating millions of people.[165] But, the web

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160. Wayte v. United States, 470 U.S. 598, 607 (1985) ("In our criminal justice system, the Government retains 'broad discretion' as to whom to prosecute."); *see also* United States v. Armstrong, 517 U.S. 456, 464 (1996); United States v. Batchelder, 442 U.S. 114, 123–24 (1979); Bodenkircher v. Hayes, 434 U.S. 357, 364–65 (1978).

161. Russell D. Covey, *Fixed Justice: Reforming Plea Bargaining With Plea-Based Ceilings*, 82 TUL. L. REV. 1237, 1254–56 (2008); Harry Litman, *Pretextual Prosecution*, 92 GEO. L.J. 1135, 1137 n.4 (2004); Podgor, *supra* note 159, at 463 ("The power of prosecutorial discretion can be seen when prosecutors deliberately overcharge to obtain a desirable plea agreement. Likewise, there are ample examples of 'pretextual' prosecutions on extraneous charges when prosecutors believe the accused individuals are inherently evil.").

162. Leslie C. Griffin, *The Prudent Prosecutor*, 14 GEO. J. LEGAL ETHICS 259, 272–74 (2001) (discussing the ethics of prosecutorial sentencing).

163. Prosecutors are guided by ABA Ethics guidelines and other codes of professional conduct. ABA Rule of Professional Conduct 3.8(a) prohibits charges that are "not supported by probable cause." *See* MODEL RULES OF PROF'L CONDUCT r. 3.8(a) (AM. BAR ASS'N 2012). American Bar Association Standards for Criminal Justice Prosecution Function and Defense Function states prosecutors "should not institute, cause to be instituted, or permit the continued pendency of criminal charges in the absence of sufficient admissible evidence to support a conviction." *See* STANDARDS FOR CRIMINAL JUSTICE § 3-3.9(a) (AM. BAR ASS'N 1993).

164. MICHELLE ALEXANDER, THE NEW JIM CROW: MASS INCARCERATION IN THE AGE OF COLORBLINDNESS 40–57 (2010). Intriguingly, for a symposium on mass incarceration, New York State has seen both a huge drop in crime and a significant drop in its prison population. *See* Inimai M. Chettiar, *The Many Causes of America's Decline in Crime*, THE ATLANTIC (Feb. 11, 2015), http://www.theatlantic.com/politics/archive/2015/02/the-many-causes-of-american-decline-in-crime/385364/ .

165. Anne R. Traum, *Mass Incarceration at Sentencing*, 64 HASTINGS L.J. 423, 428–431 (2013).

of people caught up in this system has been overbroad, lacking a commitment to prioritize those most dangerous to society.[166] Millions of nonviolent offenders, millions of misdemeanants, and millions of low-level figures in the drug world are serving significant time in jail.[167] Individually, those persons might not be the chosen targets of our criminal justice resources, but systemically prosecutors have had few mechanisms to evaluate or rank relative danger or risk to society.[168]

Predictive prosecution offers a potential smart-on-crime counterweight to the tough-on-crime practices of over-incarceration. In fact, taken one step further, if prosecutors only sought to target those predicted to be of high risk of committing crime, then a huge majority of people would see reduced bail, better pleas, and more lenient sentencing. Such prioritization might significantly reduce pretrial detention costs, long term sentencing costs, and overall criminal justice costs.

The danger, of course, is that predictive prosecution might not reduce prosecution levels, but might, in fact, bring more people into the criminal justice system. Two obvious concerns arise within the Enforcer Model. First, in the Enforcer Model individuals are being linked to criminal activity by proxies for criminal activity. A gang member who has a friend who was shot may be added to the system because, statistically, the associates of dead gang members are more likely to themselves be involved in gun violence.[169] The "two degrees of separation" analysis may both be accurate[170] and yet overbroad when it comes to prosecutorial decisions. The particular individual might not have done anything but be a victim of violence, or might remain a small time criminal actor. Further, that particular individual might be summoned to a call-in by a prosecutor and threatened that he may face harsher detention, charging, and sentencing decisions should he get in trouble in the future. So, that individual is in the first instance added to a prosecution list without

166. John F. Pfaff, *The Micro and Macro Causes of Prison Growth*, 28 GA. ST. U. L. REV. 1239, 1242–55 (2012); Leon Neyfakh, *Why Are So Many Americans in Prison? A Provocative New Theory*, SLATE (Feb. 6, 2015, 6:30 PM), http://www.slate.com/articles/news_and_politics/crime/2015/02/mass_incarceration_a_provocative_new_theory_for_why_so_many_americans_are.html.

167. Alexandra Natapoff, *Misdemeanors*, 85 S. CAL. L. REV. 1313, 1320 (2012).

168. *See, e.g.*, Neyfakh, *supra* note 166 (describing how policymakers have influenced prosecutors' decisions relating to drug offenses, regardless of the risk of danger the drug possessors pose to society).

169. *See* Papachristos & Kirk, *supra* note 95, at 528–29 (describing how "research found that simply *being* in such networks exponentially increases the likelihood that one becomes a victim of a gunshot injury; in the Chicago study, for instance, being in a network with another gunshot victim increases the probability of being a victim a staggering 900%."); Gorner, *supra* note 12, at 6.

170. *See* Papachristos & Kirk, *supra* note 95, at 528–29.

criminal activity of his own, and in the second instance faced with the potential for a harsher criminal justice outcome because of that designation.

Similarly, in the "Investigative Model," individuals are being targeted because they have been identified as the primary targets for removal.[171] The key, of course, is the process by which people are targeted. If limited to only those individuals with multiple convictions for violence, this incapacitation approach can be defended. Using minor crimes to incapacitate major criminal actors is aggressive, but defensible. However, if other factors such as a lack of cooperation with police, suspected but unproven violence, or low-level, non-violent crimes become the justification for being a target, then justification for aggressive incapacitation weakens. Using minor crimes to incapacitate minor criminal actors undercuts the value of targeting only the serious offenders.

Put another way, because the targeting mechanism of identifying the primary targets rests with the prosecution (in collaboration with police), and because there is no system to challenge or correct a targeting error, a risk arises about the data populating this system. Prosecutorial decision-making runs a real risk of being infected by bad data in these systems.[172] Personal bias could influence who becomes a target. Political or economic pressure could shape the types of crimes addressed.

Even more generally, any data-driven system runs into concerns with data quality. Data can be inaccurate.[173] Data can be biased.[174] Data can reify the existing socio-economic inequalities in

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171. *See supra* Subpart I.C.2.

172. Herring v. United States, 555 U.S. 135, 155 (2009) (Ginsburg, J., dissenting) ("The risk of error stemming from these databases is not slim. Herring's amici warn that law enforcement databases are insufficiently monitored and often out of date. Government reports describe, for example, flaws in NCIC databases, terrorist watchlist databases, and databases associated with the Federal Government's employment eligibility verification system." (footnotes and citation omitted)).

173. *See, e.g.*, Mary De Ming Fan, *Reforming the Criminal Rap Sheet: Federal Timidity and the Traditional State Functions Doctrine*, 33 AM. J. CRIM. L. 31, 60 (2005) (describing errors in rap sheets); Shaudee Navid, *They're Making a List but Are They Checking It Twice?: How Erroneous Placement on Child Offender Lists Offends Procedural Due Process*, 44 U.C. DAVIS L. REV. 1641, 1641 (2011); Daniel J. Steinbock, *Data Matching, Data Mining, and Due Process*, 40 GA. L. REV. 1, 17–18 (2005) (describing pattern of erroneous "indications of criminality"); Christine M. Whalley, *Extending the Exclusionary Rule: Enforcing Data Quality in National Security Databases and Watch Lists*, 27 J. MARSHALL J. COMPUTER & INFO. L. 257, 259 (2009) (describing errors in terror lists).

174. Andrew E. Taslitz, *Police Are People Too: Cognitive Obstacles to, and Opportunities for, Police Getting the Individualized Suspicion Judgment Right*, 8 OHIO ST. J. CRIM. L. 7, 38 (2010).

the criminal justice system.[175] Data can also be overwhelming, with little practical or technological checks on quality or accuracy.[176] Yet, every day police and prosecutors collect more data on individuals, and systems are being designed to become more reliant on this data collection.[177] In prior articles, I have laid out the concern of data error in the criminal justice system.[178] From big data to small data—all data systems generate error.[179] Human error, collection error, processing error, analytical error, application error, or sharing error all exist and cannot be minimized when this same data is used to determine human liberty. If prosecutors' discretionary power involving bail, charging, and sentencing is informed by erroneous or merely poorly correlated data, then real injustice could occur.

The issue is not that prosecutors cannot rely on this data within their existing professional and ethical mandate, but whether they should. Part III of this Essay will address how prosecutors should minimize the real risk of using bad or biased data.

B. Predictive Prosecution and Prosecutorial Role

Predictive prosecution may alter the prosecutor's role. A predictive-prosecution focus redirects power away from a reactive model of prosecution driven by police arrests to a more proactive model of prosecution. As CSU Chief David O'Keefe stated, "It used to be we only went where the cases took us. Now, we can build cases around specific crime problems that communities are grappling with."[180] While many cities have experimented with community

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175. Bryan Llenas, *Brave New World of 'Predictive Policing' Raises Specter of High-Tech Racial Profiling*, FOX NEWS LATINO (Feb. 25, 2014), http://latino.foxnews.com/latino/news/2014/02/24/brave-new-world-predictive-policing-raises-specter-high-tech-racial-profiling/ ("'It ends up being a self-fulfilling prophecy,' said Hanni Fakhoury, staff attorney at the Electronic Frontier Foundation, a nonprofit digital civil liberties organization. 'The algorithm is telling you exactly what you programmed it to tell you. "Young black kids in the south side of Chicago are more likely to commit crimes," and the algorithm lets the police launder this belief. It's not racism, they can say. They are making the decision based on what the algorithm is, even though the algorithm is going to spit back what you put into it. And if the data is biased to begin with and based on human judgment, then the results the algorithm is going to spit out will reflect those biases.'").

176. Eric J. Mitnick, *Procedural Due Process and Reputational Harm: Liberty as Self-Invention*, 43 U.C. DAVIS L. REV. 79, 126 (2009) (noting that while most databases are supposed to be subject to quality control, "[i]n reality . . . the evidence is overwhelming that the control measures currently in place regularly fail, either due to lack of resources, skill, or because they are simply neglected").

177. *See id.* at 125.

178. Ferguson, *supra* note 7, at 329–30; Logan & Ferguson, *supra* note 7.

179. *See generally* Ferguson, *supra* note 7 (noting that the risk of error stemming from police databases is significant and that inaccuracies raise concerns for individual liberty).

180. Fox, *supra* note 15.

policing strategies for years,[181] and certain grand jury investigations have been quite proactive, traditionally the majority of state criminal cases come to prosecutors from police arrests and victim complaints.[182] At least in one version of the prosecutorial role, prosecutors take the facts and cases as they come to them.

The Investigator Model of predictive prosecution potentially alters that reality. By broadening the aperture of prosecutorial responsibility to focus on predictive targeting, the role of the prosecutor shifts. As an example of how traditional prosecution practice might change, New York City has a longstanding problem of drugs and violence in certain apartment complexes.[183] For years, patrol officers dutifully arrested drug sellers and buyers, and reactively responded to violent incidents.[184] The arrests came from police observations and investigation.[185] Over the last few decades, thousands of individual criminal actors in those complexes have been arrested and prosecuted.[186] In contrast, the Crime Strategies Unit decision to proactively target and indict 103 members of rival gangs all in one sweep presents a change in strategy and role.[187] The case was driven and directed by the District Attorney's Office.[188] It sent a message of prosecutorial involvement in rooting out crime, as well a message of prosecutorial understanding of the structural nature of the crime problem in local areas.

In terms of the power to control criminal suppression in a city, the predictive prosecution model shifts the identification of problem areas from the street cops to the lawyers. Prosecutors get to decide—using all of their discretion, data, and other tools—who to investigate before an actual precipitating crime occurs. Prosecutors get to decide to target an individual for incapacitation and use the tools of bail, charging, and sentencing to do it. Police execute these decisions, but the power lies with the prosecutors' office in the first

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181. Bruce A. Green & Alafair S. Burke, *The Community Prosecutor: Questions of Professional Discretion*, 47 WAKE FOREST L. REV. 285, 287 (2012); Kay L. Levine, *The New Prosecution*, 40 WAKE FOREST L. REV. 1125, 1157 (2005); Tracey L. Meares, *Praying for Community Policing*, 90 CALIF. L. REV. 1593, 1593 (2002).

182. *See* Anthony C. Thompson, *It Takes a Community to Prosecute*, 77 NOTRE DAME L. REV. 321, 323 (2002).

183. *See* Michel Marriot, *New York's Worst Drug Sites: Persistent Markets of Death*, N.Y. TIMES, June 1, 1989, at A1.

184. *Id.*

185. *Id.*

186. *Id.*

187. Mac Donald, *supra* note 94 ("In June 2014, Vance and New York police commissioner William Bratton (back in New York on his second tour as police commissioner) announced the largest-ever gang conspiracy indictment in New York history. One hundred and three members of three West Harlem youth gangs based in two housing projects were charged with conspiracy to commit murder and gun possession, among other crimes.").

188. *Id.*

instance.[189] While such large scale prosecutorial investigations are not unusual in federal court or against large scale criminal enterprises,[190] predictive prosecution of street crime might well shift the balance of power away from police to prosecutors, and even to smaller units within those prosecution offices.

Beyond street crimes, a move to proactive prosecution might also shape the types of crimes pursued by prosecutors. It is not accidental that most state criminal courts are filled with lower-level crimes that police can personally observe.[191] Drug sales, prostitution, theft, disorderly conduct, and assault are all far more observable than domestic violence, white collar fraud, or sexual assault.[192] As a result, prosecution resources are devoted toward reactive policing, not proactive policing.[193] A shift toward predictive prosecution might change that dynamic, with prosecutors taking the lead to prioritize different types of criminal wrongdoing. Prosecutors can choose to focus more attention on violence rather than drug possession,[194] or to target human trafficking more than drug trafficking.[195]

At the same time, this new role threatens a longstanding source of legitimacy. Prosecutors have traditionally been expected to be neutral arbiters in the pursuit of justice.[196] As Professor Bruce Green and Fred Zacharias have written, this neutrality "connotes independence from the police."[197] Prosecutors have remained independent from police investigations in order to better evaluate

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189. STANDARDS FOR CRIMINAL JUSTICE 1 (AM. BAR ASS'N 2014); Margaret E. McGhee, *Preliminary Proceedings, Prosecutorial Discretion*, 88 GEO. L.J. 1057, 1058–59 (2000).

190. STANDARDS FOR CRIMINAL JUSTICE, *supra* note 189, at 1 ("[M]any prosecutors participate in investigations involving organized crime, political corruption, corporate and financial fraud, money laundering, environmental and other regulatory crimes, and terrorism.").

191. *See* THOMAS COHEN ET AL., CASELOAD HIGHLIGHTS: EXAMINING THE WORK OF STATE COURTS 2–3 (2000).

192. *See, e.g., id.*

193. Mac Donald, *supra* note 94.

194. Joseph Goldstein, *Police Take on Family Violence to Avert Death*, N.Y. TIMES, July 25, 2013, at A1 ("[T]he officers assigned to the domestic violence unit make a total of 70,000 precautionary visits a year to households with past episodes. Each precinct station house also maintains a 'high propensity' list of a dozen or so households that get special attention because they are believed to be most at risk of further violence.").

195. Bernhard Warner, *Google Turns to Big Data to Unmask Human Traffickers*, BLOOMBERG (Apr. 10, 2013, 1:46 PM), http://www.bloomberg.com/news/articles/2013-04-10/google-turns-to-big-data-to-unmask-human-traffickers.

196. *See* Bruce A. Green & Fred C. Zacharias, *Prosecutorial Neutrality*, 2004 WIS. L. REV. 837, 837–38 (2004).

197. *Id.* at 849 ("With respect to garden-variety investigations and prosecutions, neutrality sometimes connotes independence from the police.").

the constitutionality, legality, and moral worth of the prosecution.[198] Much of the judicial deference given to prosecutorial discretion depends on this objective evaluation of whether the case should go forward.[199] Prosecutors, after all, routinely refuse to go forward with cases brought to them by police.[200]

The Investigator Model of predictive prosecution blurs this neutrality as information sharing, strategy, and even execution of investigations becomes more prosecutor-driven. While prosecutors can still be objective about the evidence recovered, they may be less neutral in their role if they planned and implemented the collection of that evidence. They might be tempted to engage in the "competitive enterprise of ferreting out crime"[201] and thus lose a measure of objectivity. Prosecutors might be tempted to bring weak cases simply to incapacitate an individual identified as a primary target, even though in every other situation that same case would not be prosecuted. Charges might be ratcheted up from a misdemeanor to a felony, not because the facts warrant the increase, but because the individual has been targeted for incapacitation. Perhaps just as damaging, the image of prosecutor will be tarnished, even if there is no actual difference in practice or outcome.[202] This is not to say that prosecutors have not led significant, high-profile prosecutorial-driven investigations for many years, but they would now have a different role for low-level street crime involving repeated thefts, non-homicide shootings, and drug dealing.

The Enforcer Model of predictive policing presents a slightly different distortion of role. As enforcers, prosecutors become more dependent on the police data that created the predictive targets. If the algorithm that creates the Heat List or the information that guides the gang audit is wrong, then the accompanying prosecutorial judgments about whether to enforce the threats may also be wrong. In some ways this reduces the role of prosecutors in the system at the expense of the data collectors at the police

198. *Id.* at 860–61 ("Commentators sometimes employ the term 'neutrality' to refer to prosecutorial independence from police investigators . . . and other interested parties.").

199. *Id.* at 837–38.

200. *See id.* at 881.

201. *See* Johnson v. United States, 333 U.S. 10, 14 (1948). The Supreme Court used this language to describe the understandable danger of police being overly aggressive in their pursuit of stopping crime, and thus the need to have a strong Fourth Amendment warrant requirement.

202. While perhaps a contestable point that deserves more unpacking, there exists a general perception about how the public views prosecutorial-driven investigations, as opposed to ordinary police-driven investigations. Cases involving insider trading, public corruption, and gangs might be viewed as "the prosecutor v. the defendant," whereas a traditional case usually is better conceived of as "the police v. the defendant." In that latter role, the prosecutor is more likely to benefit from the neutrality principle and be trusted more for his or her exercise of discretion and restraint.

department. One can imagine that in high-volume jurisdictions with aggressive predictive policing models, prosecutors will not be in a position to judge the accuracy or reliability of the person-focused predictions. In an ideal world, prosecutors would want to know who was attending the call-in meeting and the appropriateness of their official threats to not violate the law. In practice, such knowledge might be improbable to expect. Prosecutors already have too many cases and responsibilities,[203] and adding additional responsibilities to understand why certain people were summoned to a call-in meeting may not be feasible. As "enforcers," prosecutors will likely simply defer to the police-driven prediction and hope that the sorting mechanism is accurate.

The blurring of lines also has an impact on the prosecutor's responsibility to provide exculpatory information to defendants. The requirements of *Brady* disclosure include information known to the prosecutor and the police.[204] In ordinary cases, this would include information known to the prosecutor through the prosecutor's investigation and the relevant police documents or witnesses.[205] But, in a world of "extreme collaboration" and within a "seamless web" of shared databases, those pieces of information become far more interconnected.[206] Prosecutors arguably are responsible for every fact listed in the shared, searchable database. Almost by definition, intelligence-driven policing generates more scattered bits of intelligence about the players involved in criminal activity (nicknames, gang affiliations, shared addresses, and cooperators). With interlinked crimes, suspects, and witnesses, the prosecution's data systems will likely have more information that could be exculpatory to defendants.

For example, notes within the arrest alert system could suggest other gangs or gang members who might have a similar motive for a violent act, or could include witness statements that discredit the prosecution's theory of the case. The line prosecutor may not personally know any of this information, but the information would be available in a searchable prosecution-controlled database. Is the failure to reveal this searchable, available information a constitutional violation? The danger of integrated databases is that all of that information becomes collectively imputable to the prosecutor's office, which in turn means that the prosecutor is responsible for providing it to the defense. Similar questions exist with shared surveillance resources. Information not directly under

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203. K. Babe Howell, *Prosecutorial Discretion and the Duty to Seek Justice in an Overburdened Criminal Justice System*, 27 GEO. J. LEGAL ETHICS 285, 294 (2014).

204. Brady v. Maryland, 373 U.S. 83, 87–88 (1963).

205. *See* Joshua A.T. Fairfield & Erik Luna, *Digital Innocence*, 99 CORNELL L. REV. 981, 1040 (2014).

206. Mac Donald, *supra* note 94; Skelding, *supra* note 150.

the control of the prosecutor's office could be plausibly denied as not in the prosecutor's constructive or actual possession. A system of extreme collaboration undercuts that argument. A prosecutor who has access to more information because of more efficient data-sharing systems will be responsible for disclosing more because of that collective knowledge.

This leads to an even bigger change in role, in that prosecutors may have to become quasi-intelligence analysts in this intelligence-driven system. In the traditional criminal case, a prosecutor is given thousands of facts through witnesses, police officers, documents, photographs, investigations, and other sources.[207] The prosecutor knows what she is told by police, and what the evidence shows, but there is no independent obligation or ability for a prosecutor to vet the information.[208] The facts are usually collected after the fact, by police not prosecutors, and with an eye toward what can be proven in court.[209] Rumors and theories are useful as background, but prosecutors are looking for facts they can prove in court. A natural screening process occurs because the rules of evidence, burdens of proof, and realities of trial practice all create an emphasis on credible and provable facts.[210]

With predictive prosecution technologies, the information assessment is slightly different. At the investigation stage (as opposed to the arrest stage), the information is more fragmented. Facts that could not be proven in court are used to establish the primary targets.[211] Intelligence tips are not always provable. In addition, they are not always accurate. Prosecutors thus need to establish systems akin to intelligence analysts in the intelligence community to vet the credibility and reliability of this raw data. In both the national security context and the police context, "sources" lie, deceive, err, and, of course, get things right.[212] And only by

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207. *See* Green & Zacharias, *supra* note 196, at 879 & n.149.

208. *See generally* Alafair S. Burke, *Prosecutorial Agnosticism*, 8 OHIO ST. J. CRIM. L. 79, 84–86, 91–99 (2010) (discussing a prosecutor's obligation to "do justice" based on the evidence presented to him or her); Bruce A. Green & Ellen Yaroshefsky, *Prosecutorial Discretion and Post-Conviction Evidence of Innocence*, 6 OHIO ST. J. CRIM. L. 467, 497–501 (2009) ("The prosecutor should engage in the tricky exercise of determining the credibility of prior evidence that is no longer available. She should consider all the credible information, currently available or not, and decide whether the evidence of guilt or innocence satisfies whatever standard the prosecutor employs.").

209. *See generally* Green & Yaroshefsky, *supra* note 208, at 497 (discussing a prosecutor's gatekeeping role in charging decisions, and how a prosecutor must only have evidence that demonstrates "probable cause" at the time of commencing charges).

210. Burke, *supra* note 208, at 91.

211. Litman, *supra* note 161, at 1135.

212. Myrna S. Raeder, *See No Evil: Wrongful Convictions and the Prosecutorial Ethics of Offering Testimony by Jailhouse Informants and Dishonest Experts*, 76 FORDHAM L. REV. 1413, 1413 (2007).

establishing a process to evaluate the data can prosecutors trust the data. This change may require modifications in how prosecutors' offices process, analyze, vet, and use data, which will be discussed in Part III.

C. *Predictive Prosecution and Crime Suppression Priorities*

Prosecutors' offices do not just enforce criminal violations, but also strategize about crime suppression.[213] Especially in jurisdictions with elected prosecutors who must take responsibility for increased crime rates, crime reduction is a top priority.[214] Prosecutorial control of criminal justice priorities strengthens democratic accountability and connection.[215] If a community has concerns about disproportionate minority arrests for drug possession, the normal (and defensible) traditional prosecutorial response is that prosecutors merely handle the cases the police bring them. While they have the power to decline such prosecutions, they do not have the power to redirect police efforts to make the arrests.[216] Predictive prosecution changes that dynamic. Communities could well say to prosecutors that the focus should not be on drug crimes, but instead gang crimes, or homicides or whatever the community prioritized. Predictive prosecution thus gives more power (and therefore more accountability) to prosecutors to align priorities with their communities.

This reprioritization can also include a shift in how to reduce crime. While predictive prosecution certainly maintains an emphasis on incapacitation and threats of incarceration, it is also built upon a public health approach to crime. Over the last decade, many policy makers have been pushing a public health approach to violence, drug addiction, and criminal activity.[217] Person-based predictive policing explicitly adopted a public health model of identifying risk factors. In the same way that certain environmental toxins increase the risk of cancer, so too do certain environmental factors increase the risk of violence for youth.[218] If predictive prosecution techniques are used to identify the individual,

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213. *See* Elizabeth Glazer, *Thinking Strategically: How Federal Prosecutors Can Reduce Violent Crime*, 26 FORDHAM URB. L.J. 573, 573–74 (1999); Charles J. Hynes, *The Evolving Prosecutor: Broadening the Vision, Expanding the Role*, 24 CRIM. JUST. 1, 41 (2009); Levine, *supra* note 181, at 1130.

214. *See* Andrew Novak, *It's Too Dangerous to Elect Prosecutors*, DAILY BEAST (Aug. 24, 2015, 1:12 AM), http://www.thedailybeast.com/articles/2015/08/24/it-s-too-dangerous-to-elect-prosecutors.html.

215. *See id.*

216. *See What Does a Prosecutor Do?*, BEST LAW. GUIDE, http://www.thebestlawyersguide.com/what-does-a-prosecutor-do (last visited Aug. 28, 2016).

217. *See supra* notes 89–97.

218. *See* Papachristos & Kirk, *supra* note 95, at 528–29.

human risks, as well as the casualties of those risks, then certain public health–like interventions could be implemented.

These intervention strategies do not need to involve police or prosecutors or the threat of incarceration. In fact, part of the predictive policing model in Chicago and other cities expressly recognizes that social services and community pressure may be more effective than law enforcement.[219] As just one example, the Chicago VRS intervention system structured its call-in meetings to balance any law enforcement discussion with equal parts community involvement and social services.[220] The point was to emphasize that the solutions to criminal activity could be found through available community and social services resources.[221] The question, of course, is whether this same public health intervention strategy can work without the "stick" of prosecutorial enforcement. Analytically, the identification of risk and the remediating of risk are separate problems. Neither has to be led by police or prosecutors. But, due to practical, political, and financial reasons, they appear to be bound together for the near future.

Predictive prosecution, because it is a proactive approach, can also shift priorities to look at underlying environmental drivers of crime, rather than simply responding to criminal activity. Predictive analytics can isolate places that attract criminal activities.[222] Environmental criminologists have long written about problematic hot spots[223] and predictive policing techniques are now policing some of those areas.[224] But, prosecutors might be able to intervene at a more elevated political or policy level. Prosecutors might be able to use political capital to alter the physical landscape in a community, engage with community stakeholders, or even develop social services programs to help individuals from the community. If, for example, a particular area is known for car thefts, because the environment of abandoned buildings, dark streets, and easy escape routes provides a tempting opportunity for criminal activity, then prosecutors could work with communities and politicians to remedy the environmental risks. Or prosecutors could, as the Manhattan District Attorney's Office has done,[225]

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219. *Id.* at 533–34.
220. *Id.*
221. *Id.*
222. *See supra* notes 140–48, and accompanying text.
223. Michael D. Reisig, *Community and Problem-Oriented Policing*, 39 CRIME & JUST. 1, 40 (2010) (discussing environmental criminology).
224. *See supra* notes 29–43.
225. Press Release, N.Y. Cty. Dist. Att'y's Office, D.A. Vance Announces Funding for Innovative Crime Prevention Initiatives and Programs to Improve Access to Services for Victims of Crime (June 23, 2016), http://manhattanda.org/press-release/da-vance-announces-funding-innovative-crime-prevention-initiatives-and-programs-improv.

partner with community groups to sponsor youth sports and academic events in troubled areas.

Finally, predictive prosecution encourages a shift in looking at crime patterns from a network perspective. Traditional prosecution tends to focus on individuals. We think of crime as a function of individual choice, not environmental influences.[226] While many prosecutors' offices have targeted large-scale crime networks, the majority of cases involve a limited number of suspects targeted for particular completed crimes.[227] Predictive prosecution has the potential to shift the focus of attention from individuals to networks and from individual choices to social group influences. This shift is not a wholesale shift. Clearly, predictive prosecution seeks to identify specific individuals to be placed in databases of targeted suspects. These individuals are placed there because of their choice to break the law. But, because of its focus on gangs, neighborhoods, and social media networks, predictive prosecution also allows for broader understanding of criminal relationships and patterns. The "intelligence" of intelligence-driven policing is to see how the networks of violent actors interact, and then do something to interrupt those cycles of violence.

As a hypothetical example, prosecutors may know that one hundred young men live in a particular housing complex and ten of those men are actively involved in social media posts that boast about violence, criminal activity, and lawlessness. Seeing this group as a network, and not ten individuals, does several helpful things. First, it allows for a study of the interrelation between the ten men. Some may be instigators of violence, some might be followers, and some might be silent, non-participants. This might allow prosecutors to prioritize within the group about the more dangerous of the group. In addition, it allows prosecutors to see how the network extends across neighborhoods and generations. Prosecutors can see who else might be connected to this group, and thus brought into its ambit. Most criminal networks are bounded by geography and family,[228] so one could almost predict who might be the next individual joining the group.

Studying this group to figure out why certain individuals have not joined the group might also be valuable. Is it friendship, finances, some triggering event that links the ten together and doesn't include the other ninety? Is there a new group that has arrived in an area? Are there correlations that can be drawn to explain why certain people remain outside the network of potential criminality? Predictive prosecution thus might allow a study of why

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226. Kenneth Padowitz, *Rational Choice as a Theory of Crime*, PSYCHOL. L. & CRIM. BEHAV. BLOG, http://www.psychology-criminalbehavior-law.com/2016/04/rational-choice-as-a-theory-of-crime/ (last visited Aug. 28, 2016).

227. *See* Ferguson, *supra* note 7, at 380.

228. *See supra* notes 111–26 and accompanying text.

certain networks form, about connections arising from neighborhoods, schools, or environments. While sociologists have been studying this phenomenon for a century,[229] and most prosecutors and police officers could tell you about this reality from experience, a network theory of criminal justice has not yet been operationalized in practice in most prosecutors' offices.

III. PRINCIPLES FOR PREDICTIVE PROSECUTION

Predictive technologies are not new to the criminal justice system.[230] Since the 1920s the lure of predictive insights has led the criminal justice system to try to forecast the future.[231] Predictors for recidivism,[232] pretrial detention,[233] sex offenders,[234] juveniles,[235] and a host of actuarial solutions have been proposed.[236] Predictive policing, and now predictive prosecution, fit that pattern.

For almost as long as their creation, the critiques of these predictive technologies have identified the same concerns over and over again. Predictive correlations become mistaken for causation,[237] validation studies fail to validate,[238] analytical

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229. *See* MICHAEL D. LYMAN & GARY W. POTTER, ORGANIZED CRIME 59, 66 (4th ed. 2007), http://wps.pearsoncustom.com/wps/media/objects/6904/7070214/CRJ455_Ch02.pdf.

230. BERNARD E. HARCOURT, AGAINST PREDICTION: PROFILING, POLICING AND PUNISHING IN AN ACTUARIAL AGE 145 (2007); Bernard E. Harcourt, *From the Ne'er-Do-Well to the Criminal History Category: The Refinement of the Actuarial Model in Criminal Law*, 66 L. & CONTEMP. PROBS. 99, 112 (2003).

231. Harcourt, *supra* note 230, at 112.

232. *See, e.g.*, Melissa Hamilton, *Adventures in Risk: Predicting Violent and Sexual Recidivism in Sentencing Law*, 17 ARIZ. ST. L.J. 1, 5 (2015); Dawinder S. Sidhu, *Moneyball Sentencing*, 56 B.C. L. REV. 671, 718 (2015).

233. Shima Baradaran & Frank L. McIntyre, *Predicting Violence*, 90 TEX. L. REV. 497, 512–13 (2012); Jack F. Williams, *Process and Prediction: A Return to a Fuzzy Model of Pretrial Detention*, 79 MINN. L. REV. 325, 337–38 (1994).

234. Melissa Hamilton, *Public Safety, Individual Liberty, and Suspect Science: Future Dangerousness Assessments and Sex Offender Laws*, 83 TEMP. L. REV. 697, 737 (2011); Eric S. Janus & Robert A. Prentky, *Forensic Use of Actuarial Risk Assessment with Sex Offenders: Accuracy, Admissibility and Accountability*, 40 AM. CRIM. L. REV. 1443, 1454–55 (2003).

235. Jeffrey Fagan & Martin Guggenheim, *Preventative Detention and the Judicial Prediction of Dangerousness for Juveniles: A Natural Experiment*, 86 J. CRIM. L. & CRIMINOLOGY 415, 429 (1996); Albert R. Roberts & Kimberly Bender, *Overcoming Sisyphus: Effective Prediction of Mental Health Disorders and Recidivism Among Delinquents*, 70 FED. PROB. 19, 20 (2006).

236. *See generally Policing Predictive Policing*, *supra* note 28 (describing the different types of risk assessments and predictive tools used throughout the criminal justice system).

237. Barbara D. Underwood, *Law and the Crystal Ball: Predicting Behavior with Statistical Inference and Individual Judgment*, 88 YALE L.J. 1408, 1446 (1979) (discussing the differences between correlations and causation).

238. *See, e.g.*, William M. Grove & Paul E. Meehl, *Comparative Efficiency of Informal (Subjective, Impressionistic) and Formal (Mechanical, Algorithmic) Prediction Procedures: The Clinical-Statistical Controversy*, 2 PSYCHOL. PUB.

mistakes infect the legitimacy of the conclusions, and error—small and systemic—pervades all data-driven systems.[239]

The concept of predictive prosecution provides the same promise and potential critique. Yet, because of the prosecutor's special role in the criminal justice system, there may be some cause for optimism. If designed carefully, a predictive prosecution system might provide an accountability mechanism to police data error and moderate blind reliance on data-driven predictions.

While a full descriptive framework is beyond the scope of this Essay, any predictive prosecution system must be built on four related principles: ownership, accuracy, transparency, and fairness. These principles are explained below, with recognition that significant additional discussion and debate is needed before the adoption of any predictive prosecution program.

First, prosecutors must accept ownership of the data underlying predictive prosecution systems. If bail determinations, charging decisions, or sentencing is impacted at all by data correlations (being on the SSL list or being identified as one of the primary targets in New York City), then that underlying data must be trustworthy enough to withstand scrutiny of judges inquiring about the bases of the lists or reasons for the decisions. Whether from a predictive policing system or organically developed by prosecutors, once used in court, prosecutors must take responsibility for the data.[240] Integrating police and prosecutorial systems, even informally, means that prosecutors must take on a data management duty that they previously did not have to accept.

Second, and relatedly, prosecutors must ensure the accuracy of the data. In adopting theories of intelligence collection to augment traditional prosecution roles, prosecutors should also examine how intelligence agencies test and assess the data collected. In the national security context, thousands of intelligence analysts work for the United States government because of a healthy distrust of the raw intelligence coming in from sources.[241] Intricate internal systems exist to evaluate the reliability of data,[242] recognizing that actionable data for targeting cannot be relied upon without critical analysis. So, too, with intelligence-driven prosecution, prosecutors must establish systems to assess the value of the data coming in through community sources, detectives, social media, and other sources.

POL'Y & L. 293, 302 (1996); Bernard E. Harcourt, *The Shaping of Chance: Actuarial Models and Criminal Profiling at the Turn of the Twenty-First Century*, 70 U. CHI. L. REV. 105, 125–26 (2003).

239. *See supra* notes 173–79 and accompanying text.

240. *See supra* Part I.

241. U.S. DEP'T OF JUSTICE, TODAY'S FBI FACTS & FIGURES 2013–2014, at 9 (2014), https://www.fbi.gov/file-repository/facts-and-figures-031413-2.pdf/view.

242. *See id.* at 72.

In addition, this push for accuracy means developing systems to audit existing data-collection systems, including mechanisms for removal and alteration of bad or outdated data. The danger of a high-volume data collection enterprise is that it is much easier to simply collect everything, accurate or not.[243] Going back to correct errors involves time, money, and technological sophistication.[244] But, without such checks, the data becomes unworthy of use in criminal courts. Direct connection to criminality, not mere correlation, should be required when an individual's liberty is being decided. Processes must be created to ensure that personal bias or corruption does not distort the targeting. Further, the data collection and analysis must be scrutinized for implicit or explicit bias.[245] Disproportionate minority contacts, high incarceration rates, and harsh sentencing have been clearly demonstrated throughout the criminal justice system.[246] Any data-driven system built on top of that inequality will likely reify the inequality unless explicit steps are taken to address the issue.

Third, any data system must be transparent.[247] This involves a two-fold transparency, both to the prosecutor using the data and the community legitimizing the use of the data. Prosecutors are lawyers trained in law, not technology. In large offices the data will be compiled by colleagues and assistants. In systems of "extreme collaboration," data will also be compiled by police. So, mechanisms must be created so that prosecutors can understand the source of the data. Prosecutors need to be able to not only trust, but understand and defend the data. Arguments cannot be along the lines of "judge, I am asking for a no bond bail determination because the pre-printed form told me to ask for it," but because of

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243. Kevin Lapp, *Databasing Delinquency*, 67 HASTINGS L.J. 195, 211–12 (2015) ("Even when [gang database] purging procedures are in place, they are rarely carried out. That is because there is little incentive for law enforcement to purge records from gang databases.").

244. J. Christopher Westland, *The Cost of Errors in Software Development: Evidence from Industry*, 62 J. SYS. & SOFTWARE 1, 1 (2002).

245. *See* Andrew E. Taslitz, *Racial Blindsight: The Absurdity of Color-Blind Criminal Justice*, 5 OHIO ST. J. CRIM. L. 1, 3 (2007); Tracey G. Gove, *Implicit Bias and Law Enforcement*, POLICE CHIEF, Oct. 2011, at 44, 50 ("Police officers are human and, as the theory contends, may be affected by implicit biases just as any other individual. In other words, well-intentioned officers who err may do so not as a result of intentional discrimination, but because they have what has been proffered as widespread human biases.").

246. Robin Walker Sterling, *Raising Race*, CHAMPION, Apr. 2011, at 24, 24 ("The criminal justice system has exploded outside of the prison walls, as well. As of 2009, the number of people under criminal justice supervision—including those who are in jail, in prison, on probation, and on parole—totaled 7.2 million people. In a dismaying parallel to incarceration rates, people of color are also overrepresented among arrestees, probationers, and parolees.").

247. Tal Z. Zarsky, *Transparent Predictions*, 2013 U. ILL. L. REV. 1503, 1533–34 (2013).

particularized, verifiable facts that can be obtained through a data-driven system. Arguments cannot be "judge, the defendant is on the SSL, so we ask that he be held," but based on the actual underlying facts that might have led some individual to be on that list. Prosecutorial transparency requires understanding why individuals have been chosen to be marked by predictive technologies. This understanding may also require knowledge of the provenance of the data, the currency of the data, and the reliability of the data.

The other aspect of transparency focuses on community acceptance of predictive prosecution outcomes. The Orwellian nature of government lists of predicted targets rightly causes suspicion.[248] Any predictive prosecution system needs to be able to explain, in a relatively open and clear way, how people are placed on predictive lists, and why the criteria is legitimate. This presents a challenge in that most prosecution or police methods also need to be relatively opaque in order to avoid undermining ongoing investigations.[249] This balance between transparency and operational secrecy presents real tensions. But, as the creation of custom notification letters demonstrate, prosecutors can develop a process to show and explain why someone is targeted. Custom notification letters are "customized" and include the target's specific criminal history and risk factors.[250] The reasons for the targeting are thus particularized and individualized and open for inspection.[251] Similarly, in call-ins, prosecutors can explain in specific detail why the particular targets have been contacted. This process provides transparency and legitimacy to the process (albeit after the fact).

This type of customization also needs to be applied systemically. Prosecutors need to be able to explain why certain communities have been targeted, and how they have attempted to avoid class or race-based impacts. Using crime mapping, visual displays of historic criminal activity, and other accessible media, the argument can be made for why certain areas were chosen and not others. Discriminatory impacts need to be monitored and studied. Communities may accept a higher prevalence of prosecutorial interest in an area, but it must be explained and defended in a transparent manner.

Finally, predictive prosecution systems must build in mechanisms to ensure fair process. An emphasis on fairness must address concerns that citizens might hold in being targeted by predictive techniques. A process will need to be developed to

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248. *See generally* George Orwell, NINETEEN EIGHTY-FOUR (1949) (presenting a novel about a nation living under omnipresent government surveillance).

249. Clearly, prosecutors do not want to reveal the targets of their investigation. In addition, safety issues of officers must be taken into account.

250. *See supra* notes 71–79 and accompanying text.

251. *See id.*

challenge a target designation on a police list.[252] A method to account for possible racial or class discrimination will need to be created.[253] Clear procedures to use and validate the predictive target list needs to be developed.[254] And, a general emphasis on procedural justice must continue. Due to the influence of some of the academics who provided the early inspiration for the Chicago projects, procedural justice has been a key organizing principle behind the intervention strategy, but such an emphasis must continue to be prioritized.[255]

An emphasis on fairness must include a focus on other players in the criminal justice system. Fairness includes procedures to address exculpatory information available in the database and other discovery issues that will necessarily arise.[256] In an interconnected system, owned and operated by the prosecutors' offices, *Brady* material will be stored in the shared files. Disclosure of this shared information will require a new system because traditional case separations and information barriers will no longer exist. Finally, fairness includes the ability to defend the data-collection system in a court when challenged by defendants, judges, or internal accountability groups. These fairness principles and concerns undergird most of the existing criminal justice system, so the demand should be neither surprising nor objectionable.

CONCLUSION

Predictive prosecution exists in an experimental phase. This Essay seeks to raise preliminary questions about an obviously nascent experiment. But, the questions are real, and will need to be answered soon. The hope of this brief Essay is to set forth the possible impacts, raise questions, and plan for the future of predictive prosecution.

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252. *See, e.g.*, Margaret Hu, *Big Data Blacklisting*, 67 FLA. L. REV. 1735, 1789 (2015) (discussing redress issues with data errors in no fly lists).

253. *See* Ifeoma Ajunwa et al., Hiring By Algorithm: Predicting and Preventing Disparate Impact (Feb. 28, 2016) (unpublished manuscript) (on file with author).

254. The General Orders of the Chicago Police Department discussed in this article are quite complete.

255. *See, e.g.*, Tracey L. Meares, *Norms, Legitimacy and Law Enforcement*, 79 OR. L. REV. 391, 400–03 (2000); Tom R. Tyler, *Procedural Justice, Legitimacy, and the Effective Rule of Law*, 30 CRIME & JUST. 283, 284–86 (2003).

256. *See, e.g.*, Fairfield & Luna, *supra* note 205, at 1039–40.