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Managing Digital Discovery in Criminal Cases

Jenia I. Turner

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MANAGING DIGITAL DISCOVERY IN CRIMINAL CASES

JENIA I. TURNER*

The burdens and challenges of discovery—especially electronic discovery—are usually associated with civil, not criminal cases. This is beginning to change. Already common in white-collar crime cases, voluminous digital discovery is increasingly a feature of ordinary criminal prosecutions.

This Article examines the explosive growth of digital evidence in criminal cases and the efforts to manage its challenges. It then advances three claims about criminal case discovery in the digital age. First, the volume, complexity, and cost of digital discovery will incentivize the prosecution and the defense to cooperate more closely in cases with significant amounts of electronically stored information (ESI). Second, cooperation between the parties will not be sufficient to address the serious challenges that digital discovery presents to the fair and accurate resolution of criminal cases. And third, for that reason, digital discovery in criminal cases needs to be regulated more closely.

In crafting such regulation, courts and legislators can build on the civil procedure model, which has grappled with the challenges of electronic discovery for over two decades. The civil procedure experience suggests that cooperation between the parties, active judicial involvement, and more detailed rules are essential to the effective management of digital discovery.

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The civil litigation model has its limitations, however, and policymakers must chart new ground to address some of the unique demands of criminal cases. Recognizing the significant resource and bargaining disparities in criminal cases, judges need to limit certain negotiated waivers of discovery so as to prevent abuse. Where the interests of justice demand it, courts may also need to help defendants obtain access to digital discovery in detention or gather digital evidence from third parties. These and other measures can help ensure that the cost and complexity of digital discovery do not undermine the fairness and accuracy of criminal proceedings.

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I. INTRODUCTION

The burdens and challenges of discovery—especially electronic discovery—are usually associated with civil cases. Yet this is beginning to change: Already common in white-collar crime cases, voluminous digital discovery is increasingly a feature of ordinary criminal prosecutions.¹

Digital evidence in criminal cases is exploding. More and more crimes, from theft to drug trafficking to child pornography, are committed in cyberspace.² Smartphones, digital devices, and programmable home appliances have become central to our daily lives, and the evidence they generate is increasingly used in the prosecution and defense of criminal cases.³ Law enforcement is also proactively using advanced technology to prevent and investigate crime, and these efforts result in digital evidence.⁴

As electronically stored information (ESI) in criminal cases expands, its processing, disclosure, and review present novel problems for the prosecution and the defense. How will the terabytes of evidence be stored?⁵ Who should bear the cost of formatting digital evidence to make it searchable?⁶ When digital files of wiretap recordings and video surveillance are not searchable, should the prosecution be required to categorize or index them?⁷ Should the prosecution be required to identify

¹ Draft Minutes, Criminal Rules Meeting, April 28, 2017, at 22, *in* Advisory Committee on Criminal Rules, Meeting, Washington, D.C., October 24, 2017, at 40; Memorandum from Professors Sara Sun Beale and Nancy King, Reporters, to Criminal Rules Committee, April 12, 2017, *in* Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 167 (“All attendees [of mini conference hosted by the Rules Committee] agreed that ESI discovery problems can arise in both small and large cases, that these issues are handled very differently between districts, and that most criminal cases now include ESI.”) [hereinafter Beale and King Memorandum].

² *See infra* Part II.

³ *See id.*

⁴ Michael R. Doucette, *Virginia Prosecutors’ Response to Two Models of Pre-Plea Discovery in Criminal Cases: An Empirical Comparison*, 73 WASH. & LEE L. REV. ONLINE 415, 430 (“With modern technology, law enforcement generates far greater discoverable information. Dash-mounted camera video, body worn camera video, and jailhouse telephone audio are just a few examples of this new technology. One individual traffic stop could generate several hours of video and audio evidence.”); *see also* Andrew Guthrie Ferguson, *Big Data and Predictive Reasonable Suspicion*, 163 U. PA. L. REV. 327, 354–75 (2015).

⁵ *See infra* Part IV.A.

⁶ *See, e.g.*, *United States v. Warshak*, 631 F.3d 266, 296 (6th Cir. 2010).

⁷ *See, e.g.*, *United States v. Gonzalez*, No. 3:13-CR-161, 2014 WL 2574765, at *1–3 (E.D. Tenn. June 6, 2014).

exculpatory evidence within a gargantuan ESI production?⁸ How will metadata and sensitive information be handled?⁹ How should access to digital discovery be provided to defendants who are detained before trial?¹⁰

A growing number of criminal cases present these questions and more. The lack of time, resources, and expertise to process and review voluminous digital evidence (especially on the defense side) is leading to disputes about which party bears the burden of searching for relevant and potentially exculpatory documents.¹¹ With respect to sensitive documents (which might contain items such as child pornography, information that may endanger witnesses, and confidential documents), the parties must determine what type of access complies with the discovery rules while safeguarding important public interests.¹² Third-party possession of relevant evidence may also complicate discovery, particularly for defendants, because they have limited means of obtaining digital evidence from non-parties.¹³ Finally, cases where defendants are detained raise special problems because inmates have limited or no access to electronic evidence in jail and thus have difficulty assisting their attorneys in preparing an effective defense.¹⁴

The lack of clear legal rules adds to the difficulty. Rules of criminal procedure are typically silent on digital discovery, and case law is scant and varies greatly from one court to the next.¹⁵ Practitioners are therefore left to

⁸ See *infra* Part IV.B.

⁹ See *infra* Parts IV.A and IV.C.

¹⁰ See *infra* Part IV.E.

¹¹ See, e.g., *State v. Dingman*, 202 P.3d 388, 395–96 (Wash. Ct. App. 2009) (involving dispute about the format in which evidence must be produced); *United States v. Rubin/Chambers*, 825 F. Supp. 2d 451, 453–57 (S.D.N.Y. 2011) (involving dispute about the format of production and the burden of identifying exculpatory documents).

¹² See, e.g., *United States v. Johnson*, 191 F. Supp. 3d 363, 366–69 (M.D. Pa. 2016) (dispute about scope of discovery in light of protective order); *Taylor v. State*, 93 S.W.3d 487, 503 (Tex. App. 2002) (dispute about the location where evidence of child pornography crime may be reviewed by defense counsel).

¹³ See Marc J. Zwillinger & Christian S. Genetski, *Criminal Discovery of Internet Communications Under the Stored Communications Act: It's Not A Level Playing Field*, 97 J. CRIM. L. & CRIMINOLOGY 569, 590–97 (2007).

¹⁴ See, e.g., Sean Broderick & Russell M. Aoki, *Federal Indigent Defense: How to Stop Worrying and Love the Digital Age*, 30 CRIM. JUST., Winter 2016, at 4, 9.

¹⁵ See, e.g., FED. R. CRIM. P. 16; *United States v. Meredith*, No. 3:12-CR-00143-CRS, 2015 WL 5570033, at *1 (W.D. Ky. Sept. 22, 2015). But see N.J. Ct. R. 3:13; cf. M.R.U. CRIM. P. 16 (noting that where practicable, the prosecutor must provide the defendant “an opportunity to obtain an electronic copy, at any reasonable time and in any reasonable manner,” and where the prosecutor is unable to do so, “because the technology makes such provision impracticable,” or when copying is not legally permitted, the prosecutor must provide the defendant “a reasonable opportunity” to review such evidence).

devise solutions on an ad hoc basis, through informal discussions and negotiations.¹⁶

After analyzing these problems, the Article advances three claims about the future of criminal case discovery in the digital age. First, the volume, complexity, and cost of digital discovery will incentivize the prosecution and the defense to cooperate more closely in cases with significant amounts of ESI. Second, cooperation between the parties will not be sufficient to address the serious challenges that digital discovery presents to the fair and accurate resolution of criminal cases. And third, for that reason, digital discovery in criminal cases needs to be regulated more closely. In crafting regulation, courts and legislators can build on the civil procedure model of electronic discovery, while recognizing the differences between civil and criminal cases and tailoring new rules accordingly.

As the volume of ESI in criminal cases expands, defense attorneys and prosecutors will feel greater pressure to cooperate and negotiate about discovery. Decisions in cases with massive digital evidence already reference informal agreements between the parties to tailor the scope of discovery and to assist the defense with ESI processing.¹⁷ The presence of ESI is changing the parties' incentives and leading them to shift from a largely adversarial to a more collaborative approach to discovery.¹⁸

Collaboration in electronic discovery (e-discovery) is already heavily encouraged in complex civil cases. As ESI has proliferated over the last two decades, both the rules of civil procedure and judicial decisions have promoted consultation and negotiation between parties about e-discovery.¹⁹ Initial evidence suggests that, when cooperation occurs, it reduces the costs of e-discovery and is well-received by the litigants.²⁰ Accordingly, the civil procedure model can offer useful guidance for reforming digital discovery in criminal cases.²¹

¹⁶ See *infra* Part V.A.

¹⁷ See *id.*

¹⁸ See *infra* Part V.B.

¹⁹ FED. R. CIV. P. 26; see also *Kleen Prods. LLC v. Packaging Corp. of Am.*, No. 10 C 5711, 2012 WL 4498465, at *19 (N.D. Ill. Sept. 28, 2012) (“Since its publication in 2009, more than 100 federal judges have endorsed the Cooperation Proclamation [which urges parties to adopt a collaborative approach to discovery].”); Sedona Conference, *Commentary on Proportionality in Electronic Discovery*, 11 SEDONA CONF. J. 289 (2010); SHIRA A. SCHEINDLIN & DANIEL J. CAPRA, *ELECTRONIC DISCOVERY AND DIGITAL EVIDENCE IN A NUTSHELL* 106 (2009) (noting judicial endorsement of collaborative approach to e-discovery).

²⁰ See *infra* note 330 and accompanying text.

²¹ Cf. Russell M. Gold et al., *Civilizing Criminal Settlements*, 97 B.U. L. REV. 1607 (2017) (arguing in favor of adopting civil-like settlement procedures in the criminal system);

In fact, the Advisory Committee on Criminal Rules, which recently considered the challenges of digital evidence in criminal cases, took note of the civil procedure experience and opted to encourage greater cooperation between the parties. The Committee approved a new draft rule of criminal procedure, Rule 16.1, which expressly requires the prosecution and the defense to meet and confer about pretrial disclosure shortly after arraignment.²² Should negotiation between the parties fail, the parties “may ask the court to determine or modify the timing, manner, or other aspects of disclosure to facilitate preparation for trial.”²³

Such efforts to promote cooperation are an important first step, but are not sufficient to address the serious challenges of digital discovery in criminal cases.²⁴ Cooperation will fail to yield results where the volume of evidence overwhelms one or both of the parties.²⁵ Negotiations between the parties can also lead to unfair results, especially because the standard criminal case features disparities between the defense and prosecution in terms of resources, investigative powers, and bargaining leverage.²⁶ Furthermore, because prosecutors and defense attorneys are likely to differ in their willingness to bargain, negotiations are also likely to lead to disparate results in similarly situated cases. To avoid these negative

Ion Meyn, *Discovery and Darkness: The Information Deficit in Criminal Disputes*, 79 BROOK. L. REV. 1091 (2014) (arguing for comparative analysis of civil and criminal discovery regimes); David A. Sklansky & Stephen C. Yeazell, *Comparative Law Without Leaving Home: What Civil Procedure Can Teach Criminal Procedure, and Vice Versa*, 94 GEO. L.J. 683 (2006) (arguing in favor of comparative analysis of the civil and criminal procedure models).

²² Preliminary Draft of Proposed Amendments to the Federal Rules of Appellate, Bankruptcy, and Criminal Procedure, the Federal Rules of Evidence, and Rules Governing Section 2254 Cases in the United States District Courts, and the Rules Governing Section 2255 Proceedings for the United States District Courts (Aug. 2017), at https://www.uscourts.gov/sites/default/files/preliminary_draft_08_2017_0.pdf [<https://perma.cc/46NM-M8YF>] [hereinafter Draft Rule 16.1].

²³ *Id.*

²⁴ See *infra* Parts VC & VI.B.

²⁵ See *United States v. Budovsky*, No. 13 CR 00368 (DLC), 2016 WL 386133, at *12 (S.D.N.Y. Jan. 28, 2016) (“Given the fact that the discovery contains so many pages and lines of data, no attorney or team of attorneys could meaningfully review all of it even with years to prepare for trial. The parties agree that choices have to be made; the Government freely admits that it has not reviewed all of the material in this case.”).

²⁶ See generally Human Rights Watch, *An Offer You Can't Refuse: How U.S. Federal Prosecutors Force Drug Defendants to Plead Guilty* (2013); Albert W. Alschuler, *The Prosecutor's Role in Plea Bargaining*, 36 U. CHI. L. REV. 50, 66, 85–105 (1968); Rachel E. Barkow, *Institutional Design and the Policing of Prosecutors: Lessons from Administrative Law*, 61 STAN. L. REV. 869, 874–84 (2009); William J. Stuntz, *Plea Bargaining and Criminal Law's Disappearing Shadow*, 117 HARV. L. REV. 2548, 2549 (2004).

consequences of negotiated digital discovery, stricter regulation of the process is needed.

As courts and legislators consider suitable regulation for e-discovery in criminal cases, they can look to the civil experience for helpful insights on managing the challenges of digital evidence. While promoting cooperation, legislators should also draft more detailed rules to guide e-discovery where cooperation fails.²⁷ Judges should become more active in managing the discovery process and should involve magistrates in the effort.²⁸

At the same time, policymakers must adjust the civil model to meet the unique practical demands and legal environment of criminal cases.²⁹ The lack of resources in criminal cases—especially on the defense side—will demand the reallocation of criminal justice budgets and the creation of specialized infrastructure to ensure that digital discovery does not produce unfair and unjust outcomes.³⁰ The more robust constitutional protections in criminal cases—including the rights to due process, speedy trial, and effective counsel—may require greater judicial involvement in ensuring that digital discovery proceeds fairly. To ensure such fairness, judges need to take into account the special difficulties detained defendants face in accessing computers³¹ and the hurdles that criminal defense attorneys experience in gathering digital evidence from third parties.³² Courts must also recognize the vastly unequal bargaining powers of the prosecution and defense and limit negotiated waivers of critical discovery rights to prevent abuse.³³ Finally, courts and legislators need to draft clearer background rules about digital discovery to enhance predictability, promote consistent treatment across cases, and reduce disputes about digital discovery.

In the more distant future, technological innovation may help the criminal justice system solve many of the problems that plague discovery of voluminous digital evidence today. Until then, the parties can ease some of the difficulties of digital discovery by cooperating with each other. But where cooperation fails or reflects vastly unequal bargaining powers, rules and judicial decisions must provide a backstop. Tailored regulation of e-discovery in criminal cases is needed to ensure that the novel problems

²⁷ See *infra* Part VI.C.

²⁸ *Id.*

²⁹ See *infra* Part VI.B & VI.C.

³⁰ See *infra* Part VI.C.

³¹ *Id.*

³² *Id.*

³³ *Id.* For a general discussion of the ethical and legal concerns with discovery waivers, see Ellen S. Podgor, *Pleading Blindly*, 80 Miss. L.J. 1633, 1641 (2011).

posed by digital evidence do not undermine the fairness, accuracy, and transparency that discovery rules were designed to ensure.

II. EXPANDING DIGITAL EVIDENCE IN CRIMINAL CASES

Information technology has become ubiquitous. As it permeates our daily lives, it also leaves digital footprints that can be useful sources of evidence in criminal cases. This occurs in three principal ways.

First, the daily activities of individuals and businesses are increasingly facilitated—and thus recorded—by digital devices. Businesses document “virtually all” of their operations in electronic form.³⁴ With more than 92% of U.S. adults owning cell phones and roughly three-fourths owning a computer, individuals also record most of their own movements, communications, and images in a digital format.³⁵ Our cars, houses, and workplaces are increasingly connected to the Internet, creating massive databases of our daily activities.³⁶ When a crime is committed, the digital trace left by our pervasive use of technology provides an invaluable investigative resource.³⁷ It also creates a mass of discoverable evidence for prosecutors and defense attorneys to sift through.

Second, just as ordinary individuals use computers and the Internet on a regular basis, criminals increasingly rely on digital technology to ply their trade. A recent report on gang activity found that “there’s nearly always a link between an outbreak of gang violence and something online.”³⁸ Crimes as varied as theft, fraud, hacking, child pornography, drug trafficking, and the sale of stolen identities and ransomware today occur, at least in part, on the Internet. As FBI Director Wray remarked earlier this year:

[T]here’s a technology and digital component to almost every case we have now.

³⁴ James N. Dertouzos et al., RAND INST. FOR CIV. JUST., *The Legal and Economic Implications of Electronic Discovery: Options for Future Research* 1 (2008).

³⁵ Monica Anderson, *The Demographics of Device Ownership*, PEW RES. CTR. (Oct. 29, 2015), <http://www.pewinternet.org/2015/10/29/the-demographics-of-device-ownership> [<https://perma.cc/E5YR-ESHH>].

³⁶ Andrew Guthrie Ferguson, *The Internet of Things and the Fourth Amendment of Effects*, 104 CALIF. L. REV. 805, 819–20 (2016).

³⁷ See, e.g., Marlo Pfister Cadeddu & Eric J.R. Nichols, *State Criminal Discovery Rules and ESI*, TXBB-E-DISCOVERY § 23.5 (2014) (“Requests for electronic storage media devices and data have now become commonplace components of search warrants . . .”).

³⁸ Michael Tarm, *Social Media Altering Street-Gang Culture, Fueling Violence*, CHI. SUN TIMES (June 11, 2018, 12:34 PM), <https://chicago.suntimes.com/news/social-media-street-chicago-gang-culture-fueling-violence/> [<https://perma.cc/U7N2-BWH6>].

Transnational crime groups, sexual predators, fraudsters, and terrorists are transforming the way they do business as technology evolves. Significant pieces of these crimes—and our investigations of them—have a digital component or occur almost entirely online

And the avalanche of data created by our use of technology presents a huge challenge for every organization.³⁹

Private companies that have analyzed the incidence of cybercrime in the United States report a dramatic increase.⁴⁰ One analysis found that from 2013 to 2015, costs of cybercrime quadrupled, and it further predicted that they will quadruple again from 2015 to 2019.⁴¹ The rise of cybercrime is a global phenomenon. In 2016, Europol reported that “the additional increase in volume, scope and financial damage combined with the asymmetric risk that characterizes cybercrime has reached such a level that in some EU countries cybercrime may have surpassed traditional crime in terms of reporting.”⁴² As cybercrime grows, it also creates vast amounts of electronic evidence that needs to be reviewed and disclosed in a criminal prosecution.

The surveillance activities of law enforcement provide the third principal source of digital evidence. Police are proactively using a wide array of digital technology to prevent and investigate crime. Automatic license plate readers, body cameras, facial recognition technology, surveillance cameras, GPS tracking, and cell site location data, to name just

³⁹ Remarks by Christopher Wray, Director, Federal Bureau of Investigation, Fordham University, Jan. 9, 2018.

⁴⁰ FEDERAL BUREAU OF INVESTIGATION, INTERNET CRIME COMPLAINT CENTER, 2016 ANNUAL REPORT, *available at* <https://www.ic3.gov/media/annualreports.aspx> (source on file with author) (reporting an increase in financial losses due to Internet-facilitated crime since 2012); Danielle Wiener-Bronner, *Report Shows Cyber Crime is on the Rise*, ATLANTIC (Apr. 22, 2014), <https://www.theatlantic.com/technology/archive/2014/04/report-shows-cyber-espionage-is-on-the-rise/361024/> (reporting an overall increase in the threat of cybercrime in the United States in 2014).

⁴¹ Steve Morgan, *Cyber Crime Costs Projected To Reach \$2 Trillion by 2019*, FORBES (Jan. 17, 2016, 11:01 AM), <https://www.forbes.com/sites/stevemorgan/2016/01/17/cyber-crime-costs-projected-to-reach-2-trillion-by-2019/#4153107d3a91> [<https://perma.cc/5LQM-9R24>].

⁴² EUROPOL, IOCTA 2016: INTERNET ORGANISED CRIME THREAT ASSESSMENT 7, *available at* <https://www.europol.europa.eu/activities-services/main-reports/internet-organised-crime-threat-assessment-iocta-2016> [<https://perma.cc/RJ6K-AZNY>]. In the United Kingdom, online fraud has become the most common crime. Martin Evans & Patrick Scott, *Fraud and Cyber Crime Are Now the Country's Most Common Offences*, TELEGRAPH (Jan. 19, 2017, 6:05 PM), <http://www.telegraph.co.uk/news/2017/01/19/fraud-cyber-crime-now-countrys-common-offences/> [<https://perma.cc/HWS3-8G8C>].

a few, have become critical tools of the modern police.⁴³ As the Supreme Court remarked in *Carpenter v. United States* last term, “seismic shifts in digital technology” have allowed for near-constant surveillance by law enforcement.⁴⁴ This new type of policing produces massive amounts of digital data, even for ordinary crimes.⁴⁵ The result is that, “[f]rom Fitbits to PlayStations, the justice system is drowning in digital evidence.”⁴⁶

III. BACKGROUND DISCOVERY REQUIREMENTS

To appreciate why voluminous ESI presents challenges for the parties in criminal cases, it is important to understand the basic discovery responsibilities of prosecutors and defense attorneys. Constitutional doctrine, statutory law, and rules of criminal procedure regulate when, what, and how the parties need to disclose to each other. This Part provides a brief overview of these laws and highlights a few aspects of discovery rules that make digital discovery particularly challenging.

The Supreme Court has set a constitutional baseline for prosecutors’ obligations, requiring that prosecutors disclose exculpatory and impeachment evidence before trial.⁴⁷ State and federal rules additionally require the prosecution to produce statements by the defendant, as well as certain documents and expert reports that are relevant to the case—whether in digital or paper form.⁴⁸

Beyond that shared baseline, discovery rules vary significantly from state to state—both as to the type of evidence that must be disclosed and as to the timing of the discovery. As a result of recent discovery reforms, a

⁴³ See generally ANDREW G. FERGUSON, *THE RISE OF BIG DATA POLICING: SURVEILLANCE, RACE, AND THE FUTURE OF LAW ENFORCEMENT* (2017) (discussing the increasing use of a range of new surveillance technologies by law enforcement).

⁴⁴ *Carpenter v. United States*, 138 S. Ct. 2206, 2219 (2018).

⁴⁵ See Sean Broderick et al., *Criminal E-Discovery: A Pocket Guide for Judges*, FJC-MISC-2015-5 (2015) (noting that even routine prosecutions of drug cases and robberies regularly rely on cell phone data or video surveillance).

⁴⁶ Matt Burgess, *From Fitbits to PlayStations, the Justice System Is Drowning in Digital Evidence*, WIRED U.K. (Apr. 20, 2018), <http://www.wired.co.uk/article/uk-police-courts-data-justice-trials-digital-evidence-rape-cases-cps> [<https://perma.cc/JJ9W-CRDP>].

⁴⁷ *Giglio v. United States*, 405 U.S. 150, 154–55 (1972) (holding that due process was violated and a new trial warranted when the prosecution failed to disclose information regarding the credibility of its witness and the witness’s credibility was material to guilt or innocence); See *Brady v. Maryland*, 373 U.S. 83, 87 (1963) (“We now hold that the suppression by the prosecution of evidence favorable to an accused upon request violates due process where the evidence is material either to guilt or to punishment, irrespective of the good faith or bad faith of the prosecution.”).

⁴⁸ See, e.g., FED. R. CRIM. P. 16; ALA. R. CRIM. P. 16; CAL. PEN. CODE § 1054; N.Y. CRIM. P. L. § 240; TEX. CODE CRIM. P. § 39.14.

slight majority of states now require the prosecution to disclose witness names, witness statements, and police reports before trial.⁴⁹ A few states have gone further and adopted entirely “open-file” discovery, requiring prosecutors to disclose to the defense well before trial virtually all evidence relevant to the case.⁵⁰ Even in jurisdictions where discovery rules are not as demanding, local rules, standing court orders, or internal prosecutorial policies frequently mandate that prosecutors produce broader categories of evidence early in the process.⁵¹

As prosecutorial duties to disclose evidence have expanded, so have reciprocal duties for the defense.⁵² Today, “[n]early all states . . . require defendants to give advance notice of any expert evidence and of witnesses they will use for certain defenses (such as alibi, self-defense, and insanity) and also to cooperate in ‘giving evidence’ through means such as blood tests or participation in identification line-ups.”⁵³ Further, discovery rules ordinarily require a defendant who has availed himself of prosecutorial disclosures to disclose a range of items (such as documents and tangible objects, results or reports of physical or mental examinations or scientific tests, and summaries of expert testimony) that are in his custody or control and that the defense intends to use at trial.⁵⁴ A few states have even expanded defense disclosure duties to include witness names and statements.⁵⁵

When either party discloses evidence, it also typically has a duty to ensure that disclosure would not harm the privacy or safety of affected individuals. Accordingly, when the prosecution is required to produce

⁴⁹ See, e.g., Miriam H. Baer, *Timing Brady*, 115 COLUM. L. REV. 1, 22 (2015); Darryl K. Brown, *The Decline of Defense Counsel and the Rise of Accuracy in Criminal Adjudication*, 93 CALIF. L. REV. 1585, 1622–23 (2005). Seventeen states currently require some version of open-file discovery. Jenia I. Turner & Allison Redlich, *Two Models of Pre-Plea Discovery in Criminal Cases: An Empirical Comparison*, 73 WASH & LEE L. REV. 285, 399, at App’x 2 (2016).

⁵⁰ TEX. CODE CRIM. P. § 39.14.

⁵¹ Daniel S. McConkie, *The Local Rules Revolution in Criminal Discovery*, 39 CARDOZO L. REV. 59, 61 (2017).

⁵² See Wayne R. LaFave et al., *The “Two-Way Street” Movement in Discovery*, 5 CRIM. PROC. § 20.1(d) (4th ed. 2017).

⁵³ Darryl K. Brown, *Discovery*, in 3 REFORMING CRIMINAL JUSTICE: PRETRIAL AND TRIAL PROCESSES 147, 167 (Erik Luna ed., 2017), http://academyforjustice.org/wp-content/uploads/2017/10/7_Reforming-Criminal-Justice_Vol_3_Discovery.pdf [<https://perma.cc/7UA7-6AQY>].

⁵⁴ See, e.g., FED R. CRIM. P. 16(b); FLA. R. CRIM. P. 3.220(d).

⁵⁵ FLA. R. CRIM. P. 3.220(d); N.J. Ct. R. 3:13; see also TEXAS DEFENDER SERVICE & TEXAS APPLESEED, *IMPROVING DISCOVERY IN CRIMINAL CASES IN TEXAS: HOW BEST PRACTICES CONTRIBUTE TO GREATER JUSTICE* 15, 38 (2013); Brown, *supra* note 53, at 155.

police reports or witness statements to the defense, but it has concerns about the safety or privacy of its witnesses, it can request that the court issue protective orders,⁵⁶ or it may be able to redact portions of the disclosed documents.⁵⁷ Some states, like Texas, place on defense counsel the burden of locating sensitive information and redacting it or withholding it from the client and third parties.⁵⁸

The trend toward broader discovery from the prosecution has been motivated by concerns that restrictive discovery can result in wrongful convictions, unjust sentences, and unnecessary litigation.⁵⁹ The move toward broader discovery from the defense has been spurred by a desire to ensure more truthful outcomes.⁶⁰ It has also been justified on grounds of reciprocity—as defendants receive from the prosecution more than the Constitution requires,⁶¹ they are also expected to provide reciprocal disclosures.⁶²

In complex cases with a large digital footprint, broad discovery means that both the prosecution and the defense have to deal with voluminous productions. The broadest discovery, so called “open-file” discovery, often relieves prosecutors from the task of reviewing each individual file before producing it. But the burden of review is then shifted onto the defense, which has limited time and resources to sift through gigabytes of data.⁶³ Moreover, even in open-file discovery regimes, the prosecution may still have to review individual files carefully to ensure that it does not produce evidence that is legally protected or may jeopardize the safety of witnesses.

Rules of criminal procedure have not kept pace with the growth of ESI and the special demands it places on prosecutors and defense attorneys. Federal and state rules remain silent on the problems related to the volume

⁵⁶ *E.g.*, FLA. R. CRIM. P. 3.220(l); N.C. GEN. STAT. ANN. § 15A-908; TEX. CODE CRIM. P. art. 39.14(e)(1); UTAH R. CRIM. P. 16(f).

⁵⁷ *E.g.*, IDAHO R. CRIM. P. 16(b)(9)(B); TEX. CODE CRIM. P. art. 39.14(c).

⁵⁸ *See, e.g.*, CAL. PENAL CODE § 1054.2; IDAHO R. CRIM. P. 16(b)(9)(A), 16(d)(1)(C); TEX. CODE CRIM. P. art. 39.14(f).

⁵⁹ Turner & Redlich, *supra* note 49, at 290–91.

⁶⁰ *See, e.g.*, Jones v. Super. Ct. of Nevada Cty., 372 P.2d 919, 920 (Cal. 1962).

⁶¹ *See* Giglio v. United States, 405 U.S. 150, 154–55 (1972); *see also* Brady v. Maryland, 373 U.S. 83, 87 (1963).

⁶² FED. R. CRIM. P. 16 advisory committee’s note to 1975 enactment; *see also* LaFave, *supra* note 52, at § 20.1(d) (noting that one motivation for the adoption of “reciprocal discovery” from the defense has been to “even the playing field” between prosecutors and defense attorneys in being able to prevent trial by ambush).

⁶³ *See infra* notes 107, 113, 319–321 and accompanying text.

and complexity of digital discovery.⁶⁴ A few federal courts have issued local rules or standing orders to address ESI;⁶⁵ others have looked to the rules of civil procedure as a model to resolve disputes;⁶⁶ and yet others have experimented with case-by-case solutions.⁶⁷ Digital discovery is therefore handled differently from state to state, from court to court, and from judge to judge.⁶⁸ And as Part V discusses, in many cases, the parties have been left to negotiate solutions on their own.

IV. THE CHALLENGES OF DIGITAL DISCOVERY IN CRIMINAL CASES

A. STORAGE AND PROCESSING COSTS

The first challenge of cases involving ESI is the sheer volume of information produced. As the use of digital technology has become commonplace for individuals and businesses, cases involving gigabytes⁶⁹—and even terabytes⁷⁰—of data are no longer unusual.⁷¹ Technology experts

⁶⁴ See, e.g., *United States v. Meredith*, 2015 WL 5570033, at *1 (W.D. Ky. Sept. 22, 2015) (noting a “dearth of precedent” on “what constitutes sufficiently usable discovery” in the ESI context). The exception is New Jersey, which has specifically addressed the challenges of e-discovery in criminal cases. See N.J. Ct. R. 3:13–3.

⁶⁵ McConkie, *supra* note 51; see also General Order Regarding Best Practices for Electronic Discovery of Documentary Materials in Criminal Cases, G.O. 09-05 (W.D. Okla. 2009); Best Practices for Electronic Discovery in Criminal Cases (W.D. Wash. 2013).

⁶⁶ *United States v. Briggs*, 831 F. Supp. 2d 623, 628 (W.D.N.Y. 2011); *United States v. O’Keefe*, 537 F. Supp. 2d 14, 18-24 (D.D.C. 2008); see also *United States v. Warshak*, 631 F.3d 266, 296 (6th Cir. 2010).

⁶⁷ See *infra* Parts IV.A & IV.B.

⁶⁸ Beale and King Memorandum, *supra* note 1, at 167.

⁶⁹ Experts estimate that 1 GB contains between 50,000 to 75,000 pages of Word documents. Doug Austin, *eDiscovery Best Practices: Perspective on the Amount of Data Contained in 1 Gigabyte*, CLOUDNINE (Mar. 5, 2012), <https://ediscovery.co/ediscoverydaily/electronic-discovery/ediscovery-best-practices-perspective-on-the-amount-of-data-contained-in-1-gigabyte/> [<https://perma.cc/WJ5Q-CLD9>]. Images require more storage space, so 1 GB is estimated to hold just over 15,000 pages of images. LexisNexis Discovery Services, *Pages in a Gigabyte*, LEXISNEXIS (2007), https://www.lexisnexis.com/applieddiscovery/lawlibrary/whitePapers/ADI_FS_PagesInAGigabyte.pdf (source on file with author). When it comes to videos, 1 GB can mean just about one hour of video. Melvin Foo, *How Much Can a 1TB Hard Drive Hold?*, PC NINJA (FEB. 8, 2012), <http://www.pcninja.us/how-much-can-a-1-tb-hard-drive-hold/> [<https://perma.cc/LG5Z-LLN8>].

⁷⁰ According to one estimate:

[C]onsidering that one terabyte is generally estimated to contain 75 million pages, a one-terabyte case could amount to 18,750,000 documents, assuming an average of four pages per document. Further assuming that a lawyer or paralegal can review 50 documents per hour (a very fast review rate), it would take 375,000 hours to complete the review. In other words, it would take more than 185 reviewers working 2,000 hours each per year to complete the review within a year.

estimate that “the global volume of electronically stored data is doubling every two years,” meaning that the problem is increasing exponentially.⁷²

The expanding volume of digital evidence makes it difficult for attorneys in criminal cases to store the information in a way that can be easily retrieved, reviewed, and used at trial as needed. For federal prosecutors, storage and management of e-discovery is usually not a problem because the Department of Justice has a centralized e-discovery support framework for U.S. Attorney’s Offices across the country.⁷³ Funded by a six-year, \$1.1 billion contract, the Litigation Technology Service Center (“LTSC”) helps prosecutors “digitize[e] paper documents . . . [and] cod[e] and load[] electronic documents into databases.”⁷⁴ The services also include “Bates labeling, deduplication, and email threading.”⁷⁵ Importantly, digital files “are provided in a variety of

Assuming each reviewer is paid \$50 per hour (a bargain), the cost could be more than \$18,750,000.

Austin, *supra* note 69. On the other hand, since videos take up much more space, 1 TB is estimated to hold around 1,000 hours or about 40 days of video files. Foo, *supra* note 69.

⁷¹ See, e.g., United States v. Hofstetter, 2018 WL 813254, at *14 (E.D. Tenn. Feb. 9, 2018) (noting discovery “consisting of well over a terabyte of data, approximately fifty compact discs containing audio and video recordings, and numerous imaged computer hard drives”); United States v. Budovsky, No. 13 CR 00368 (DLC), 2016 WL 386133, at *4 (S.D.N.Y. Jan. 28, 2016) (involving terabytes of discoverable data); United States v. Salyer, 2011 WL 1466887, at *1 (E.D. Ca. Apr. 18, 2011) (“It is probably no exaggeration to state that 1-2 terabytes of information are involved.”); United States v. Shafer, 2011 WL 977891, at *3 (N.D. Tex. Mar. 21, 2011) (involving 200 terabytes of ESI); see also 2017 REPORT OF THE AD HOC COMMITTEE TO REVIEW THE CRIMINAL JUSTICE ACT, CRIMINAL JUSTICE ACT 227 (2018), available at http://www.uscourts.gov/sites/default/files/2017_report_of_the_ad_hoc_committee_to_review_the_criminal_justice_act_-_revised_2811.9.17_29_0.pdf [<https://perma.cc/FM2Z-8GW3>] [hereinafter CARDONE REPORT] (citing witness from M.D.N.C. who testified that “it is not uncommon in this district to have fraud cases where three [terabytes] of information have been provided to counsel”).

⁷² Cindy LaChapelle, *The Cost of Data Storage and Management: Where Is It Headed in 2016?*, DATA CENTER J., (Mar. 10, 2016), <http://www.datacenterjournal.com/cost-data-storage-management-headed-2016/> (source on file with author).

⁷³ Sean Broderick, *Written Testimony to Criminal Justice Act Committee*, Feb. 19, 2016, <https://cjastudy.fd.org/sites/default/files/hearing-archives/san-francisco-california/pdf/seanbrodericksan-franwrittentestimony-done.pdf> [<https://perma.cc/7TRX-62ED>] (noting that in 2013, the DOJ awarded \$1.1 billion for contractors to provide the Criminal Division and six other units with electronic discovery processing, litigation support and case management services).

⁷⁴ U.S. DEPT. OF JUST., *PRIVACY IMPACT ASSESSMENT FOR THE EXECUTIVE OFFICE FOR U.S. ATTORNEYS: LITIGATION TECHNOLOGY SERVICE CENTER 2*, DEPT. OF JUST. (2009), available at https://www.justice.gov/sites/default/files/usao/legacy/2014/05/22/pia_ltsc.pdf [<https://perma.cc/B9EH-7HGK>].

⁷⁵ *Id.*

formats including Concordance load files, CD/DVDs, and a secure intranet repository (iConect) within the Department of Justice (DOJ) firewall.”⁷⁶

Thanks to the discovery support provided by the LTSC, federal prosecutors are much better equipped to store and manage digital evidence than most of their state and local counterparts or defense attorneys.⁷⁷ Yet the growth of digital data may soon overwhelm even the capacities of federal prosecutors, and certain mega cases have already tested the existing support framework.⁷⁸

On the other hand, for defense attorneys, who are frequently solo practitioners without sophisticated technology, a production of multiple gigabytes of data frequently exceeds the storage and backup capacity of their office hardware.⁷⁹ And despite the dramatic decrease of storage costs for digital data generally, commercial storage for *legal* digital documents remains expensive.⁸⁰ Some experts believe that the high cost reflects the complexity of managing the stored data;⁸¹ others suggest that it is driven by demand for digital storage by well-heeled law firms handling large business disputes.⁸² Whatever the reason, criminal defense attorneys often find it

⁷⁶ *Id.*

⁷⁷ Broderick, *supra* note 73 (discussing the disparity of e-discovery resources between federal prosecutors and federal defense attorneys); *see also* Doucette, *supra* note 4, at 431 (noting that in Virginia, very few state prosecutors have electronic case-management systems, “and the costs of such systems are prohibitive for many offices”).

⁷⁸ Kirk Johnson, *Charges Against Bundys in Ranch Standoff Case Are Dismissed*, N.Y. TIMES (Jan. 8, 2018), <https://www.nytimes.com/2018/01/08/us/bundy-ranch-standoff-case-charges-dismissed.html> [<https://perma.cc/G9LS-QLUM>] (discussing dismissal of charges for *Brady* violations in case involving massive ESI); Kevin Krause, *Judge in John Wiley Price Trial Blasts Prosecution for ‘Improper Conduct,’ Reserves Right to Toss the Case*, DALLAS MORNING NEWS (Apr. 11, 2018), <https://www.dallasnews.com/news/crime/2017/04/11/judge-overseeing-john-wiley-price-corruption-trial-blasts-prosecution-improper-conduct> [<https://perma.cc/PWB3-CJ6M>] (discussing prosecutorial discovery failures in case with massive ESI).

⁷⁹ *See, e.g.*, United States v. Gonzalez, 2014 WL 2574765, at *1 (E.D. Tenn. June 6, 2014) (“[A]ccess to the hard drives is limited and the size of the hard drives may force counsel to upgrade their computer systems.”); Chris Raesz, *File Safe*, 46 VOICE FOR THE DEFENSE 27 (TCDLA Dec. 2017).

⁸⁰ John W.M. Claud, *Responding to Defense Demands for Government Assistance in Large ESI Criminal Cases*, U.S. ATTYS’ BULL. 139, 145 (Jan. 2018); Broderick, *supra* note 73.

⁸¹ LaChapelle, *supra* note 72.

⁸² Interview with Marlo P. Cadeddu, Criminal Defense Attorney, Oct. 19, 2017, Dallas, Texas. Stories of widely disparate storage estimates offered for the same case suggest that some type of market failure might be at play. Broderick, *supra* note 73 (“In a multi-defendant mortgage fraud case with over three terabytes (three trillion bytes) of data, the cost of five vendor proposals for a web-hosted document review database ranged from \$70,000 to \$1.7 million.”).

prohibitively expensive to store and process voluminous digital evidence.⁸³ In turn, this creates delays as defense attorneys try to obtain more favorable rates from digital discovery vendors, additional funding from the court, or more tailored discovery from the prosecution. Some defense attorneys end up personally shouldering some of the costs of processing and reviewing the evidence, without receiving full compensation for the review, and others likely forgo adequate review of the evidence.⁸⁴

To some degree, the problem of storage and management of digital evidence can be solved by centralizing the service on the defense side, as is already the case for federal prosecutors. Federal public defenders' offices are better positioned in this regard. In Dallas, the Office of the Federal Public Defender pioneered a solution by buying a server of its own and storing ESI in both its own cases and those of appointed defense attorneys.⁸⁵ Defense attorneys who have relied on this server estimate that it has saved the federal government millions of dollars.⁸⁶ At the national level, the National Litigation Support Team for federal public defenders and appointed counsel has also recently contracted with several vendors to provide digital storage and processing services at discounted rates to appointed counsel and public defenders.⁸⁷ The Team also helps appointed defense attorneys obtain competitive rates from other vendors that might better meet the attorneys' needs in particular cases.⁸⁸ Yet even as the federal Defender Services Office is building a more centralized digital discovery infrastructure, retained counsel and counsel in state cases are still left to navigate the digital storage problem on their own.

Apart from storage, the processing of digital discovery imposes heavy burdens on the parties, particularly the defense. A typical ESI case is likely to have files that originate from different sources and serve distinct functions. The files are likely to be saved in multiple formats, many of which require proprietary software to process and review.⁸⁹ Processing the

⁸³ See, e.g., Interview with Marlo P. Cadeddu, *supra* note 82; Broderick, *supra* note 73.

⁸⁴ CARDONE REPORT, *supra* note 71, at 229.

⁸⁵ Interview with Marlo P. Cadeddu, *supra* note 82; Interview with Jason Hawkins, Federal Public Defender, Northern District of Texas, Feb. 5, 2018.

⁸⁶ Interview with Marlo P. Cadeddu, *supra* note 82.

⁸⁷ Defender Services Office, Litigation Services, CJA Panel Attorney Software Discounts, <https://fd.org/litigation-support/cja-panel-attorney-software-discounts> [<https://perma.cc/5GNK-5DWV>].

⁸⁸ Defender Services Office, Litigation Services, Direct Assistance for CJA Panel, <https://fd.org/litigation-support/direct-assistance-cja-panel> [<https://perma.cc/LWV5-GRB4>].

⁸⁹ CARDONE REPORT, *supra* note 71, at 227–28. Interview with Marlo P. Cadeddu, *supra* note 82; This occurs frequently because prosecutors are “generally [. . .] not the original custodian or source of the ESI they produce in discovery.” Joint Working Group On

evidence can be expensive and time-consuming.⁹⁰ As a result, disputes frequently arise about the format in which files should be produced and about the allocation of responsibility for any reformatting.⁹¹

Rules of criminal procedure remain silent on digital discovery mechanics, leaving questions about formatting for the parties and the court to decide on an ad hoc basis.⁹² Some courts have required the prosecution to convert voluminous digital evidence into a searchable format, but others have refused to impose such a burden on the prosecution in the absence of a clear mandate from the rules.⁹³ As a result, the defense may be left with processing costs that it cannot fully meet.

Another important aspect of the formatting decision is whether the recipient of the digital files—typically, the defense—would be able to view the underlying metadata. To examine the metadata, a party would need to receive the files in their native format. The producing party may therefore need to produce the files in two formats—one that can be searched and one that reveals the underlying characteristics of the data. The producing party (typically, the prosecution) may receive files from a third party only in a searchable format; to obtain the metadata, it would need to request the third party to produce the same files in their native format, occasioning further expense and delays.⁹⁴ Some courts have therefore been reluctant to order discovery of metadata, believing that metadata are generally not relevant and too burdensome to produce.⁹⁵ But as many civil case judges have recognized, metadata are often needed to authenticate electronic documents, understand key features of electronic files (such as the date and location of their creation or modification), and sort electronic files (for example, by the

Electronic Technology in the Criminal Justice System, *Recommendations for Electronically Stored Information Discovery Production in Federal Criminal Cases*, Rec. 6 (2012) [hereinafter ESI Protocol].

⁹⁰ See Broderick et al., *supra* note 45, at 9 (noting further that “there is no software tool for producing all discovery in a single, easy-to-use package”).

⁹¹ See, e.g., *State v. Dingman*, 202 P.3d 388 (Wash. Ct. App. 2009) (reversing and remanding for new trial where trial court refused to order prosecution to convert mirror image of computer drive into a format usable by the defense).

⁹² See, e.g., *United States v. Warshak*, 631 F.3d 266, 296 (6th Cir. 2010) (noting that Rule 16 “is entirely silent on the issue of the form that discovery must take”).

⁹³ Andrew D. Goldsmith, *Trends—or Lack Thereof—in Criminal E-Discovery: A Pragmatic Survey of Recent Case Law*, 59 U.S. ATTYS’ BULL. 2 (2011); Hilary Oran, *Does Brady Have Byte? Adapting Constitutional Disclosure for the Digital Age*, 50 COLUM. J.L. & SOC. PROBS. 97, 118 (2016).

⁹⁴ See, e.g., *United States v. Budovsky*, No. 13 CR 00368 (DLC), 2016 WL 386133, at *6 (S.D.N.Y. Jan. 28, 2016).

⁹⁵ Edward J. Imwinkelried & Theodore Y. Blumoff, *Tactics for Attorney Seeking Production*, PRETRIAL DISCOVERY STRATEGY & TACTICS § 9:4 (2017).

sender or recipient of emails).⁹⁶ The information can be critical to a criminal case, and courts have to determine when and how to distribute the burden of its processing and review.

In brief, the staggering volume and complexity of digital evidence requires significant technological expertise and resources to store and process. In a cash-strapped criminal justice system, this frequently leaves both parties—but especially the defense—unable to cope.

B. REVIEWING THE EVIDENCE

The next digital discovery challenge concerns the time and resources needed to review ESI adequately. While keyword searches of digital documents are generally quick and efficient, they are often imprecise, the volume of digital evidence is overwhelming, and certain files, such as images, audio, and video files, still require manual review. These difficulties affect both the review of relevant evidence and, more problematically, the review of potentially exculpatory evidence.

1. Reviewing Relevant Evidence

In some respects, digital documents are easier to review than paper ones: Keyword searches enable an attorney to sift more quickly through a batch of digital documents than a manual review of the same documents. But keyword searching does not solve all problems of digital evidence review. The exponential growth of ESI means that the universe of documents to review is significantly larger than it was when evidence was primarily saved in paper form. Moreover, keyword searching is not as precise as it might initially appear. Search terms may be over- or under-inclusive, particularly as text and social media messages increasingly use symbols and abbreviations.⁹⁷ Cases involving slang, code words, or foreign-language conversations pose special challenges. Attorneys may not be able to formulate the proper search terms unless they are familiar with “the terms of art [and] the factual background of the case,” and they may not know which search protocols to use unless they are technologically savvy or have funding for search protocol experts (both of which are rare in the field of criminal defense).⁹⁸ When it comes to image, audio, and video files, which are not searchable with currently available technology, the

⁹⁶ *Id.*

⁹⁷ *Id.* at § 9:13 (noting further that numerous studies have exposed the limits of keyword searching).

⁹⁸ Ken Strutin, *Databases, E-Discovery and Criminal Law*, 15 RICH. J.L. & TECH. 6, 28 (2009) (“Searchers must have insight into the language and terms of art, as well as the factual background of the case, to even begin formulating the correct queries.”).

burden on the defense is especially high.⁹⁹ As a result of these various challenges with reviewing ESI, defense attorneys frequently express frustration at having to “sift[] through . . . terabytes of information.”¹⁰⁰

Rules of criminal procedure do little to alleviate the disproportionate burdens of reviewing digital evidence. The Federal Rules of Criminal Procedure require the prosecution to disclose documents that: 1) are “material to preparing the defense”; 2) are intended for use in the prosecution’s case-in-chief; or 3) have been obtained from a defendant.¹⁰¹ But the rules do not require the government to specify which of these three categories the documents fall in,¹⁰² and they do not require the prosecution to identify where in a sizeable production the relevant documents are located.¹⁰³ Indictments also reveal little about the facts that might support particular charges.¹⁰⁴ In theory, the defense could move for a bill of particulars or for “pinpoint discovery” to obtain more detailed information about the case, but as long as prosecutors produce evidence in a searchable format, courts are likely to deny such motions.¹⁰⁵ Even if the prosecution

⁹⁹ Interview with Marlo P. Cadeddu, *supra* note 82; *see also* United States v. Richards, 659 F.3d 527, 544 (6th Cir. 2011) (noting defense “frustration about the sheer volume of images and being ‘swamped with trying to pick the needle out of the haystack’”); United States v. Quinones, 2015 WL 6696484, at *2 (W.D.N.Y. Nov. 2, 2015) (acknowledging that review of 3,240 hours of continuous video footage from pole camera would require defense attorneys to invest thousands of hours); United States v. Sierra, 2012 WL 2866417, at *3 (S.D.N.Y. July 11, 2012) (noting that pole camera videos are not searchable).

¹⁰⁰ United States v. Vujanic, 2014 WL 3868448, at *1 (N.D. Tex. Aug. 6, 2014); *see also* Richards, 659 F.3d at 544. Clients may sometimes be able to guide defense attorneys, but even they are unlikely to provide a helpful roadmap when the evidence is in the millions of pages. As Part IV.D discusses in greater detail, detained defendants face special challenges in this process.

¹⁰¹ FED. R. CRIM. P. 16 (1)(a)(E).

¹⁰² *See* Robert J. Anello & Richard F. Albert, *Coming Changes to Federal Criminal Discovery Rule?*, N.Y.L.J., Apr. 4, 2017.

¹⁰³ *Id.*

¹⁰⁴ Letter to Donald W. Molloy, U.S. District Judge, from Roland G. Riopelle, President, NYCDL, Peter Goldberger and William Genego, Chairs, NACDL Federal Rules Committee (Mar. 1, 2016) [hereinafter NYCDL and NACDL Letter].

¹⁰⁵ *See, e.g.*, United States v. Daugherty, 2017 WL 839472, at *3 (E.D. Ky. Feb. 28, 2017) (“[T]he Sixth Circuit has never recognized even extraordinarily dense or voluminous discovery as a justification to order a bill of particulars.”); United States v. Huntress, 2015 WL 631976, at *28 (W.D.N.Y. Feb. 13, 2015) (denying a motion for a bill of particulars where the prosecution “produced 137,000 pages of discovery on DVDs that are ‘readily loadable into a searchable format’ and accompanied by an index of these materials”); *see also* United States v. Gonzalez, 2014 WL 2574765, at **1–4 (E.D. Tenn. June 6, 2014) (denying motion for pinpoint discovery where the prosecution had taken measures to make voluminous discovery more manageable and where pinpoint discovery was not compelled by law). *But cf.* United States v. Chen, 2006 WL 3898177, at *3 (N.D. Cal. Nov. 9, 2006)

has created a tool that could help with review of the evidence (for example, a computer program or database that can sort through voluminous records), courts will generally deny discovery of such government-created tools, as long as the prosecution provides the underlying records to the defense.¹⁰⁶

As a result, defense attorneys can easily become overwhelmed by a “discovery dump” in a voluminous ESI case, as a letter from the National Association of Criminal Defense Lawyers to the Federal Rules Committee explained:

It is now routine in many jurisdictions for defense counsel to receive enormous amounts of information at the outset of the discovery process, with relatively little guidance as to what might be relevant to the prosecution or defense of the charges contained in the indictment . . . [D]efense counsel are often handed a computer hard drive at the first appearance in court, and told that it contains the government’s first production of discovery, consisting of millions of pages of documentation and thousands of emails culled from the server of a client’s employer. Thousands more pages of documentation and emails typically follow that first production, and occasionally, more gigabytes of documentation will be dropped into defense counsel’s laps on the eve of trial.¹⁰⁷

When prosecutors turn over voluminous digital evidence without any guidance on where documents material to the case might be located, defense attorneys find it difficult to review the evidence and provide adequate assistance to clients in plea negotiations or at trial.

2. Searching for Brady Evidence

The expansion of digital evidence also has implications for how prosecutors fulfill their constitutional duty to disclose exculpatory and impeachment evidence to the defense. Under *Brady v. Maryland* and its progeny, prosecutors have a duty to review evidence within their possession carefully to ensure that they have disclosed every item that might be exculpatory or impeachment evidence and material to the defense.¹⁰⁸ Prosecutors also have a duty to learn of *Brady* evidence known to anyone

(granting motion for bill of particulars where discovery included thousands of non-searchable image, audio, and video files).

¹⁰⁶ United States v. Lewis, 594 F.3d 1270, 1282 (10th Cir. 2010); see also United States v. McCluskey, 2012 WL 13081295 (D.N.M. May 11, 2012); United States v. Schmidt, 2007 WL 1232180 (D. Colo. Apr. 25, 2007).

¹⁰⁷ NYCDL and NACDL Letter, *supra* note 104; see also Anello & Albert, *supra* note 102 (“[T]he ubiquity and growth in volume of electronically stored information have exacerbated another longstanding problem: government follow-up productions of large quantities of new material on the eve of trial.”).

¹⁰⁸ Giglio v. United States, 405 U.S. 150, 154–55 (1972); *Brady v. Maryland*, 373 U.S. 83, 87 (1963).

on the government's investigative team and to disclose that evidence to the defense.¹⁰⁹

In cases with massive digital or documentary evidence, prosecutors often turn over all the evidence to the defense to ensure that they have not mistakenly withheld any *Brady* evidence. When this occurs, courts have held that the burden of searching for *Brady* evidence within the gigabytes of files produced by the prosecution rests entirely with the defense.¹¹⁰ The prosecution has no duty to indicate where within a voluminous production *Brady* evidence might be located. Some courts have suggested that *Brady* requires the prosecution to at least ensure that digital evidence is provided in a searchable format and that the ESI production is not padded "with pointless or superfluous information to frustrate a defendant's review."¹¹¹ But only a few courts have gone further and required the prosecution to specifically identify *Brady* material within a large mass of ESI documents.¹¹²

As the previous section discussed, reviewing massive digital evidence remains a time-consuming and onerous task. With respect to images, video, and audio files, the reviewing burden is even greater. Given the limited resources of most defense attorneys, relevant evidence may be overlooked.¹¹³ This undermines the accuracy of criminal adjudication and the public interest in uncovering the truth in criminal cases. When the relevant evidence is potentially exculpatory, the fairness of the trial is also compromised, and the problem assumes constitutional dimensions. Yet

¹⁰⁹ *Kyles v. Whitley*, 514 U.S. 419, 437–38 (1995).

¹¹⁰ *See, e.g.*, *United States v. Warshak*, 631 F.3d 266, 297 (6th Cir. 2010) (holding that the prosecution "is under no duty to direct a defendant to exculpatory evidence within a larger mass of disclosed evidence"); *Oran, supra* note 93, at 118 (discussing cases).

¹¹¹ *United States v. Skilling*, 554 F.3d 529, 577 (5th Cir. 2009); *see also* *United States v. Quinones*, 2015 WL 6696484, at *2 (W.D.N.Y. Nov. 2, 2015) (discussing cases and noting that "courts have started to recognize that the Government needs to impose at least some minimal organization on voluminous discovery to comply with the spirit of its statutory and constitutional obligations").

¹¹² *E.g.*, *United States v. Blankenship*, 2015 WL 3687864 (S.D.W. Va. June 12, 2015); *United States v. Salyer*, 2010 WL 3036444, at *2 (E.D. Cal. Aug. 2, 2010) (ordering identification of *Brady* material for a detained defendant with limited resources "as a matter of case management (and fairness)"); *United States v. Hsia*, 24 F. Supp. 2d 14, 29 (D.D.C. 1998).

¹¹³ While so far, courts do not appear to have granted an ineffective assistance claim on the grounds that counsel failed to adequately review voluminous discovery, such claims are made with regularity by defendants. *See, e.g.*, *Martinez v. United States*, 2018 WL 3024155, at *3 (D.S.C. June 18, 2018) (rejecting claim that counsel provided ineffective assistance by not thoroughly reviewing voluminous evidence); *Johnson v. United States*, 2015 WL 7169589, at *4 (S.D.N.Y. Nov. 12, 2015) (same); *Bieganowski v. United States*, 2006 WL 2259710, at **10, 22 (W.D. Tex. Aug. 4, 2006) (same).

neither case law nor criminal procedure rules have adequately addressed the challenges for the defense in searching for exculpatory evidence within gigabytes of electronic documents—and how these can be resolved without imposing impractical burdens on the prosecution.

In certain cases, the intersection of the prosecution's duty under *Brady* and its duty to protect sensitive information does impose a significant reviewing burden on the prosecution. If prosecutors decide to withhold evidence to protect the safety of a witness or to safeguard privileged information, they need to examine the protected material carefully to ensure that it does not contain *Brady* evidence. As explained earlier, this often requires manual review in addition to keyword searching of documents, and for images, video, and audio files, it always demands time-consuming personal review.¹¹⁴ Not surprisingly, some cases that are heavy on both ESI and protected information have led to *Brady* violations by prosecutors.¹¹⁵

Another complication for prosecutors is that ESI comes from a range of sources and may be stored with multiple law enforcement agencies working on the case or in different locations within the same agency. As noted previously, prosecutors are responsible for disclosing *Brady* evidence in the custody of law enforcement, even if they are not aware that such evidence exists.¹¹⁶ Some prosecutors argue that it is more difficult to comply with this duty in ESI cases because the evidence is so voluminous and law enforcement agencies' digital storage practices are frequently disorganized and inconsistent.¹¹⁷

¹¹⁴ *Quinones*, 2015 WL 6696484, at *3 (ordering annotation of videos produced where prosecution produced around 3,240 hours of continuous pole camera footage); *United States v. Sierra*, 2012 WL 2866417, at *3 (S.D.N.Y. July 11, 2012) (noting that pole camera videos are not searchable); *see also* *United States v. Gonzalez*, 2014 WL 2574765, at *1 (E.D. Tenn. June 6, 2014) (rejecting defense motion for pinpoint discovery in a drug-trafficking conspiracy case involving thousands of audio- and video-recorded conversations in Spanish); *United States v. Flores*, 2014 WL 1308608, at *1 (N.D. Cal. Mar. 28, 2014) (noting the time-consuming nature of discovery review in RICO gang case involving hundreds of thousands of documents, 15,800 audio recordings, and 100 videos, many of which were heavily redacted to protect the safety of witnesses).

¹¹⁵ Transcript, *United States v. Bundy*, Docket No. 2:16-CR-00046 (D. Nev. Jan. 8, 2018), *at* <https://www.scribd.com/document/369154834/Transcript-Jan-8-2018> [<https://perma.cc/KR7H-28F4>]; *see also* *United States v. Bundy*, Government's Brief Opposing Dismissal with Prejudice, Docket No. 2:16-CR-00046 (D. Nev. Feb 17, 2016).

¹¹⁶ *Kyles v. Whitley*, 514 U.S. 419, 437–38 (1995).

¹¹⁷ Interview with Assistant District Attorney, Texas, Feb. 1, 2018 (noting that under discovery rules, prosecutors have to account for digital police files, but prosecutors don't have a say over how police organize and store their videos; as a result, police might have it in several places, and some of the evidence might not make it to the prosecutor in time to be properly disclosed).

C. PROTECTING PRIVACY, CONFIDENTIALITY, AND SAFETY

Where a case features information that might compromise witness or informant safety, individual privacy, trade secrets, national security, or a legal privilege, attorneys have to review the information carefully to ensure that it is adequately safeguarded. Most commonly, this is a problem for the prosecution. But the defense also has legal obligations to protect certain private or confidential information when producing its own ESI. Furthermore, in some jurisdictions, like Texas, the burden has been shifted from the prosecution to defense counsel to redact private and confidential information before sharing it with the defendant.¹¹⁸ While this helps ensure broader access to relevant information for the defense, in cases with voluminous ESI, it also imposes a significant reviewing and redacting burden on defense attorneys.

Once prosecutors or defense counsel have located the information that should be protected from disclosure, they must also determine how the sensitive information should be safeguarded. The parties may need to discuss with each other any protective orders or other measures that may be necessary to prevent unauthorized access to sensitive ESI material.¹¹⁹ Sensitive and confidential documents may include: “grand jury material, witness identifying information, information about informants, a defendant’s or co-defendant’s personal or business information, information subject to court protective orders, confidential personal or business information, or privileged information.”¹²⁰

In cases involving child pornography, the parties will also need to determine how to conduct discovery without violating laws criminalizing the distribution of the material.¹²¹ If the law criminalizes copying of child

¹¹⁸ TEX. CODE CRIM. P. art. 39.14(f) (2017) (providing that defense attorney must redact personal identifying information, such as address, telephone number, driver’s license number, social security number, date of birth, and bank account number, before sharing with the defendant).

¹¹⁹ ESI Protocol, *supra* note 89, rec. 10. To that end, the parties may need to discuss whether “encryption or other security measures during transmission of ESI discovery are warranted” and what measures would be taken “to ensure that only authorized persons have access to the electronically stored or disseminated discovery materials” and “to ensure the security of any website or other electronic repository against unauthorized access,” among other issues. *Id.*

¹²⁰ *Id.*

¹²¹ 18 U.S.C. § 3509(m)(1)–(2)(A) (2018) (requiring that child pornography “remain in the care, custody, and control of either the Government or the court” and that “[n]otwithstanding Rule 16 . . . a court shall deny . . . any request by the defendant to copy, photograph, duplicate, or otherwise reproduce any property or material that constitutes child pornography . . . so long as the Government makes the property or material reasonably available to the defendant”).

pornography even for purposes of discovery (as it does at the federal level), the prosecution will typically make the images available to the defense for inspection at the prosecutor's office or other law enforcement facility.¹²² But in states where no law criminalizes copying of child pornography for purposes of discovery, and discovery rules require the prosecution to furnish a copy of the relevant images to the defense upon request,¹²³ other measures are needed to protect against unauthorized access. The parties may enter into stipulations, or the prosecution may obtain protective orders that require the defense to safeguard the material from any improper distribution or viewing.¹²⁴

Adequate handling of the security of confidential and sensitive evidence—to prevent cyber intrusions and other forms of unauthorized access—often requires specialized technical knowledge, which prosecutors and defense attorneys are not likely to have on their own.¹²⁵ And while prosecutors may be able to rely on in-house information technology specialists to handle these questions, private defense attorneys are unlikely to have such experts on staff. As a result, the question of who should bear the burden of ensuring the security, privacy, and confidentiality of the information is frequently disputed. It requires good faith negotiation between the parties, and as Part VI elaborates, judicial supervision guided by robust rules on digital discovery.

D. OBTAINING EVIDENCE FROM THIRD PARTIES

Another complication of digital discovery is that the defense faces serious challenges in obtaining electronically stored information that is not already in the prosecution's custody. Defendants must overcome significant legal hurdles in obtaining subpoenas for documents held by third parties. Furthermore, individuals or entities who are not parties to the case may be reluctant, unavailable, or in some cases legally prohibited from sharing the evidence with the defense. The difficulty of gathering digital

¹²² See, e.g., *United States v. Kimbrough*, 69 F.3d 723, 731 (5th Cir. 1995) (holding that “[c]hild pornography is illegal contraband” and that therefore Rule 16 does not provide for the distribution or copying of the material by the defense); *United States v. Husband*, 246 F. Supp. 2d 467, 469 (E.D. Va. 2003) (same); *State v. Ross*, 792 So. 2d 699, 701–02 (Fla. App. 2001) (same).

¹²³ See *State v. Scoles*, 69 A.3d 559, 571 (N.J. 2013) (“A majority of states that have considered whether to incorporate the federal approach have determined not to do so, opting in favor of procedures requiring the prosecution to reproduce the materials for defendant’s use and control in the preparation of a defense.”).

¹²⁴ Susan S. Kreston, *Emerging Issues in Internet Child Pornography Cases: Balancing Acts*, 9 J. INTERNET L. 22, 28 (2006); see also *Scoles*, 69 A.3d 559.

¹²⁵ See, e.g., CARDONE REPORT, *supra* note 71, at 228.

evidence from third parties worsens the informational asymmetry between the prosecution and defense.

To obtain digital evidence from a third party before trial, the defense first has to apply to the district court to subpoena the material; even if the subpoena is granted, the person or entity to whom it is addressed can still move to quash it.¹²⁶ Only if the defense succeeds at both stages will the subpoena be enforced.

Courts are split on the standards that apply to subpoenas for documentary evidence, known as subpoenas *duces tecum*. A few merely require the defense to show that the information requested may be “material to the defense” and is not unduly oppressive for the requested party to produce.¹²⁷ But other courts demand that the defense meet the stricter standard under *United States v. Nixon*, which was developed for subpoenas used *by prosecutors* and requires the moving party to show:

(1) that the documents are evidentiary and relevant; (2) that they are not otherwise procurable reasonably in advance of trial by exercise of due diligence; (3) that the party cannot properly prepare for trial without such production and inspection in advance of trial and that the failure to obtain such inspection may tend unreasonably to delay the trial; and (4) that the application is made in good faith and is not intended as a general ‘fishing expedition.’¹²⁸

Following *Nixon*, many federal courts have limited the type of evidence that the defense may obtain through a subpoena *duces tecum*, holding that it may not use a subpoena to gather “pretrial materials that are sought solely ‘for purposes of impeachment.’”¹²⁹ Other courts have quashed subpoenas that were perceived as overly broad.¹³⁰ State courts have used similar requirements to constrain the types of evidence that the defense can subpoena from private parties.¹³¹

¹²⁶ FED. R. CRIM. P. 17(c); Alan Silber & Lin Solomon, *A Creative Approach for Obtaining Documentary Evidence from Third Parties*, CHAMPION, May 2017, at 24, 25. For state rules, see, for example, CAL. PENAL CODE § 1326 (2008); MASS. R. CRIM. P. 17(a)(2).

¹²⁷ See, e.g., *United States v. Tucker*, 249 F.R.D. 58, 66 (S.D.N.Y. 2008). See generally Silber & Solomon, *supra* note 126, at 26.

¹²⁸ 418 U.S. 683, 699–700 (1974).

¹²⁹ *United States v. Baroni*, 2015 WL 9049528, at *5 (D.N.J. Dec. 16, 2015) (citing *United States v. Cuthbertson*, 651 F.2d 189, 195 (3d Cir. 1981) and *United States v. Onyenson*, 2013 WL 5322651, at *2 (D.N.J. Sept. 20, 2013)).

¹³⁰ *United States v. Rand*, 835 F.3d 451, 462–64 (4th Cir. 2016) (applying *Nixon* criteria to uphold district court decision to quash subpoena requesting “accounting entries, budgets, budget entries, and financial reports for seven categories of reserve accounts over an eight-year period — the timeframe of the alleged conspiracy” because the request was overly broad).

¹³¹ See, e.g., *State v. Watson*, 726 A.2d 214, 216 (Me. 1999) (quoting *United States v. Cuthbertson*, 630 F.2d 139, 145 (3rd Cir. 1980)); *In re WTHR-TV*, 693 N.E.2d 1, 6 (Ind.

In some circumstances, the law may impose additional burdens on the defense's efforts to obtain digital information from private parties. Trade secret protections represent one such hurdle, particularly in cases involving algorithms or computer programs used to investigate or prosecute defendants. If a private party owns the source code for these computer programs, trade secrets may make it difficult and in some cases impossible for the defense to gain access to the source code.¹³² This may prevent defendants from questioning the reliability of the digital technology used to prosecute them, whether that technology is fingerprint matching, DNA matching, ballistic matching, or breathalyzers.¹³³ Trade secrets may also impede defendants from obtaining the algorithms behind digital surveillance programs, limiting the defense's ability to challenge the legality of the surveillance.¹³⁴

Likewise, state and federal privacy laws may prevent private parties from sharing certain digital evidence with the defense. The Stored Communications Act (SCA) prohibits service providers from disclosing the electronic communications of their clients without either the consent of the client or a subpoena, court order, or warrant obtained *by a governmental entity*.¹³⁵ Because the defendant—even when represented by a public defender—is not a governmental entity, he cannot subpoena Internet service providers for emails or other electronic communications material to the defense's case.

When the SCA prevents the service provider from disclosing the evidence to the defense, the defense could still subpoena the records

1998) (requiring, among else, that the evidence sought be described with particularity and that it be material to the defense, that “the information is not readily available elsewhere” and “that the party seeking it is not engaged in a fishing expedition with no focused idea of the size, species, or edibility of the fish”); *Cty. of Nassau Police Dep’t v. Judge*, 237 A.D.2d 354, 355 (N.Y. Sup. Ct. App. Div. 1997) (quashing subpoena because “respondent has offered nothing of a particularized nature which would support the claim that the requested materials will bear relevant and exculpatory evidence” and holding that “a subpoena may not be used to ‘fish for impeaching material’”); Peter Hershey, *Discovering Electronically Stored Information in Maryland Criminal Cases*, MD. B.J., Nov./Dec. 2014, at 50. *But cf.* *Harris v. State*, 802 S.E.2d 708, 711 (Ga. App. Ct. 2017) (noting that to obtain subpoena, defendant must merely establish that documents sought are relevant and material to the defense and not unduly oppressive to produce).

¹³² *E.g.*, *People v. Super. Ct.* (“Chubbs”), 2015 WL 139069 (Cal. Ct. App. Jan. 9, 2015). For a discussion of this case and the broader problem of trade secrets preventing the disclosure of evidence to criminal defendants, see Rebecca Wexler, *Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System*, 70 STAN. L. REV. 1343 (2018).

¹³³ Meghan J. Ryan, *Secret Conviction Programs*, 77 WASH. & LEE L. REV. — (forthcoming 2020); Wexler, *supra* note 132, at 1343, 1358–64.

¹³⁴ Wexler, *supra* note 132, at 1364–68.

¹³⁵ 18 U.S.C. §§ 2701–2703 (2012) (emphasis added).

directly from the senders or recipients of the relevant electronic communications.¹³⁶ But there are several difficulties with this approach. First, as discussed earlier, the defense may be limited in using subpoenas to obtain evidence from private parties—subpoenas cannot be used merely to gather impeachment evidence, the information sought must be specific and material to the defense, and the defense must show that other methods of obtaining the evidence are not reasonably available.¹³⁷ It is therefore by no means certain that the defense would be able to obtain or enforce a subpoena.¹³⁸

Second, even if the defense were able to obtain a subpoena, the senders or recipients of the electronic communications—particularly if they are prosecution witnesses—may be reluctant to cooperate with the defense. Those who have the resources to hire an attorney may resist the subpoena through a motion to quash or modify its scope. Even when such litigation is not successful, it burdens the defense and drains its resources. Other witnesses may be open to complying, but may have difficulties doing so, as they may not be able to hire lawyers or technical experts to guide them in the process.¹³⁹ To aid in this process, the court may order the private party to consent to disclosure by the Internet Service Provider; however, this is an area of the law that is still developing, and not all courts may realize or agree that they have this authority.¹⁴⁰ Finally, if the senders or recipients of the electronic communications are unavailable, the defense may be left with no legal recourse to the data.¹⁴¹

¹³⁶ *State v. Johnson*, 538 S.W.3d 32, 70 (Tenn. Ct. Crim. App. 2016); *see also* FED. R. CRIM P. 17(c).

¹³⁷ *See supra* notes 126–131 and accompanying text.

¹³⁸ As noted earlier, the defense may have to litigate the subpoena at two stages: when the court first decides whether to issue the subpoena, and if the subpoenaed party files a motion to quash, when responding to the motion. *See supra* note 126 and accompanying text.

¹³⁹ *Cf. Johnson*, 538 S.W.3d at 71 (recognizing burdens on witnesses, but finding that in the case at hand, subpoenas to witnesses were not unduly onerous).

¹⁴⁰ *See Facebook, Inc. v. Super. Ct. (Touchstone)*, 15 Cal. App. 5th 729, 746 (Ct. App. 2017). The case is currently being considered by the California Supreme Court, and one of the questions presented is: “Does the trial court have authority, pursuant to statutory and/or inherent power to control litigation before it and to insure fair proceedings, to order the victim witness (or any other listed witness), on pain of sanctions, to either (a) comply with a subpoena served on him or her, seeking disclosure of the sought communications subject to in camera review and any appropriate protective or limiting conditions, or (b) consent to disclosure by provider Facebook subject to in camera review and any appropriate protective or limiting conditions?” *Facebook, Inc. v. S.C. (Touchstone)*, 408 P.3d 406 (Cal. 2018).

¹⁴¹ *Facebook, Inc. v. Super. Ct.*, 192 Cal. Rptr. 3d 443, 445 (Cal. App. 1st Dist. 2015), *review granted and opinion superseded sub nom. Facebook, Inc. v. Super. Ct. (Hunter)*, 362 P.3d 430 (Cal. 2015); Andrew Cohen, *How Social Media Giants Side with Prosecutors in*

While the defense has to abide by strict subpoena requirements in gathering digital evidence from private parties, and often faces additional legal and practical difficulties in obtaining such evidence, the prosecution retains significantly broader investigative authority. It can collect a wide range of evidence from third parties through grand jury subpoenas, as well as through searches and seizures. Because of the superior investigative authority of the prosecution, when the defense comes up short in its efforts to gather the information from third parties, its only option might be to request the prosecution to assist it in obtaining the information.¹⁴² But the defense may be reluctant to do this out of concern about revealing its trial strategy. Furthermore, the prosecution has no legal duty to assist the defense in obtaining such evidence, so a request may remain unanswered.¹⁴³

The imbalance of investigative powers in obtaining evidence from private parties exacerbates the broader informational and resource disparities between the defense and prosecution in criminal cases. As subsequent sections discuss, in the interests of justice and due process, courts may occasionally need to intervene to help the defense in obtaining digital evidence in the hands of private parties.

E. PROVIDING DIGITAL DISCOVERY TO DETAINED DEFENDANTS

Another important challenge for defense attorneys handling digital discovery in criminal cases is that their client may be prevented from helping them review digital documents if he or she is detained. In a case with voluminous electronic documents, consultation with the client is especially important to help the attorney prepare for trial in a timely and

Criminal Cases, Jan. 15, 2018, <https://www.themarshallproject.org/2018/01/15/how-social-media-giants-side-with-prosecutors-in-criminal-cases> [<https://perma.cc/A6XM-BQY7>]. The defendant may also be left without access to the ESI if the account holder invokes her privilege against self-incrimination when asked to authenticate an electronic communication. *Facebook, Inc. v. Super. Ct. (Hunter)*, Real Parties Lee Sullivan and Derrick Hunter’s Opening Brief on the Merits, 2016 WL 284305, at *5 (Jan. 15, 2016).

¹⁴² *Cf. Facebook, Inc. v. Super. Ct.*, 417 P.3d 725, 731 (Cal. 2018) (noting that social media service providers encouraged defendants to “work[] with the prosecutor to obtain” the requested ESI via search warrant).

¹⁴³ *See, e.g., United States v. Gray*, 648 F.3d 562, 567 (7th Cir. 2011) (noting that the prosecution “had no duty to . . . conduct the defense’s investigation for it” and thus no duty to direct third party “to create and run programs to extract data from its database that would be useful to the defense”); *United States v. Baker*, 1 F.3d 596, 598 (7th Cir. 1993) (“Certainly, *Brady* does not require the government to conduct discovery on behalf of the defendant.”); *United States v. Lujan*, 530 F. Supp. 2d 1224, 1231 (D.N.M. 2008) (noting that the prosecution does not have a duty “to seek out information that is not in its or its agents’ possession”).

adequate fashion.¹⁴⁴ The client's input is needed both to assess evidence disclosed by the prosecution and to review evidence that the defense needs to produce.¹⁴⁵

Yet detention centers limit inmates' access to computers and the Internet, and this hampers the ability of detained defendants to review digital documents relevant to their case.¹⁴⁶ These limitations are based in part on financial constraints and in part on concerns about security.¹⁴⁷ Because of the restrictions on computer and Internet use by inmates, defense attorneys typically bring their own computers to the detention center when they meet with clients.¹⁴⁸ This approach, however, is cumbersome, inadequate, and inefficient. It is cumbersome because the defense attorneys may have to have their laptops "certified" for use in the detention centers.¹⁴⁹ It is inadequate because it leaves inmates with very limited time to review documents.¹⁵⁰ And it is inefficient because it requires counsel to travel to the detention center and then spend hours there for the client to read through massive files.

Consider the difficulties experienced by the defense in *United States v. Henderson*, where the defendant and his counsel had to compete with other attorneys for one of three meeting rooms, and visiting hours were "limited to three hours per evening, five days per week."¹⁵¹ When Henderson and his counsel were able to claim a room, the visits consisted of counsel "watching defendant while he reads one document at a time."¹⁵²

¹⁴⁴ Interview with Marlo P. Cadeddu, *supra* note 82.

¹⁴⁵ John McEnany & Donna Lee Elm, *Delivering E-Discovery to Federal Pretrial Detainees*, 32 CRIM. JUST., Summer 2017, at 49, 59 (noting that "the defense may produce sizeable e-discovery as well that its client must review" and that this poses special problems because detention facilities want to accept discovery only from the government as a result of security concerns).

¹⁴⁶ *Id.* at 49 (noting that many detention facilities have a policy against Internet access and have security concerns about providing computer access to unattended detainees).

¹⁴⁷ *Id.* (noting concerns that "almost any device introduced into the facility could be weaponized" and concerns about the personnel needed to escort detainees to and from discovery review rooms, as well as to log, distribute, and maintain digital devices).

¹⁴⁸ Interview with Marlo P. Cadeddu, *supra* note 82; Interview with Jason Hawkins, *supra* note 85.

¹⁴⁹ Interview with Marlo P. Cadeddu, *supra* note 82; Interview with Jason Hawkins, *supra* note 85.

¹⁵⁰ *See, e.g.*, *United States v. Henderson*, 2016 WL 7377118, at *3 (E.D. Va. Dec. 20, 2016); McEnany & Elm, *supra* note 145, at 49.

¹⁵¹ *Henderson*, 2016 WL 7377118, at *3.

¹⁵² *Id.* To address the problem, the court granted the defendant's request to permit the defendant to "retain copies of non-victim, substantive witness interview reports only." *Id.* at *4.

Recognizing the persistent difficulties that cases with ESI and pretrial detainees present, in 2016, the Joint Electronic Technology Working Group (a group of federal prosecutors, defense attorneys, and magistrate judges charged with developing best practices to the management of digital discovery) published *Guidance for the Provision of ESI to Detainees*.¹⁵³ The group failed to come up with a definitive solution to the problem of delivering digital discovery to detainees. It acknowledged that detention centers have varying capacities to accommodate review of digital evidence and that inmates have different needs based on the size and complexity of digital evidence in their cases.¹⁵⁴ Accordingly, the Guidance simply urged “a spirit of cooperation.”¹⁵⁵ To facilitate such cooperation, the Guidance authors proposed the creation of “points of contact” in each of the institutions involved (defense, prosecution, Marshals Service, jail, and the court).¹⁵⁶ The Guidance recommended that these persons work as a committee to develop best practices for providing digital discovery to detainees and then to negotiate solutions on a case-by-case basis as needed.¹⁵⁷

V. NEGOTIATING CRIMINAL DISCOVERY IN THE DIGITAL AGE

A. NEGOTIATION PRACTICE

As discussed earlier, rules of criminal procedure are generally silent on digital discovery obligations in criminal cases. Courts have also been relatively slow to address the concerns raised by digital evidence. As a result, the parties have responded to the complexity, volume, and cost of digital discovery primarily by negotiating solutions with each other. This Part provides examples of the forms that such cooperation can take, then analyzes the incentives of prosecutors and defense attorneys to cooperate in digital discovery, as well as the limits to such cooperation.

Several sources suggest that cooperation and negotiation about digital discovery is already occurring in criminal cases. First, published and unpublished judicial opinions provide some evidence of cooperation. While such opinions are typically issued when negotiations between the parties fail (hence the need for the court to intervene), the description of the interactions preceding the dispute often recounts cooperative behavior.

¹⁵³ McEnany & Elm, *supra* note 145, at 49.

¹⁵⁴ *Id.*

¹⁵⁵ *Id.* at 50.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

For example, in *United States v. Farkas*, a securities fraud case involving “monumental discovery,” the appeals court found that the district court had not abused its discretion in denying a fourth motion for a continuance of the trial.¹⁵⁸ In justifying this conclusion, the appeals court noted that the “[g]overnment had provided considerable assistance to defense counsel in reviewing documentary discovery production, including instituting an open file policy and holding regular meetings.”¹⁵⁹

Likewise, in *United States v. Shafer*, which involved 200 terabytes seized from 600 computers and 10,000 pieces of paper, prosecutors “provided searchable copies of certain documents and [] met individually with counsel for the defendants to recommend where counsel [sic] focus their review efforts. For example, the government [] suggested which hard drive or drives counsel should search. Defense attorneys [were] also [] provided copies of the electronic storage devices.”¹⁶⁰ The court pointed to this assistance as a reason for denying a defense motion for pinpoint discovery (i.e., a motion for the government to pinpoint data relevant to the case).¹⁶¹

Similarly, in *United States v. Santiago*, a case concerning cocaine trafficking in Pennsylvania and Puerto Rico, the government produced, inter alia, audio copies of 1,329 intercepted Spanish-language calls pertinent to the charges, as well as electronic copies of English-language written summaries of those calls. The government further offered to provide electronic copies of English-language verbatim transcripts of the approximately 200 calls it intended to offer at trial.¹⁶² The prosecution refused to provide such transcripts for the remaining 1,129 pertinent calls, however, until finally ordered by the court.¹⁶³ This case lends support to the idea that cooperation is more likely to occur in the shadow of judicial intervention, a point discussed further below in Part V.B.

In *United States v. Shabudin*, the prosecution provided the defense with access to a government-created database containing ESI relevant to the case and access to project managers who could assist the defense with the database.¹⁶⁴ Scores of other cases point to various efforts by the

¹⁵⁸ *United States v. Farkas*, 474 F. App’x 349, 355 (4th Cir. 2012).

¹⁵⁹ *Id.*

¹⁶⁰ *United States v. Shafer*, 2011 WL 977891, at *3 (N.D. Tex. Mar. 21, 2011).

¹⁶¹ *Id.*

¹⁶² *United States v. Santiago*, 2013 WL 1688865, at *12–13 (E.D. Pa. Apr. 18, 2013).

¹⁶³ *Id.* at *13.

¹⁶⁴ *United States v. Shabudin*, 2014 WL 1379717 (N.D. Cal. Apr. 8, 2014).

prosecution to help the defense process voluminous ESI.¹⁶⁵ Some also offer examples of judges prodding the parties to confer about digital discovery.¹⁶⁶

Another source suggesting a turn toward cooperation is the ESI Protocol, developed by a joint working group of federal prosecutors and public defenders to address the challenges of digital evidence. The Protocol promotes a “collaborative approach to ESI discovery involving mutual and interdependent responsibilities.”¹⁶⁷ It recommends that the parties meet and confer to discuss “the nature, volume, and mechanics of producing ESI discovery.”¹⁶⁸ It also encourages the parties to “make good faith efforts to discuss and resolve disputes over ESI discovery . . . before seeking judicial resolution of an ESI discovery dispute.”¹⁶⁹ Although the ESI Protocol is not yet well-known among practitioners and is therefore rarely followed, its recommendations reflect a belief by federal prosecutors and defense attorneys that cooperation by the parties is not only possible, but also desirable to manage the intricacies of digital discovery in criminal cases.

When the Advisory Committee on Criminal Rules recently discussed and adopted amendments to the federal rules to address digital discovery, consensus again developed around a collaborative approach. Defense attorneys, prosecutors, and judges who took part in the Committee’s

¹⁶⁵ See, e.g., *United States v. Meredith*, 2015 WL 5570033, at *2 (W.D. Ky. Sept. 22, 2015) (noting that the prosecution provided the defendant with term-searchable discovery, a separate hard drive containing document and email files from imaged hard drives, and “written and oral assistance in regard to finding specific documents . . . including a color-coded and categorized Media Review Index”); *United States v. Mohammad*, 2012 WL 1605472, at *1 (N.D. Ohio May 8, 2012) (noting that the prosecution provided the defense with a hard drive containing ESI in searchable format with indices and with instructions on how to navigate the hard drive to review the discovery); *United States v. Slade*, 2011 WL 5291757, at *3 (D. Ariz. Sept. 30, 2011) (detailing several attempts by prosecution to assist the defense with voluminous ESI); see also *Claud*, *supra* note 80, at 139.

¹⁶⁶ *United States v. Haymond*, 2009 WL 3029592, at **3–4 (N.D. Okla. Sept. 16, 2009) (in mediating dispute about sizeable discovery of alleged child pornography, the court directed the prosecution to produce additional redacted images for use by the defendant at government facility and urged the parties to cooperate in order to expedite any additional digital discovery). Cf. *General Order Regarding Best Practices for Electronic Discovery of Documentary Materials in Criminal Cases*, G.O. 09-05, at 1 (W.D. Okla. 2009) (noting that “[o]pen communication between the government and defense counsel is critical to ensure that discovery is handled and completed in a manner agreeable to all parties”); N.J. Ct. R. 3:9–1(c) (requiring prosecutor and defense counsel to “confer and attempt to reach agreement on any discovery issues, including any issues pertaining to discovery provided through the use of CD, DVD, e-mail, internet or other electronic means”).

¹⁶⁷ ESI Protocol, *supra* note 89.

¹⁶⁸ *Id.* at principle 3 (“At the outset of a case, the parties should meet and confer about the nature, volume, and mechanics of producing ESI discovery. Where the ESI discovery is particularly complex or produced on a rolling basis, an ongoing dialogue may be helpful.”).

¹⁶⁹ *Id.* at principle 9.

deliberations noted that a cooperative approach has worked in a number of cases, when the parties have relied on the ESI Protocol or when the judge has prodded the parties to meet and confer.¹⁷⁰ Participants therefore lamented that not enough prosecutors and defense attorneys were aware of the ESI Protocol.¹⁷¹ They further reported that “once the parties get together and actually consult the ESI Protocol, discovery goes very smoothly.”¹⁷² Furthermore, defense attorneys, who were the stakeholders most vocal about the challenges of e-discovery, “strongly supported the idea that the parties know the case better than the court does.”¹⁷³ Participants at the Committee meeting generally agreed that the parties “ought to take the first look at the case and talk to each other about whether the case warrants some departure from the rules that would normally apply.”¹⁷⁴

After extensive consultation and discussion, committee members concluded that the best approach to digital discovery in criminal cases is not more detailed regulation, but rather encouragement of negotiations among the parties.¹⁷⁵ Proposed Federal Rule of Criminal Procedure 16.1 therefore mandates that the parties meet and confer about discovery shortly after arraignment.¹⁷⁶ At this meeting, the parties would discuss common digital discovery challenges, such as the type and format of discovery and the timeline for production. If the parties anticipate that discovery will take a long time to review, they may request the court to grant them a continuance to prepare adequately for trial.¹⁷⁷

Conversations with several state and federal practitioners in Dallas confirm that informal discussions and negotiations about the scope, format,

¹⁷⁰ Draft Minutes, Criminal Rules Meeting, Sept. 19, 2016, at 11, *in* Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 29 (“Complex cases come to [a judge’s] attention regularly by motions, filed primarily by defense attorneys, asking him to designate a case as complex for purposes of the Speedy Trial Act. The motion is invariably accompanied by a request for a case management conference. [The judge] orders the parties to work this out, they provide their agreement, and he tweaks a bit.”).

¹⁷¹ Beale and King Memorandum, *supra* note 1, at 167.

¹⁷² *Id.* at 168.

¹⁷³ Draft Minutes, Criminal Rules Meeting, April 28, 2017, at 20, *in* Advisory Committee on Criminal Rules, Meeting, Washington, D.C., October 24, 2017, at 38.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* at 24 (“[D]efense attorneys at the mini conference expressed concern that they were not able to get Assistant U.S. Attorneys to talk to them, and that they needed some sort of push from the rules.”).

¹⁷⁶ See Draft Rule 16.1, *supra* note 22.

¹⁷⁷ Draft Minutes, Criminal Rules Meeting, April 28, 2017, at 23, *in* Advisory Committee on Criminal Rules, Meeting, Washington, D.C., October 24, 2017, at 41.

and timing of digital discovery are common in cases with massive digital evidence.¹⁷⁸ As one defense attorney explained, “Once we get together, we’re wading into the problem; parties are generally agreeable. Everyone is just taken aback by how long it’s taking.”¹⁷⁹

B. COOPERATION INCENTIVES

Legal scholarship has long recognized that criminal law practice is not purely adversarial, but rather has significant cooperative aspects.¹⁸⁰ A well-known 1970s study by James Eisenstein and Herbert Jacob of felony case dispositions in three U.S. cities famously concluded that “negotiation is the most commonly used technique in criminal courtrooms.”¹⁸¹ As the authors explained, “continuances and the date of hearings are often bargained; the exchange of information is also commonly negotiated.”¹⁸² Other empirical studies have also found frequent cooperation and negotiation between the prosecution and the defense on a host of procedural questions in criminal cases.¹⁸³ These studies conclude that prosecutors and defense attorneys

¹⁷⁸ All but one of the interviews for this project were conducted in person in Dallas, where the author is based. Dallas is a fitting place to explore the challenges of digital discovery because its federal courts, prosecutors, and defense attorneys handle many complex cases featuring large amounts of digital discovery and have had to devise solutions to the problems that have arisen. The storage and processing of digital data at the Federal Public Defender’s Office, discussed earlier, is one such pioneering solution.

¹⁷⁹ Interview with Jason Hawkins, *supra* note 85; *see also* CARDONE REPORT, *supra* note 71, at 229 (noting that “[m]any U.S. Attorneys work with defense attorneys to ensure that discovery is produced in accessible, searchable formats”).

¹⁸⁰ *See, e.g.*, MALCOLM FEELEY, PROCESS IS THE PUNISHMENT 270–74 (1979); MILTON HEUMANN, PLEA BARGAINING: THE EXPERIENCES OF PROSECUTORS, JUDGES, AND DEFENSE ATTORNEYS 84, 90–91, 117–26 (1977) (describing how new defense attorneys and prosecutors over time adopt a less adversarial and more cooperative posture); Abraham S. Blumberg, *The Practice of Law as Confidence Game: Organizational Cooptation of a Profession*, 1 LAW & SOC’Y REV. 15, 24 (1967); Jenny Roberts & Ronald F. Wright, *Training for Bargaining*, 57 WM. & MARY L. REV. 1445, 1475 (2016) (noting that “the repeat-player nature of the relationships in criminal law practice—working together in one courthouse, over and over—may move some aspects of the negotiation away from competitive to a necessarily more cooperative strategy”); Jackson B. Battle, Comment, *In Search of the Adversary System—The Cooperative Practices of Private Criminal Defense Attorneys*, 50 TEX. L. REV. 60, 111–12 (1971).

¹⁸¹ JAMES EISENSTEIN & HERBERT JACOB, FELONY JUSTICE: AN ORGANIZATIONAL ANALYSIS OF CRIMINAL COURTS 32 (1977).

¹⁸² *Id.*

¹⁸³ *See, e.g.*, HEUMANN, *supra* note 180, at 84–91; Alschuler, *supra* note 26, at 56; Battle, *supra* note 180, at 67; Andrea Kupfer Schneider, *Cooperating or Caving in: Are Defense Attorneys Shrewd or Exploited in Plea Bargaining Negotiations?*, 91 MARQ. L. REV. 145 (2007).

cooperate and negotiate to resolve cases more rapidly,¹⁸⁴ to reduce uncertainty,¹⁸⁵ and to maintain friendly relations in a field of repeat players.¹⁸⁶ In interviews, defense attorneys have admitted that contacts and relationships with other criminal justice actors are at least as important as knowing the law.¹⁸⁷ As one defense attorney averred, “Your relationships with the D.A.’s office will help a hundred times out of a hundred.”¹⁸⁸ To retain that good relationship and the benefits that come with it, defense attorneys frequently refrain from aggressive litigation tactics and instead turn to cooperation and accommodation.¹⁸⁹

While the cooperative aspects of criminal law practice in general are well-recognized, discovery itself is often described as an adversarial competition—a game of hide and seek.¹⁹⁰ A few scholars have recognized, however, that cooperation also occurs with respect to discovery, typically as part of the broader give and take of plea bargaining. Discovery concessions may be granted by prosecutors to receive a guilty plea or cooperation from the defendant and by defense attorneys to obtain more lenient treatment in the case.¹⁹¹ Discovery favors may also be exchanged more broadly to demonstrate reasonableness and maintain friendly relations in repeat-player relationships.¹⁹²

¹⁸⁴ EISENSTEIN & JACOB, *supra* note 181, at 32; FEELEY, *supra* note 180, at 271–72.

¹⁸⁵ EISENSTEIN & JACOB, *supra* note 181, at 32.

¹⁸⁶ *Id.* at 33; FEELEY, *supra* note 180, at 272; *see also* Rebecca Hollander-Blumoff, *Getting to “Guilty”: Plea Bargaining as Negotiation*, 2 HARV. NEGOTIATION L. REV. 115, 145 (1997) (noting that “criminal law is a specialty, and repeat players are frequent, despite high turnover in prosecutorial offices”).

¹⁸⁷ Battle, *supra* note 180, at 67.

¹⁸⁸ *Id.*

¹⁸⁹ HEUMANN, *supra* note 180, at 84–91.

¹⁹⁰ *See, e.g.*, Kate Weisburd, *Prosecutors Hide, Defendants Seek: The Erosion of Brady Through the Defendant Due Diligence Rule*, 60 UCLA L. REV. 138 (2012).

¹⁹¹ *See, e.g.*, Albert W. Alschuler, *The Defense Attorney’s Role in Plea Bargaining*, 84 YALE L.J. 1179, 1225–29 (1975); Susan R. Klein et al., *Waiving the Criminal Justice System: An Empirical and Constitutional Analysis*, 52 AM. CRIM. L. REV. 73, 83–85, 109 (2015).

¹⁹² WILLIAM F. McDONALD, *PLEA BARGAINING: CRITICAL ISSUES AND COMMON PRACTICES* 51 (1985) (finding that “prosecutors will make the discovery procedures more cumbersome for certain defense attorneys whom they disliked or distrusted”); Alschuler, *supra* note 191, at 1225 (“Recent studies indicate . . . that the benefit of informal discovery results not from an attorney’s position as a public defender but simply from the attorney’s personal relationship with individual prosecutors.”); *see also* BRUCE FREDERICK & DON STEMEN, *ANATOMY OF DISCRETION: AN ANALYSIS OF PROSECUTORIAL DECISION MAKING—TECHNICAL REPORT 102* (2012) (reporting prosecutor statements that a better relationship with a defense attorney would result in a “better flow of information and a more just resolution of a case”).

The same cooperative dynamics also exist in negotiations about the discovery of digital evidence. But what is notable about cases with massive ESI is that the volume, cost, and complexity of digital discovery place additional pressure on the parties to cooperate, simply as a way of managing the discovery process itself (rather than as a means of obtaining concessions in other areas). The following two sections review in greater detail the incentives for prosecutors and defense attorneys to cooperate with each other in e-discovery.

1. Prosecutorial Incentives

Prosecutors may grant a range of concessions to the defense in the process of digital discovery. For example, they might provide broader discovery than required under the rules.¹⁹³ To assist the defense in reviewing the data, prosecutors can also produce the documents in a searchable format accessible to the defense and provide an index or a list of “hot documents” to help the defense locate material evidence.¹⁹⁴ In some cases, prosecutors may help the defense obtain evidence from third parties or provide the defense with official translations of relevant documents.¹⁹⁵

Several factors might prompt the prosecution to grant such favors. The principal incentive is the desire to resolve the case more quickly and at a lesser cost.¹⁹⁶ As Part III discussed, digital discovery is voluminous and costly to sort, redact, produce, and review. It takes up a significant portion of prosecutors’ time and slows down the resolution of cases.¹⁹⁷ Cooperation can move the case at a faster pace and lower cost because it educates the prosecution about the defense’s needs and preferences and reduces the risk that the defense will file motions with the court to contest the format, timing, or scope of discovery.¹⁹⁸ Cooperation can also advance the proceedings by helping the parties focus on the most important issues in dispute. Finally, it can expedite the case because earlier discovery gives both parties a better understanding of the case. Accordingly, if the defendant sees overwhelming incriminating evidence against him, he may

¹⁹³ See, e.g., FREDERICK & STEMEN, *supra* note 192, at 102; HEUMANN, *supra* note 180, at 69–75; Battle, *supra* note 180, at 68–70.

¹⁹⁴ See *supra* note 165 and accompanying text.

¹⁹⁵ See *supra* notes 143, 162–165, and accompanying text.

¹⁹⁶ See Schneider, *supra* note 183, at 157 (“Problem-solving behavior could also result from the clear need to settle cases and move work along.”).

¹⁹⁷ See McConkie, *supra* note 51, at 70–71.

¹⁹⁸ Cf. HEUMANN, *supra* note 180, at 69–75 (reporting results of study finding that prosecutors are more generous with discovery toward defense attorneys who are less adversarial and file fewer motions).

enter a guilty plea more quickly; conversely, if the defense highlights weaknesses in the prosecution's case early on, the prosecution may agree to dismiss some or all of the charges.

The prosecution may also help the defense with discovery to reduce the risk that the court will intervene and render decisions that hurt the prosecution. For instance, if the prosecution is not accommodating defense requests to produce ESI in a particular format or in a certain time frame, and as a result the defense is unable to review the discovery in time to prepare for trial, the defense may ask the court to dismiss the case on Speedy Trial grounds. Consider the example of *United States v. Graham*, a tax fraud case involving approximately 1.5 million documents, 300 videotapes, 500 recorded conversations, 90 hard drives of computers, and 3,000 diskettes.¹⁹⁹ The court dismissed the indictment without prejudice for a Speedy Trial violation because the prosecution produced an unmanageable amount of discovery on a rolling basis:

One, the volume of discovery in this case quite simply has been unmanageable for defense counsel. Two, like a restless volcano, the government periodically spews forth new discovery, which adds to defense counsels' already monumental due diligence responsibilities. Three, the discovery itself has often been tainted or incomplete. For example, during oral argument, counsel for Defendants stated that computer hard drives produced by the government were riddled with bugs and viruses and that tape recordings and transcriptions were missing or incomplete.²⁰⁰

Dismissals for speedy trial violations under such circumstances are rare—in large part because the parties can avoid the problem ahead of time by asking that the court designate the case as complex.²⁰¹ Some courts have held expressly that voluminous discovery makes a case more complex and cuts against a finding of a Speedy Trial violation.²⁰²

While a “complex case” designation may help reduce the risk of a subsequent speedy trial violation, it does not entirely eliminate it. The avoidance of this risk is an important motivator for the prosecution to cooperate with the defense in managing massive ESI discovery. The ESI Protocol recognizes this possibility and urges the parties to “determine how

¹⁹⁹ *United States v. Graham*, 2008 WL 2098044, at *5 (S.D. Ohio May 16, 2008).

²⁰⁰ *Id.*

²⁰¹ *See, e.g.*, 18 U.S.C. § 3161(h) (2012); ARIZ. R. CRIM. P. 8.2(a)(3); D. NEV. LOCAL R. CRIM. P. 16-1. For an example of a court denying a speedy trial claim, despite delays due to extensive discovery of ESI, see *United States v. Bravata*, 636 F. App'x 277, 289–90 (6th Cir. 2016); *see also* *United States v. Qadri*, 2010 WL 933752, at **4–6 (D. Haw. Mar. 9, 2010).

²⁰² *See, e.g.*, *United States v. Baugh*, 605 F. App'x 488, 492 (6th Cir. 2015) (“The sheer size and complexity of this sprawling gang case—featuring ten indictments, numerous defendants, voluminous discovery, over 1,800 pretrial docket entries—accounts for most of its length, which ‘favors a finding of no constitutional violation.’”).

to ensure that any ‘meet and confer’ process does not run afoul of speedy trial deadlines.’²⁰³

Another reason why prosecutors may cooperate with the defense is to avoid claims of *Brady* violations. Prosecutors may provide open-file discovery to preempt such claims (though as noted earlier, that may only compound the difficulty of reviewing digital discovery in time to prepare for trial).²⁰⁴ But in cases where prosecutors need to protect informants, witnesses, or other confidential or privileged information, they may benefit from cooperating with the defense to ensure that the evidence they are withholding is not potentially exculpatory. Consultation with the defense about how to handle sensitive information could help prosecutors avoid a collapse of the case as a result of unintentional failure to disclose impeachment or exculpatory evidence.²⁰⁵

Another common reason for prosecutors to help the defense with digital discovery is to reduce the risk of ineffective assistance of counsel claims that may jeopardize a conviction and cause them to have to re-litigate a case.²⁰⁶ As digital information becomes a standard element of criminal cases, but defense attorneys frequently lack the technical competence or resources to process it properly, claims of ineffective assistance are likely to rise.²⁰⁷ When prosecutors see an attorney who is overwhelmed by massive discovery and does not have the resources or competence to assist the client adequately, they may ask investigative agents to help the attorney with processing the evidence, or they may produce indices or lists of hot documents to guide the defense with its review.²⁰⁸

²⁰³ ESI Protocol, *supra* note 89, rec. 5.

²⁰⁴ Interview with Jason Hawkins, *supra* note 85.

²⁰⁵ *United States v. Bundy* is an example of a case with voluminous ESI, including audio and video evidence, which prosecutors did not properly disclose because of concerns about sensitive evidence. The failure to disclose *Brady* material led to a dismissal of the case. Such failures are more likely to be avoided if the parties discuss e-discovery in good faith. See Transcript, *United States v. Bundy*, Docket No. 2:16-CR-00046 (D. Nev. Jan. 8, 2018), at <https://www.scribd.com/document/369154834/Transcript-Jan-8-2018> [<https://perma.cc/ZH34-JQUC>]; *United States v. Bundy*, Government’s Brief Opposing Dismissal with Prejudice, Docket No. 2:16-CR-00046 (D. Nev. Feb 17, 2016).

²⁰⁶ Shara Saget, *See Something, Say Something?*, 44 PROSECUTOR J. 3 (2014); Andrea L. Westerfeld, *Preventing Claims of Ineffective Assistance of Counsel*, 41 PROSECUTOR J. 4 (2011).

²⁰⁷ See Brandon L. Garrett, *Big Data and Due Process*, 99 CORNELL L. REV. ONLINE 207, 215 (2014).

²⁰⁸ See, e.g., *United States v. Budovsky*, No. 13 CR 00368 (DLC), 2016 WL 386133, at *10, *12 (S.D.N.Y. Jan. 28, 2016) (noting that the government “has promptly responded to every defense request for assistance and sent law enforcement personnel to the defense to

Some prosecutors may also cooperate on digital discovery with the defense as a matter of professional integrity and courtesy, reflecting a vision of the prosecutor's role as a "minister of justice."²⁰⁹ An office culture that encourages a cooperative approach to disclosure can likewise have an important influence on prosecutors' choices.²¹⁰ And as with cooperation in criminal cases overall, prosecutors may cooperate to remain on friendly terms with defense attorneys with whom they frequently work.²¹¹ A friendly relationship ensures that defense attorneys do not overwhelm prosecutors with motions and trials. It also makes the practice of criminal law more pleasant for the attorneys involved.

But above all, prosecutors are likely to negotiate digital discovery procedures with the defense in order to avoid more onerous orders from the court.²¹² Some district judges, for example, in the Southern and Eastern Districts of New York, frequently enter pretrial orders requiring certification of substantial disclosure from the prosecution, an index of materials produced, tentative exhibit lists, and copies of exhibits.²¹³ In districts where judges are expected to take a more active role in the case of discovery disputes, the prosecution may prefer to settle any disputes informally with the defense rather than invite judicial management of digital discovery.²¹⁴

assist it with technical issues" and that it has "explained in detail which items of discovery supported the allegations in the Indictment"); *United States v. Shafer*, 2011 WL 977891, at *5 (N.D. Tex. Mar. 21, 2011) (observing that the government "conducted personal discovery sessions with the defense attorneys to highlight specific evidence relevant to each defendant and where to find it in the discovery"). Prosecutors have acknowledged providing broader discovery and other assistance to the defense as a means of avoiding subsequent claims of ineffective assistance of counsel. Westerfeld, *supra* note 206, at 4.

²⁰⁹ Cf. Ronald F. Wright & Kay L. Levine, *The Cure for Young Prosecutors' Syndrome*, 56 ARIZ. L. REV. 1065, 1093–94 (1066) (finding that more experienced prosecutors tend to be more understanding of defense attorneys' function and are therefore more cooperative); Ellen Yaroshfsky & Bruce A. Green, *Prosecutors' Ethics in Context*, in *LAWYERS IN PRACTICE* 269, 288–89 (Leslie C. Levin & Lynn Mather eds., 2012) (discussing how prosecutors' individual philosophies and personalities shape disclosure decisions).

²¹⁰ See Yaroshfsky & Green, *supra* note 209, at 279–84.

²¹¹ See, e.g., *id.* at 278 (discussing interview results finding that prosecutors "maintain generous disclosure practices to build cooperative relationships with defense lawyers").

²¹² Cf. *id.* at 278 (discussing interview findings that "[i]n jurisdictions in which the court exercises some authority over the discovery process—either informally or pursuant to court rules—prosecutors appear to be more diligent in complying with their obligations in gray areas").

²¹³ NYC DL and NACDL Letter, *supra* note 104.

²¹⁴ See, e.g., *United States v. Shabudin*, 2014 WL 1379717 at *2 (N.D. Cal. Apr. 8, 2014) (faced with a hearing on a motion to compel discovery, the prosecution voluntarily

2. Defense Incentives

Defense attorneys are motivated to cooperate with prosecutors primarily to obtain favorable treatment of their clients, such as a dismissal or reduction of the charges or a more lenient sentence.²¹⁵ They may also be accommodating in order to obtain some of the prosecutorial concessions discussed in the previous section, such as access to broader and more accessible discovery.²¹⁶ Such concessions allow the defense to better prepare for plea negotiations or trial and move the case along more quickly, ultimately benefitting the client. If the client is detained, a swifter resolution may also mean quicker release.²¹⁷

Defense attorneys have publicly lamented the burdens of ESI review and advocated for greater assistance from the prosecution in ESI-heavy cases. They have emphasized how overwhelmed they are by the volume of evidence in ESI cases.²¹⁸ As some shared with the Advisory Committee on Criminal Rules, “when you have hundreds of thousands of tapes and gigabytes of data with no index, and you do not know what evidence the government is going to use to prove its case, it is impossible for the defendant to figure out the defense.”²¹⁹ To comb through voluminous ESI, therefore, defense attorneys may ask for “discovery indices and ‘hot document’ lists,” notice about when discovery will be substantially

agreed to provide defense with access to ESI database and technical assistance with the database).

²¹⁵ See Schneider, *supra* note 183, at 158–59 (noting that sentencing reductions are a key incentive for defense attorneys to be cooperative in hopes of obtaining a favorable plea bargain for their client).

²¹⁶ See, e.g., HEUMANN, *supra* note 180, at 69; see also Battle, *supra* note 180, at 68 (finding that some defense attorneys believe that a more cooperative approach gives them broader access to the state’s evidence—in the words of one defense attorney, “If [prosecutors] like you and you are cooperative, you can get access to their files for the asking”).

²¹⁷ Interview with Defense Attorney #1, October 10, 2017, Dallas, TX, 2017; see also Schneider, *supra* note 183, at 160.

²¹⁸ Interview with Defense Attorney #1, *supra* note 217 (“Many lawyers feel overwhelmed by this. Some become obsessive about it.”). In cases with retained counsel, “[c]lients often can’t pay for thorough review of the evidence disclosed.” *Id.* The financial limitations in cases with appointed counsel are even greater. See, e.g., United States v. Sierra, 2012 WL 2866417, at *3 (S.D.N.Y. July 11, 2012) (discussing limited resources of appointed counsel to review discovery); cf. STANDING COMM. ON LEGAL AID & INDIGENT DEF., AM. BAR ASS’N, *GIDEON’S BROKEN PROMISE: AMERICA’S CONTINUING QUEST FOR EQUAL JUSTICE* 19 (2004) (noting that as a result of poor funding and excessive caseloads, “in many cases, indigent defense attorneys fail to fully conduct investigations [and] prepare their cases . . .”).

²¹⁹ Draft Minutes, Criminal Rules Meeting, Sept. 19, 2016, at 9, in Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 27.

completed, production of trial exhibit lists, witness lists, and “early disclosure of witness-related material.”²²⁰

To obtain cooperation from the prosecution, the defense may agree not to file discovery motions (for broader discovery, earlier discovery, or discovery in a different format) or other pretrial motions (for a bill of particulars, for continuance of the case, or to dismiss the indictment on the grounds of a Speedy Trial violation).²²¹ More controversially, defense attorneys might occasionally disclose more information about their client’s case than they are legally required to share with the prosecution.²²² In general, the defense may make its demands less aggressively in an effort to maintain a harmonious relationship with the prosecution and ultimately help the client.²²³

In some cases, the defense might further agree to a waiver of any evidence yet to be obtained by the prosecution. Such waivers have been documented in Texas, where a recent law requires prosecutors to provide open-file discovery.²²⁴ One Texas defense attorney speculated (without condoning the practice) that the defense may agree to such waivers where a client is detained and seeks to resolve the case more quickly, or where the attorney is paid per case:

Police departments can be slow uploading body camera evidence (downloaded to a police digital platform, but then queued to upload to D.A.’s platform). If the client is anxious to plead to get probation, that may be a reason to agree to a discovery waiver. Also, court-appointed defense attorneys get paid if a case is disposed—that might be a reason to agree to a discovery waiver.²²⁵

Decisions to forego filing a motion or to waive discovery rights represent more problematic concessions than those concerning the format of discovery. This is especially the case where discovery waivers are

²²⁰ Anello & Albert, *supra* note 102.

²²¹ See HEUMANN, *supra* note 180, at 53–57, 61–69, 90; Alschuler, *supra* note 26, at 56; Battle, *supra* note 180, at 73–74.

²²² Battle, *supra* note 180, at 76–78.

²²³ *Id.* at 100–01.

²²⁴ TEXAS APPLESEED & TEXAS DEFENDER SERVICE, TOWARDS MORE TRANSPARENT JUSTICE: THE MICHAEL MORTON ACT’S FIRST YEAR 31–35 (2015). In Dallas, plea agreements in felony cases since at least 2014 now include the following standard language: “Understanding that I have these rights under Tex. Crim. P. 39.14 [the Michael Morton Act, which provides for open-file discovery], I do knowingly waive (give up) my right to further discovery, except as provided by law.” See Dallas County Plea Agreements on file with author. Practitioners disagree on what the language of this waiver means, but the most common interpretation is that it waives the defendant’s right to further discovery except for the right to continue to receive exculpatory evidence, because the law specifically imposes a continuing obligation on the prosecution to disclose *Brady* evidence.

²²⁵ Interview with Defense Attorney #1, *supra* note 217.

offered as a take-it-or-leave-it element of a plea bargain and are therefore not entirely voluntary.²²⁶ They can materially compromise the rights of a defendant in a criminal case. As the next section discusses, this possibility highlights the limits and pitfalls of cooperation in discovery and in criminal cases more generally.

C. THE LIMITS OF COOPERATION

Even when the defense and prosecution are faced with overwhelming digital discovery, they may still abstain from cooperation in some cases.²²⁷ For example, less experienced prosecutors and defense attorneys tend to be more adversarial and less open to collaborating with the other side.²²⁸ Some defense attorneys may also cultivate a more combative image as a way of attracting clientele.²²⁹ In certain cases, defense attorneys may also find it in their client's interest to use discovery motions as a delay tactic.²³⁰ As one member of the Advisory Committee on Criminal Rules commented, "For every litigant operating in good faith . . . , there is another trying to figure out reasons to delay a trial or put 400 associates on a case to generate a gajillion gigabytes of data."²³¹

Even where the parties do work collaboratively on digital discovery, such cooperation will not always produce a fair and just outcome. For example, if the digital evidence at issue is too massive and complex, it may simply be impossible for the parties (especially the defense) to review it thoroughly in time for plea negotiations or trial.²³² The inability to review

²²⁶ See Klein et al., *supra* note 191, at 83–85, 109.

²²⁷ CARDONE REPORT, *supra* note 71, at 230 (noting that while some prosecutors cooperate with defense attorneys in producing e-discovery, others do not, even within the same district).

²²⁸ HEUMANN, *supra* note 180, at 53–57, 61–69; Battle, *supra* note 180; Wright & Levine, *supra* note 209, at 1066–67.

²²⁹ See, e.g., Battle, *supra* note 180, at 75.

²³⁰ Delay may be advantageous to a defendant for various reasons, including the fading of memories and unavailability of witnesses over time. See, e.g., William Glaberson, *Courts in Slow Motion, Aided by the Defense*, N.Y. TIMES, Apr. 14, 2013.

²³¹ Draft Minutes, Criminal Rules Meeting, April 28, 2017, at 8, in Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 26.

²³² E.g., *United States v. Budovsky*, No. 13 CR 00368 (DLC), 2016 WL 386133 (S.D.N.Y. Jan. 28, 2016). Defense attorneys who frequently handle ESI-heavy cases acknowledge that attorneys need to relinquish the notion that they can read every document in a case with voluminous digital evidence. Instead, attorneys must develop a strategy to focus on the evidence most relevant to their case:

In the past, you wanted to touch every paper—it was a point of pride if you'd touched and reviewed every paper. With the amount of data today, you can't touch every page any longer. The electronic storage curve is going up. I like to say, 'Even if you only

the evidence undermines the fairness and accuracy of the ultimate disposition of the case. Furthermore, if one party has vastly superior financial and investigative resources or disproportionate bargaining leverage in the case—and therefore little need to compromise—it can unduly influence the negotiations over digital discovery. As a result, the other party may be left with insufficient ability to gather, process, or review the digital evidence. It may also be pushed to agree to concessions—such as broad waivers of discovery, including of potentially exculpatory information—that risk compromising the fairness of the process.

Cooperation between the parties therefore has its limits. Defense counsel must consider at each step whether collaboration with the prosecution advances or compromises the client’s case. And both defense and prosecution must remain vigilant that their cooperation does not lead to unfair and unjust outcomes. Finally, a process that relies solely on bargaining between the parties—and therefore on the willingness and ability of individual prosecutors and defense attorneys to cooperate—is haphazard and may lead to arbitrary differences among similarly situated cases.²³³

VI. REGULATING DIGITAL DISCOVERY IN CRIMINAL CASES

Informal cooperation on digital discovery will not always occur in criminal cases, and even when it does, it may not produce efficient and fair resolution of discovery disputes. More extensive regulation of the process is therefore necessary. The civil procedure model, which has grappled with

looked at each page for two seconds, the amount of pages there are, it will take you 75 years . . . Lawyers have to understand they can’t see everything. That means that some relevant things are going to be excluded. Let’s say you exclude image files in a fraud case—well, if the client had a fax software, you might exclude some relevant faxes. So it’s important to talk to your client and know your case before you can make these decisions. You’re making broad cuts before ever looking at anything. It’s terrifying to a criminal defense attorney that you can miss something.

Interview with Marlo P. Cadeddu, *supra* note 82; *see also* Interview with Jason Hawkins, *supra* note 85 (“Some defense attorneys think you have to look at every page, touch everything. But you can’t do that with voluminous ESI. You have to have a theory of the defense case.”).

²³³ Cf. CARDONE REPORT, *supra* note 71, at 230 (citing Michael Caruso, Federal Public Defender, S.D. Fla.) (“Here in this district . . . the process is quite haphazard. We may have a case where you just get a document dump . . . We have other cases where prosecutors will provide a skeletal index. We have other cases where the prosecutors will provide a full index and will sit down and talk with you and walk you through everything that’s in the 1,000 PDFs . . . Unless there is a uniform standard, especially in the area of electronic discovery, I don’t know if there’s much we can do except bargain on . . . a case by case basis for a better outcome.”).

digital discovery for over two decades, can provide a helpful point of comparison for criminal procedure rule makers. This Part reviews the promise and limits of the civil procedure model and lays out a framework to regulate digital discovery in criminal cases.

A. LESSONS FROM CIVIL PROCEDURE

Starting in the late 1990s, as digital evidence began proliferating, parties and courts in civil cases were confronted with the problems of voluminous and complex electronic discovery. The problem arose in civil cases earlier than in criminal cases because civil discovery requirements are significantly broader and civil disputes frequently feature businesses that store and process vast amounts of data. While these businesses can typically afford to pay for a large team of lawyers to process, review, and produce such evidence, the challenges remain daunting, as a 2007 article by experienced litigators explained:

Take then, for example, litigation in which the universe subject to search stands at one billion e-mail records, at least 25% of which have one or more attachments of varying length (1 to 300 pages). Generously assume further that a model “reviewer” (junior lawyer, legal assistant, or contract professional) is able to review an average of fifty e-mails, including attachments, per hour. Without employing any automated computer process to generate potentially responsive documents, the review effort for this litigation would take 100 people, working ten hours a day, seven days a week, fifty-two weeks a year, over fifty-four years to complete. And the cost of such a review, at an assumed average billing of \$100/hour, would be \$2 billion. Even, however, if present-day search methods . . . are used to initially reduce the e-mail universe to 1% of its size . . . the case would still cost \$20 million for a first pass review conducted by 100 people over 28 weeks, without accounting for any additional privilege review.²³⁴

To address the problem of voluminous discovery, the Advisory Committee on the Civil Rules has amended the Rules of Civil Procedure several times, starting in 1983.²³⁵ In 2006, the Rules also expressly addressed the distinct challenges of electronic discovery.²³⁶ The rules promote cooperation between the parties to resolve e-discovery disputes and provide for judicial guidance in cases where cooperation fails to achieve fair and efficient discovery.

²³⁴ George L. Paul & Jason R. Baron, *Information Inflation: Can the Legal System Adapt?*, 13 RICH. J.L. & TECH. 10, *20 (2007).

²³⁵ FED. R. CIV. P. 26 advisory committee’s note to the 1983 amendment.

²³⁶ FED. R. CIV. P. 26 advisory committee’s note to the 2006 amendment.

1. Promoting Cooperation Between the Parties

The Rules and decisions interpreting the Rules are based on the idea that the digital information overload requires a “change in culture” among litigators when it comes to discovery: “truculence, gamesmanship, and a supreme rule of ‘volunteer nothing’” have to give way to cooperation.²³⁷ To promote such cooperation, Rule 26(f) requires attorneys to meet and confer about discovery issues before the initial scheduling conference with the court.²³⁸ The Rule demands that the parties work together in good faith to develop a discovery plan to be submitted to the court within fourteen days of the conference.²³⁹ The discovery plan must state the parties’ views on “issues about disclosure, discovery or preservation of electronically stored information, including the form or forms in which it should be produced.”²⁴⁰ Court decisions have further held that the parties should discuss difficult and potentially contentious e-discovery issues, such as “whether each other’s software is compatible . . . and how to allocate costs [of e-discovery].”²⁴¹ Elaborating on the Federal Rules, many court decisions and local rules have provided more specific guidelines, urging the parties to reach agreement on items such as production format, “search terms, date ranges, key players, and the like.”²⁴²

Yet not all civil lawyers believe in the value of cooperation in e-discovery. In fact, the traditional view about discovery is that it is “a game, where players stall, obfuscate, and contest all discovery.”²⁴³ Accordingly, many civil litigators continue to abuse discovery to harass their opponents or delay the case.²⁴⁴ Surveys have found that civil litigators tend to be more

²³⁷ Paul & Baron, *supra* note 234, at *3.

²³⁸ FED. R. CIV. P. 26(f).

²³⁹ *Id.*

²⁴⁰ *Id.*

²⁴¹ *In re Bristol-Myers Squibb Securities Litigation*, 205 F.R.D. 437, 444 (D.N.J. 2002). More generally, judges have cited with approval to the “Cooperation Proclamation” issued by the Sedona Conference (a working group of attorneys, judges, and other experts on complex litigation), which instructs attorneys to “strive in the best interests of their clients to achieve the best results at a reasonable cost, with integrity and candor as officers of the court.” SCHEINDLIN & CAPRA, *supra* note 19, at 106.

²⁴² *Trusz v. UBS Realty Inv’ts LLC*, 2010 WL 3583064, at *5 (D. Conn. Sept. 7, 2010).

²⁴³ Paul W. Grimm & Heather Leigh Williams, “*The [Judicial] Beatings Will Continue until Morale Improves*”: *The Prisoner’s Dilemma of Cooperative Discovery and Proposals for Improved Morale*, 43 U. BALT. L.F. 107, 116 (2013).

²⁴⁴ See, e.g., Paul W. Grimm, *The State of Discovery Practice in Civil Cases: Must the Rules Be Changed to Reduce Costs and Burden, or Can Significant Improvements Be Achieved Within the Existing Rules?*, 12 SEDONA CONF. J. 47 (2011); Rebecca M. Hamburg & Matthew C. Koski, Summary of Results of Federal Judicial Center Survey of NELA Members, Fall 2009 (Nat’l Empl. Lawyers Assoc. Mar. 26, 2010), at

adversarial and less likely to cooperate with one another than lawyers in criminal cases, in large part because of the less frequent repeat player interaction between lawyers in civil disputes.²⁴⁵ Discovery cooperation may therefore fail when the attorneys have a poor relationship with each other, or when they find it strategically useful to act in an adversarial fashion.²⁴⁶ Non-cooperation is also more likely to occur when lawyers do not understand the technological issues involved in e-discovery.²⁴⁷

2. Encouraging Judicial Management

Recognizing the persistence of adversarial tactics in discovery, the Civil Rules also provide for active and early judicial management of discovery, as well as judicial intervention when cooperation fails. At the Rule 16 pretrial conference early in the litigation, and again later during the discovery process, judges are expected to step in to manage schedules and resolve disputes. The Advisory Committee notes to the Federal Rules of Civil Procedure stress “the need for continuing and close judicial involvement in the cases that do not yield readily to the ideal of effective party management.”²⁴⁸ This management may be provided by a district court judge, but more often, it is delegated to a magistrate.²⁴⁹ Occasionally,

http://www.uscourts.gov/sites/default/files/nela_summary_of_results_of_fjc_survey_of_nela_members.pdf [<https://perma.cc/7A3Q-TVQJ>] (finding that approximately two-thirds of respondents to NELA survey believe that discovery is abused in almost every case); ABA SECTION OF LITIGATION MEMBER SURVEY ON CIVIL PRACTICE: DETAILED REPORT 106 (2009), at www.abanet.org/litigation/survey/docs/report-aba-report.pdf [<https://perma.cc/29QS-696L>] (finding that most defense and mixed practice lawyers tend to agree that e-discovery is being abused by counsel, while most plaintiffs’ lawyers do not).

²⁴⁵ Schneider, *supra* note 183, at 151, 156–57.

²⁴⁶ See, e.g., Mitchell London, *Resolving the Civil Litigant’s Discovery Dilemma*, 26 GEO. J. LEGAL ETHICS 837, 838 (2013) (“The high costs [of e-discovery] have incentivized lawyers to engage in abusive or excessive discovery practices as a strategy to either increase settlement pressure or force their adversaries to abandon the dispute. Because abusive methods have proliferated, litigants assume that their adversary is strategically abusing the process—either by making unreasonable requests or by hiding information.”).

²⁴⁷ SEVENTH CIRCUIT ELEC. DISCOVERY COMM., SEVENTH CIRCUIT ELECTRONIC DISCOVERY PILOT PROGRAM REPORT ON PHASE ONE 20 (2010), available at <https://www.discoverypilot.com/sites/default/files/phase1report.pdf> [<https://perma.cc/64JN-MG6B>].

²⁴⁸ FED. R. CIV. P. 26 advisory committee’s note to the 2015 amendment.

²⁴⁹ Hon. Paul W. Grimm, *Are We Insane? The Quest for Proportionality in the Discovery Rules of the Federal Rules of Civil Procedure*, 36 REV. LITIG. 117, 134–41 (2017) (reporting findings of survey of federal judges); cf. 28 U.S.C. § 636(b) (2009) (authorizing such delegation); FED. R. CIV. P. 72 (setting out procedures to be used by magistrates in managing pretrial matters such as discovery).

judges may also appoint special masters to help the parties coordinate discovery more effectively.²⁵⁰ The goal of judicial management is to reduce the costs of discovery and the length of the proceedings, while ensuring that the case is resolved in a fair and just manner.²⁵¹

Judges rely on the principle of proportionality to limit discovery perceived as redundant or overly burdensome. Proportionality was first introduced by the Rules in 1983 to manage large-volume discovery and has since been refined numerous times, both in the Rules and in case law.²⁵² The most recent amendment of Rule 26(b)(1) uses proportionality to limit the scope of discoverable evidence at the outset. Parties may obtain discovery of evidence only if it is nonprivileged, relevant to a claim or defense, and proportional to the needs of the case.²⁵³ In determining proportionality, the court must consider “the importance of the issues at stake in the action, the amount in controversy, the parties’ relative access to relevant information, the parties’ resources, the importance of the discovery in resolving the issues, and whether the burden or expense of the proposed discovery outweighs its likely benefit.”²⁵⁴ Judges are supposed to restrict discovery if the process is being abused or “overused” such that the discovery requested is out of proportion with the needs of the case.²⁵⁵

With respect to ESI, the rules impose more specific limits. If a party shows that the data sought are “not reasonably accessible because of undue burden or cost,” the court may issue a protective order that shields the responding party from production.²⁵⁶ But if the requesting party shows

²⁵⁰ FED. R. CIV. P. 53; Grimm, *supra* note 249, at 154–56. Because the parties must bear the costs of a special master appointment, a master will be appointed only if either the parties consent or an exceptional circumstance warrants the appointment or it is necessary to “address pretrial . . . matters that cannot be effectively and timely addressed by an available district judge or magistrate judge of the district.” FED. R. CIV. P. 53(a)(1).

²⁵¹ FED. R. CIV. P. 1 (noting that the Rules of Civil Procedure should be interpreted in such a way as “to secure the just, speedy and inexpensive determination of every action and proceeding”).

²⁵² FED. R. CIV. P. 26 advisory committee’s notes to the 1983 and 2015 amendments; Grimm, *supra* note 249, at 123–34.

²⁵³ FED. R. CIV. P. 26(b)(1).

²⁵⁴ *Id.*

²⁵⁵ Under Rule 26(b)(2)(C), the court is expected to curtail discovery if it determines that: “the discovery sought is unreasonably cumulative or duplicative, or can be obtained from some other source that is more convenient, less burdensome, or less expensive; the party seeking discovery has had ample opportunity to obtain the information by discovery in the action;” or “the proposed discovery is outside the scope permitted by Rule 26(b)(1).” FED. R. CIV. P. 26(b)(2)(C). See *Carr v. State Farm Mut. Auto. Ins. Co.*, 312 F.R.D. 459, 468 (N.D. Tex. 2015) (“[A] court can—and must—limit proposed discovery that it determines is not proportional to the needs of the case.”).

²⁵⁶ FED. R. CIV. P. 26(b)(2)(B).

good cause, the court may still order discovery even though the ESI is difficult or costly to produce.²⁵⁷ In deciding whether good cause exists, courts consider, among else, the relevance and usefulness of the ESI to the case, the availability of similar information from more easily accessed sources, the importance of the issues at stake in the litigation, and the parties' resources.²⁵⁸

Courts have adopted a range of other measures to reduce the cost and complexity of voluminous digital discovery.²⁵⁹ Under a "phased discovery" approach, judges have limited the discovery allowed at the outset of the process and later reassessed the need for additional discovery based on the initial production.²⁶⁰ Courts have also encouraged the parties to limit the number of "custodians" or sources to be searched,²⁶¹ or to stipulate to certain facts in an effort to focus the litigation on matters that are in dispute.²⁶² Judges have also ordered the discovery of only a statistically significant sample of the other party's records, particularly in cases involving massive databases.²⁶³

Another technique commonly used to reduce the costs of discovery is to shift the costs of production from one party to the other. The presumption in civil procedure is that the party responding to a discovery request must bear the financial burden of complying with the request.²⁶⁴ But where such compliance would entail an "undue burden or expense," the producing party may ask the court to shift the burden to the party seeking discovery.²⁶⁵ Such cost-shifting may incentivize the requesting party to

²⁵⁷ *Id.* "Active" data are typically considered accessible, but backup tapes and erased, fragmented, or damaged data are typically deemed inaccessible. *See, e.g.,* Zubulake v. UBS Warburg LLC, 216 F.R.D. 280, 284 (S.D.N.Y. 2003).

²⁵⁸ FED. R. CIV. P. 26 advisory committee's note to the 2006 amendment; *see also* Cassie M. v. Chafee, 2013 WL 11327084, at *5–*8 (D.R.I. Oct. 3, 2013); John B. v. Goetz, 879 F. Supp. 2d 787, 884–89 (M.D. Tenn. 2010); Disability Rights Council of Greater Washington v. WMATA, 242 F.R.D. 139, 147–48 (D.D.C. 2007).

²⁵⁹ Grimm, *supra* note 249, at 141–76.

²⁶⁰ *See, e.g., id.* at 159–60.

²⁶¹ *See, e.g.,* United States ex rel. McBride v. Halliburton Co., 272 F.R.D. 235, 241 (D.D.C. 2011) (using proportionality analysis to limit the number of custodians whose data would be searched); Lights Out Holdings, LLC v. Nike, Inc., 2015 WL 4612116, at *3 (S.D. Cal. July 31, 2015) (ordering the parties to meet and confer to limit the number of custodians).

²⁶² *See, e.g.,* Donald E. Christophers, *Case Management Conferences and Pretrial Hearings, and Pretrial Stipulations and Orders*, BL FL-CLE 10-1 (2017).

²⁶³ Grimm, *supra* note 249, at 162–63.

²⁶⁴ *Oppenheimer Fund, Inc. v. Sanders*, 437 U.S. 340, 358 (1978).

²⁶⁵ *Id.* Cost-shifting may also be ordered as part of a proportionality approach, even when production is not shown to be unduly burdensome.

narrow its discovery requests and therefore lower the costs of e-discovery.²⁶⁶

To lessen the most significant costs of discovery—the costs of review—some courts have encouraged the use of technology such as predictive coding.²⁶⁷ Predictive coding uses artificial intelligence to find relevant documents more accurately than keyword searching.²⁶⁸ The process begins by human review of a sample set of documents.²⁶⁹ The computer then reviews the initial sample set of documents, identifies common features, and looks for similar documents in the remaining set.²⁷⁰ At that point, an attorney reviews the results of the computerized search and adjusts the search criteria as needed.²⁷¹ Testing and improving results at each step of the process, predictive coding can produce an accuracy level similar to that of manual review of voluminous evidence, but at a lesser cost and faster speed.²⁷²

Another way in which courts have tried to reduce the costs of e-discovery is to shorten the timeline within which discovery occurs. Where the parties have failed to agree on deadlines, judges have set timetables themselves. They have also imposed sanctions when the parties have failed to comply with their discovery obligations.²⁷³

While judges frequently focus on restricting the scope of discovery to manageable proportions, at times, they temper efforts to narrow the scope of discovery in order to ensure that the process is fair. For example, the Advisory Committee on Civil Rules has clarified that, in conducting proportionality analyses, courts should consider “the parties’ relative access to relevant information.”²⁷⁴ This factor was included to address cases with “information asymmetry,” where “one party—often the individual

²⁶⁶ E.g., Hon. James C. Francis IV, *Cost Shifting in E-Discovery*, in *MANAGING E-DISCOVERY AND ESI: FROM PRE-LITIGATION THROUGH TRIAL* 591, 613–14 (Michael D. Berman et al. eds. 2011).

²⁶⁷ Grimm, *supra* note 249, at 167–69.

²⁶⁸ Edward J. Imwinkelried & Theodore Y. Blumoff, *Tactics for Attorney Seeking Production*, *PRETRIAL DISCOVERY STRATEGY & TACTICS* § 9:13 (2017).

²⁶⁹ *Id.*

²⁷⁰ *Id.*

²⁷¹ *Id.*

²⁷² *Id.* But cf. David J. Waxse & Brenda Yoakum-Kriz, *Experts on Computer-Assisted Review: Why Federal Rule of Evidence 702 Should Apply to Their Use*, 52 *WASHBURN L.J.* 207 (2013) (noting that the use of experts to offer opinions on predictive coding may decrease the efficiency of the technology).

²⁷³ See, e.g., *FED. R. CIV. P.* 37; *Patroski v. Ridge*, 2011 WL 5593738, at *4 (W.D. Pa. Nov. 17, 2011).

²⁷⁴ *FED. R. CIV. P.* 26 advisory committee’s note to the 2015 amendment.

plaintiff—may have very little discoverable information. . . [while] [t]he other party may have vast amounts of information, including information that can be readily retrieved. . . .”²⁷⁵ When this occurs, “the burden of responding to discovery lies heavier on the party who has more information. . . .”²⁷⁶

In the interests of fairness, when deciding whether to restrict e-discovery or shift its costs, courts may also consider factors such as each party’s ability to control costs, the importance of the issues at stake, and the parties’ resources.²⁷⁷ If a case involves an important public matter—such as a constitutional, civil rights, or criminal law question—courts are more likely to order discovery, even if producing such discovery is unduly burdensome.²⁷⁸ Likewise, if the party requesting discovery has significantly fewer resources than the party producing discovery, the court is less likely to shift costs for the production.²⁷⁹ As the next section discusses, courts have also used the format and organization requirements of Rule 34 to prevent a better-resourced party from overwhelming the other side with voluminous and disorganized production of ESI. In all these ways, courts help ensure that e-discovery proceeds not simply efficiently, but also fairly.

3. Drafting Detailed Rules

The Federal Rules of Civil Procedure set out clearly what the parties’ presumptive obligations are with respect to the formatting and organization of ESI production. Rule 34(b)(1)(C) provides that the party requesting ESI “may specify the form or forms in which electronically stored information is to be produced.”²⁸⁰ If the responding party objects to the requested form of ESI, it must state the form it would use instead.²⁸¹ If the parties cannot

²⁷⁵ *Id.*

²⁷⁶ *Id.*

²⁷⁷ *John B. v. Goetz*, 879 F. Supp. 2d 787, 887 (M.D. Tenn. 2010); *Zubulake v. UBS Warburg LLC*, 217 F.R.D. 309, 322 (S.D.N.Y. 2003); *see also* FED. R. CIV. P. 26(b)(2) advisory committee’s note to the 2006 amendment (listing factors to be considered in restricting discovery and shifting costs). In determining the parties’ resources, some courts focus solely on the parties’ finances, while others also consider counsel’s resources. *Francis IV*, *supra* note 266, at 610–11.

²⁷⁸ *See, e.g., Simon v. Nw. Univ.*, 2017 WL 467677, at *2 (N.D. Ill. Feb. 3, 2017); *Goetz*, 879 F. Supp. 2d at 887.

²⁷⁹ *See, e.g., Hawa v. Coatesville Area Sch. Dist.*, 2017 WL 1021026, at *2 (E.D. Pa. Mar. 16, 2017) (refusing to shift costs from school district to individual plaintiffs, given the disparity of resources between the parties).

²⁸⁰ FED. R. CIV. P. 34(b)(1)(C).

²⁸¹ FED. R. CIV. P. 34(b)(2)(D).

come to an agreement about the form and format of electronic discovery, the court will decide. The court will be guided by the default requirements²⁸² laid out in Rule 34(b)(2)(E):

- (i) A party must produce documents as they are kept in the usual course of business or must organize and label them to correspond to the categories in the request;²⁸³
- (ii) If a request does not specify a form for producing electronically stored information, a party must produce it in a form or forms in which it is ordinarily maintained or in a reasonably usable form or forms; and
- (iii) A party need not produce the same electronically stored information in more than one form.²⁸⁴

These requirements prevent discovery “dumps” of “an unidentified mass” of documents, as well as the deliberate mixing of relevant and irrelevant ESI to make it difficult for the receiving party to review.²⁸⁵ Similar provisions in state rules of civil procedure guide the production, formatting, and labeling of ESI to ensure fair and efficient discovery.²⁸⁶

Judges have relied on these requirements and on their own inherent authority to manage discovery to order parties to organize and label documents and ESI produced in discovery.²⁸⁷ To facilitate review by the

²⁸² The Rule states that these requirements apply “unless otherwise stipulated or ordered by the court.” FED. R. CIV. P. 34(b)(2)(E).

²⁸³ As a Michigan federal court explained:

Rule 34(b)(i) is meant to prevent a party from obscuring the significance of documents by giving some structure to the production. The party arguing that it produced documents as they were kept in the usual course of business bears the burden of showing that the documents were so kept. A party does so by revealing such information as where the documents were maintained, who maintained them, and whether the documents came from one single source or file or from multiple sources or files.

Nolan, LLC. v. TDC Int’l Corp., 2007 WL 3408584, at *2 (E.D. Mich. Nov. 15, 2007) (citations omitted). If the producing party fails to explain how the documents were kept in the ordinary course of business, then it must organize the production to correspond to the request for production. *See, e.g.*, *Energy Power (Shenzhen) Co. Ltd. v. Xiaolong Wang*, 2014 WL 4687542, at *4 (D. Mass. Sept. 17, 2014).

²⁸⁴ FED. R. CIV. P. 34(b)(2)(E). Although 34(b)(2)(E)(i) refers to “documents” while (ii) expressly refers to ESI, most courts have held that both (i) and (ii) apply to ESI because the drafters intended to reduce the hurdles of ESI review faced by the receiving party. Steven S. Gensler, *Rule 34*, 1 FED. R. CIV. PROC., RULES AND COMMENTARY (2018).

²⁸⁵ *See, e.g.*, FED. R. CIV. P. 34 advisory committee’s notes to 1980 and 2006 amendments; *United States v. O’Keefe*, 537 F. Supp. 2d 14, 19–20 (D.D.C. 2008); *see also Landry v. Swire Oilfield Servs., LLC*, 323 F.R.D. 360, 386–89 (D.N.M. 2018).

²⁸⁶ *See, e.g.*, N.Y. C.P.L.R. 3122(c); N.J. Ct. R. 4:18-1; FLA. R. CIV. P. 1.350.

²⁸⁷ *See, e.g.*, *Energy Power*, 2014 WL 4687542, at *4 (holding that where the producing party did not show that the documents were produced as they were kept in the usual course of business, they must organize and label the documents to correspond to the categories in

requesting party, they have also required the parties to produce ESI in a format that is “reasonably usable,” even if this requires converting the files in a different format.²⁸⁸ When the ESI is particularly complex—for example, when producing database information—courts have even ordered the producing party “to provide some reasonable amount of technical support, information on application software, or other reasonable assistance to enable the requesting party to use the information.”²⁸⁹

In brief, the law regulates digital discovery more closely in civil than in criminal cases. Some of the rules and managerial techniques of civil procedure could also be applied in criminal cases, and indeed, a few judges have done precisely that.²⁹⁰ But as the next section elaborates, a number of important differences between civil and criminal cases limit the analogical value of the civil model for digital discovery. These differences explain why wholesale adoption of the civil procedure rules for digital discovery would not work and why more tailored regulation for criminal case e-discovery is needed.

B. THE LIMITS OF THE CIVIL PROCEDURE MODEL

A number of differences between the civil and criminal procedure frameworks caution against wholesale adoption of the civil model. These include different pleading standards, varying background discovery rules, and disparity in the resources available to the parties. More broadly, criminal procedure rules incorporate important constitutional rights, which

request for production); *Hanwha Azdel, Inc. v. C & D Zodiac, Inc.*, 2012 WL 6726412, at *2 (W.D. Va. Dec. 27, 2012) (holding that defendant “violated Rule 34 by not producing its ESI in a format which is usable or providing an index and ordering the documents responsive to the specific requests for production”); *EEOC v. DHL Exp.*, 2011 WL 6825516, at *3 (N.D. Ill. Dec. 28, 2011) (ordering the defendant to supplement discovery with a “particularized list of the discovery request(s) to which each spreadsheet, or groups of spreadsheets, if appropriate, is responsive”); *City of Colton v. Am. Promotional Events Inc.*, 277 F.R.D. 578 (C.D. Cal. 2011) (ordering the production of ESI in native format or the labeling of ESI production to correspond to requests for production); *see also* *Suarez Corp. Industries v. Earthwise Technologies, Inc.*, 2008 WL 2811162, at *3 (W.D. Wash. July 17, 2008) (ordering the defendant to “convey some information as to *how* documents [produced] were determined to be responsive or *how* the documents were kept in the normal course of business”).

²⁸⁸ *See, e.g., In re Verisign, Inc., Sec. Litig.*, 2004 WL 2445243, at *3 (N.D. Cal. Mar. 10, 2004).

²⁸⁹ *Pero v. Norfolk Southern Ry., Co.*, 2014 WL 6772619, at *2 (E.D. Tenn. Dec. 1, 2014) (citing FED. R. CIV. P. 34 advisory committee’s note to the 2006 amendment); *see also* *Frye v. CSX Transp., Inc.*, 2016 WL 2758268, at *3 (E.D. Mich. May 12, 2016); *Gensler, supra* note 284, at 15.

²⁹⁰ *See, e.g., United States v. Briggs*, 831 F. Supp. 2d 623, 628 (W.D.N.Y. 2011); *United States v. O’Keefe*, 537 F. Supp. 2d 14 (D.D.C. 2008).

restrain the ability of the state to gather information directly from defendants.²⁹¹ Other critical constitutional rights that shape criminal procedure include the rights to due process (which is more robust in the criminal than the civil context), to speedy trial, and to effective counsel.²⁹² These may warrant more active judicial intervention in certain discovery disputes—for example, to ensure that a criminal defendant has a reasonable opportunity to prepare for trial. Finally, the public interest in ensuring fair, accurate, and transparent criminal prosecutions also has implications for criminal case discovery rules, weighing against certain restrictions and waivers of discovery that are more easily accepted in civil cases. While many other differences between the civil and criminal procedure frameworks exist, the brief overview in this section focuses on those differences that are especially pertinent to digital discovery rules and practices.

As a preliminary matter, the background pleading and discovery rules differ significantly in civil and criminal cases.²⁹³ Parties in a civil case can discover a broader range of information than their counterparts in a criminal case. In a civil case, discovery is available on any matter that is not privileged, is relevant to claims and defenses, and is proportional to the case.²⁹⁴ The broad availability of discovery in civil cases raises the cost and complexity of digital evidence that the parties must handle. By contrast, criminal procedure rules limit in various ways the type of evidence that must be produced by either party, reducing the volume of digital discovery.²⁹⁵

At the same time, civil procedure rules better equip the parties to cope with voluminous digital discovery. Pleading requirements are more demanding in civil cases and thus help the parties better understand the issues in dispute. The complaint must include “a short and plain statement of the claim showing that the [plaintiff] is entitled to relief”²⁹⁶ To sustain a motion to dismiss, the complaint must include “enough facts to

²⁹¹ U.S. Const. amend. V, VI, XIV.

²⁹² U.S. Const. amend. V, VI, XIV.

²⁹³ For a fascinating analysis of the different trajectories of the federal civil and criminal procedure rules, see Ion Meyn, *Why Civil and Criminal Procedure Are So Different: A Forgotten History*, 86 *FORDHAM L. REV.* 697 (2017).

²⁹⁴ FED. R. CIV. P. 26(b)(1).

²⁹⁵ *Degen v. United States*, 517 U.S. 820, 825–26 (1996) (citing FED. R. CIV. P. 26(b)(1)). The main reason for these limitations is the concern about protecting victims, witnesses, and informants. See, e.g., Meyn, *supra* note 21, at 1127–28.

²⁹⁶ FED. R. CIV. P. 8(a)(2); *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 555 (2007) (quoting *Conley v. Gibson*, 355 U.S. 41, 47 (1957)).

state a claim that is plausible on its face.”²⁹⁷ In other words, “[f]actual allegations must be enough to raise a right to relief above the speculative level.”²⁹⁸ While the exact level of detail required is ultimately left to the trial judge’s discretion, the Supreme Court has specified that “‘labels and conclusions’ or a ‘formulaic recitation of the elements of a cause of action will not do.’”²⁹⁹ As a result of this jurisprudence, civil defendants have better notice than criminal defendants about the key facts supporting the allegations against them, and the pleadings can help civil parties direct their digital discovery efforts.³⁰⁰

By contrast, defendants in criminal cases typically receive only a skeletal description of the relevant facts in the indictment or information.³⁰¹ Rules of criminal procedure require merely that the charging instrument contain a “plain, concise, and definite written statement of the essential facts constituting the offense charged”³⁰² Prosecutors need not state the facts in specific detail. An indictment will survive a motion to dismiss as long as it informs the defendant of the statute he is charged with violating, lists the elements of the offense charged, and specifies the time and place of the alleged offense.³⁰³ In theory, a defendant may file a motion

²⁹⁷ *Twombly*, 550 U.S. at 570. “A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged.” *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009).

²⁹⁸ *Twombly*, 550 U.S. at 555.

²⁹⁹ *Iqbal*, 556 U.S. at 678 (quoting *Twombly*, 550 U.S. at 555).

³⁰⁰ Roughly half of the states have rules that replicate the federal rules on this point, while the rest have procedures that differ significantly. Roger Michalski & Abby K. Wood, *Twombly and Iqbal at the State Level*, 14 J. EMPIRICAL LEGAL STUD. 424, 430 (2017). In the wake of *Twombly* and *Iqbal*, twenty-four states have moved towards “tighter pleading” while twenty-six states have maintained “notice pleading.” A. Benjamin Spencer, *Pleading in State Courts After Twombly and Iqbal*, POUND CIV. JUST. INST. 2 (2010), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2038349 [https://perma.cc/Y42K-5P7T].

³⁰¹ Draft Minutes, Criminal Rules Meeting, Sept. 19, 2016, at 9, in Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 27.

³⁰² FED. R. CRIM. P. 7(c)(1). See, e.g., FLA. R. CRIM. P. 3.140(b) (providing that an indictment or information shall be a “plain, concise, and definite written statement of the essential facts constituting the offense charged”); 725 ILL. COMP. STAT. ANN. 5/111-3 (stating that the charge must include the name of the offense, the statutory provision, the nature and elements of the offense, the date and county of the offense, and the name of the accused); TEX. CODE CRIM. P. art. 21.02 (providing that an indictment must contain the name of the accused, the place where the offense was committed, and the offense set forth in “plain and intelligible words.”).

³⁰³ *United States v. Urban*, 404 F.3d 754, 772 (3d Cir. 2005); *United States v. Ulbricht*, 31 F. Supp. 3d 540, 549 (S.D.N.Y. 2014).

for a bill of particulars if the indictment is not sufficiently specific.³⁰⁴ But such motions are rarely granted, particularly if the defendant is entitled to discovery.³⁰⁵ In fact, motions for bills of particulars are often seen by prosecutors and courts as aggressive tactics by the defense and might invite retaliation.³⁰⁶

In addition to requiring greater specificity in pleadings, civil rules provide for active discovery tools such as depositions and interrogatories. These tools again help the parties better understand the heart of the case and review ESI accordingly.³⁰⁷ They can help not only with understanding the substance of the evidence produced, but also with the organization of the discovery. For example, in civil cases with voluminous digital discovery, the parties receiving the ESI have used interrogatories and depositions to determine the procedures that the producing party used to collect, search, and produce the information.³⁰⁸

But in criminal cases, neither depositions nor interrogatories are generally available.³⁰⁹ The prosecution has a powerful substitute for a deposition: subpoenaing witnesses to testify before a grand jury. But the defense has no such powers and has to rely on the voluntary cooperation of potential witnesses, which is rarely forthcoming. As a result, the defense is at a significant disadvantage in obtaining relevant testimonial evidence—in comparison to both the prosecution and civil litigants.³¹⁰ This undercuts its ability to understand the crux of the case and focus its discovery efforts accordingly.

³⁰⁴ FED. R. CRIM. P. 7(f).

³⁰⁵ See, e.g., *Urban*, 404 F.3d at 772; *United States v. Giese*, 597 F.2d 1170, 1180 (9th Cir. 1979); Andrew D. Leipold, *How the Pretrial Process Contributes to Wrongful Convictions*, 42 AM. CRIM. L. REV. 1123, 1148 (2005) (same); Hon. H. Lee Sarokin, *Presumed Innocent? Restrictions on Criminal Discovery in Federal Court Belie This Presumption*, 43 RUTGERS L. REV. 1089, 1093 (1991) (noting that motions for bills of particulars are rarely granted).

³⁰⁶ HEUMANN, *supra* note 180, at 52–91 (finding that prosecutors and courts view motions for bills of particulars as aggressive tactics and that such motions are usually filed by inexperienced defense attorneys).

³⁰⁷ See, e.g., Edward L. Miner & Adrian P. Schoone, *The Effective Use of Written Interrogatories*, 60 MARQ. L. REV. 29, 29 (1976); see also Draft Minutes, Criminal Rules Meeting, Sept. 19, 2016, at 9, in Advisory Committee on Criminal Rules, Meeting, Washington, D.C., Apr. 28, 2017, at 27.

³⁰⁸ See, e.g., Jeffrey Gross, *Objection to Form: Rule 34(B) and the Form of Production of Electronically Stored Information*, 20 PRAC. LITIGATOR 39, 43 (2009).

³⁰⁹ See, e.g., Meyn, *supra* note 21, at 1110, 1114 (surveying the availability of depositions and interrogatories in criminal cases in different jurisdictions).

³¹⁰ See, e.g., *id.* at 1091–97.

In one respect, the prosecution is also more limited in its ability to obtain testimonial evidence than a civil party might be. The privilege against self-incrimination limits the ability of the prosecution to obtain statements directly from the defendant.³¹¹ But exceptions to the privilege against self-incrimination and the willingness of most defendants to waive their right to remain silent mean that, in practice, the prosecution is frequently able to obtain at least some critical information from the defendant as well.³¹² And as discussed earlier, the privilege against self-incrimination has been interpreted to permit provisions demanding a broad range of documentary evidence from the defense, including documents and tangible objects the defense intends to use in its case, summaries of anticipated expert testimony, and witness names and statements.³¹³

The legal framework for obtaining documentary evidence from third parties is likewise more favorable to civil litigants than to criminal defendants. In civil cases, subpoenas for documents have to merely meet a forgiving relevance standard.³¹⁴ Relevance in this context has been interpreted “broadly to encompass any matter that bears on, or that reasonably could lead to other matter that could bear on any issue that is or may be in the case.”³¹⁵ Subpoenas requesting relevant evidence will be quashed or modified only if they require disclosure of privileged information, impose an undue burden or cost on the person or entity that is subject to the subpoena, or fail to meet geographical or timing requirements.³¹⁶

By contrast, in criminal cases, the *Nixon* standard requires that subpoenas to non-parties meet the more stringent requirements of relevancy, admissibility, and specificity.³¹⁷ Parties in criminal cases are therefore more constrained than their civil counterparts in obtaining documentary evidence from non-parties. The limits on subpoena powers

³¹¹ Robert P. Mosteller, *Discovery Against the Defense: Tilting the Adversarial Balance*, 74 CALIF. L. REV. 1567, 1572 (1986) (noting constitutional limitations on discovery against the defense).

³¹² William W. Berry III, *Magnifying Miranda*, 50 TEX. TECH L. REV. 97, 103 (2017).

³¹³ See *supra* notes 53–55 and accompanying text.

³¹⁴ FED. R. CIV. P. 26(b)(1) & 45; *Warnke v. CVS Corp.*, 265 F.R.D. 64, 66 (E.D.N.Y. 2010). The Civil Rules also require that the subpoena not be unduly burdensome. FED. R. CIV. P. 45(d)(3)(A)(iv).

³¹⁵ *AP Links, LLC v. Russ*, 299 F.R.D. 7, 11 (E.D.N.Y. 2014) (quoting *Oppenheimer Fund, Inc. v. Sanders*, 437 U.S. 340, 351 (1978)); see also *Zabin v. Picciotto*, 896 N.E.2d 937, 956 (Mass. 2008). Furthermore, “information within [the] scope of discovery need not be admissible in evidence to be discoverable.” FED. R. CIV. P. 26(b)(1).

³¹⁶ FED. R. CIV. P. 45(d)(3).

³¹⁷ See *supra* notes 127–131 and accompanying text.

affect criminal defendants disproportionately. While the prosecution can use searches and seizures to obtain documents and other tangible evidence from anyone who has evidence relevant to the case, the defense's only option for gathering tangible evidence from non-cooperative third parties is to rely on subpoenas. As a result, if the prosecution has failed to obtain data, metadata, or algorithms relevant to the defense case, the defense remains at a significant disadvantage in developing its case—an obstacle that civil parties do not face under civil subpoena and discovery rules.

Another reason why the civil procedure approach to e-discovery cannot be directly transplanted is the lack of resources in criminal cases generally, but especially on the defense side. In complex civil litigation, where e-discovery is likely to be the most challenging, the parties can typically afford to pay for sophisticated software and technology experts, as well as experienced lawyers and legal assistants to help with the process. By contrast, in criminal cases, both prosecutors and defense attorneys have limited funding for technological support and legal staff to process and review digital discovery.³¹⁸

Financial and staffing constraints are particularly acute for the defense. Resource disparities between the parties are a distinguishing feature of criminal cases in the United States.³¹⁹ Over 80% of felony defendants have appointed counsel, and appointed counsel—as well as many of retained counsel who are solo practitioners—have fewer investigative resources and staff than do prosecutors.³²⁰ Most pertinent to digital discovery, they can rarely afford the software and personnel to process voluminous digital

³¹⁸ See Brown, *supra* note 53, at 168 (describing difficulties experienced by local prosecutor offices in Texas that lack the capacity to manage electronic evidence); Doucette, *supra* note 4, at 431 (noting that few Virginia local prosecutor's offices have the capacity for e-discovery and that the introduction of such systems is "cost prohibitive" for many); see also Claud, *supra* note 80, at 145.

³¹⁹ See, e.g., Broderick, *supra* note 73. See generally Abraham Goldstein, *The State and the Accused: Balance of Advantage in Criminal Procedure*, 69 YALE L. J. 1149, 1149–50 (1960) (discussing the balance of legal advantages in favor of the prosecution); David Luban, *Are Criminal Defenders Different?*, 91 MICH. L. REV. 1729, 1731–49 (1993) (noting the resource differential between defense and prosecution).

³²⁰ Laurence A. Benner, *The Presumption of Guilt: Systemic Factors That Contribute to Ineffective Assistance of Counsel in California*, 45 CALIF. W. L. REV. 263, 268 (2009) ("For every dollar spent statewide on prosecution [in California], only fifty-three cents is spent on average for the defense of the indigent accused."); Hon. J. Harvie Wilkinson III, *In Defense of American Criminal Justice*, 67 VAND. L. REV. 1099, 1103 (2014) (quoting DEBORAH L. RHODE, ACCESS TO JUSTICE 123 (2004)) (acknowledging that indigent defense receives "only an eighth of the resources per case available to prosecutors"). On the crisis of indigent defense in the United States, see STANDING COMM. ON LEGAL AID & INDIGENT DEF., *supra* note 218, at v, 7–14.

evidence.³²¹ To purchase the necessary software and hire an information technology expert, appointed counsel has to get permission from the court. Judges have discretion on what funding to authorize and on what schedule.³²² Defense attorneys may therefore not have sufficient funding to review ESI adequately within the pretrial time constraints.³²³

Furthermore, while clients in civil cases are broadly available to review the discovery and help the attorney make sense of it, criminal defendants are often detained before trial and unable to assist counsel in preparing for trial.³²⁴ Detention exacerbates the asymmetry of resources in criminal cases and presents challenges that do not arise in civil cases.

Criminal cases also entail constitutional protections that civil cases do not. The earlier discussion referenced the limits that the privilege against self-incrimination sets on the ability of prosecutors to obtain testimonial

³²¹ See, e.g., Broderick & Aoki, *supra* note 14, at 7; CARDONE REPORT, *supra* note 71, at 228 (“Panel attorneys have an especially difficult time handling ESI. Many are solo practitioners with little or no staff, and they do not have the training, experience, or assistance needed to access and review ESI.”).

³²² See, e.g., 18 U.S.C. § 3006A(e)(1) (2012); United States v. Salyer, 2011 WL 1466887, at *10 (E.D. Cal. Apr. 18, 2011); Draft Minutes, Criminal Rules Meeting, Sept. 19, 2016, at 9, in Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 27 (“In 85-90% of cases defenders in federal cases represent poor people, and in those cases they must go to the judge if they want an expert. That complicates the situation enormously because the judges rightfully have discretion as to how much to spend, who you can hire, at what point you can hire them.”); 7 GUIDE TO JUDICIARY POLICY § 310.70.30-40, http://www.uscourts.gov/rules-policies/judiciary-policies/cja-guidelines/chapter-3-ss-320-authorization-investigative-expert#a320_70_30 [<https://perma.cc/XZ9U-MCEK>].

³²³ Cf. United States v. Budovsky, No. 13 CR 00368 (DLC), 2016 WL 386133, at *12 (S.D.N.Y. Jan. 28, 2016) (“Given the fact that the discovery contains so many pages and lines of data, no attorney or team of attorneys could meaningfully review all of it even with years to prepare for trial.”); United States v. Faulkner, 2011 WL 3962513 (N.D. Tex. Sept. 8, 2011) (rejecting defense motion of continuance and noting that funding for computer forensic expert in case involving 38 GB of ESI was approved eight months before trial date, that full, searchable access to the processed data was approved five months before trial, and that “decent access” to the ESI was provided to detained defendant 2 months before trial); cf. STANDING COMM. ON LEGAL AID & INDIGENT DEF., *supra* note 218, at 19 (noting that as a result of poor funding and excessive caseloads, “in many cases, indigent defense attorneys fail to fully conduct investigations [and] prepare their cases”).

³²⁴ In federal court, between 2008 and 2010, only 36% of defendants were released before the adjudication of their case. THOMAS H. COHEN, PRETRIAL RELEASE AND MISCONDUCT IN FEDERAL DISTRICT COURTS, 2008–2010 (BJS 2012), at <https://www.bjs.gov/content/pub/pdf/prmfdc0810.pdf> [<https://perma.cc/TG3F-G8RE>]. In state court, 62% of felony defendants were released prior to disposition of their case. THOMAS H. COHEN & BRIAN A. REAVES, PRETRIAL RELEASE OF FELONY DEFENDANTS IN STATE COURTS (BJS 2007), at <https://www.bjs.gov/content/pub/pdf/prfdsc.pdf> [<https://perma.cc/8DUW-GKUG>].

evidence directly from the defendant.³²⁵ In addition, the stronger due process protections in criminal cases, where the defendant's liberty is at stake, will at times mandate judicial intervention to ensure that discovery proceeds fairly and that the defendant receives effective counsel, even if he cannot afford one on his own. As discussion in the next section elaborates, given the more significant due process protections in criminal cases, the court may need to help defendants obtain digital evidence material to their case from private parties; facilitate review of digital evidence by defendants who are detained; and demand some prosecutorial organization of voluminous digital evidence produced to the defense, to ensure that exculpatory evidence is not overlooked.³²⁶

Besides stronger due process protections, criminal cases entail important public values that are less likely to be at stake in private disputes. Because of the public concerns involved, it is rarely appropriate to restrict discovery on efficiency grounds under a proportionality analysis.³²⁷ Facts necessary to the accurate resolution of a criminal or constitutional matter are important not solely to the parties, but also to the public, and therefore cannot remain concealed.³²⁸ By contrast, in purely private disputes, courts

³²⁵ See *supra* notes 311–313 and accompanying text.

³²⁶ See *infra* Part VI.C.2.

³²⁷ In civil cases, courts consider the importance of the issues at stake as one factor in the proportionality analysis. Accordingly, while discovery is less likely to be limited in those cases, the importance of the issues at stake is just one of several relevant factors, not a dispositive one, and courts in civil cases concerning public matters (such as civil rights claims) have occasionally restricted discovery when other factors have weighed in favor of a restriction. See *supra* notes 252–255, 277 and accompanying text.

³²⁸ In analyzing whether to restrict discovery under the proportionality principle, a recent court decision emphasized the important public issues at stake in criminal cases and related civil actions:

The Court finds the importance of the issues at stake in this action extremely high. The complaint on its face involves, among other things, two innocent civilians who were murdered, two people who lost their liberty for extended periods of time both of whom later had their convictions vacated, and a high profile journalism professor accused of employing unethical investigatory tactics at the behest of one of the nation's most prestigious universities. The loss of liberty alone, as alleged, is extremely significant . . . But the importance of this case transcends the parties involved: at its core, it questions the legitimacy of the criminal justice system as applied by the Cook County State's Attorney's office and the legitimacy of the criminal justice system as questioned by Northwestern and Professor Protes, all conducted squarely in the public eye. For these reasons, the Court finds this case to be of utmost importance.

Simon v. Nw. Univ., 2017 WL 467677, at *2 (N.D. Ill. Feb. 3, 2017); see also *John B. v. Goetz*, 879 F. Supp. 2d 787, 887 (M.D. Tenn. 2010) (noting that the importance of the issues at stake, enforcing congressional mandate to provide medically necessary care to children, is

are more open to constraining disproportionate discovery requests and better justified in doing so.

For all these reasons, legal as well as practical, the experiences with e-discovery in civil cases cannot be directly transplanted to the criminal context. Instead, a more cautious comparative analysis is required.

C. REGULATION OF DIGITAL DISCOVERY TAILORED FOR CRIMINAL CASES

While we must remain mindful of the differences between the civil and criminal procedure frameworks, important similarities remain that can help guide regulation of digital discovery in criminal cases. As David Sklansky and Stephen Yeazell have argued, “civil and criminal procedure . . . are both . . . systems of adjudicating—or otherwise resolving—disputes, and settling—or sidestepping—disagreements about historical facts. They both aim at fairness, accuracy, and efficiency—albeit in different mixtures.”³²⁹ Of particular relevance to digital discovery, civil litigants, courts, and rule makers have had to cope with the rising costs of e-discovery for more than two decades now and have developed some workable measures to limit these costs. These include encouraging cooperation between the parties, promoting active judicial management where cooperation fails, and drafting detailed rules to govern e-discovery. Civil procedure has also had to confront informational asymmetries between the parties, an experience that can offer some guidance on addressing one of the key problems in criminal digital discovery—the disparity of resources and investigative power in criminal cases. Judges and policymakers can therefore borrow from the civil procedure model for regulating digital discovery and transplant features of it in the criminal procedure setting, but in a way that is mindful of the differences in background rules, resource constraints, due process protections, and public interests at stake.

1. Promoting Cooperation Between the Parties

The first broadly accepted insight from the two decades of experience with e-discovery in civil cases is that cooperation between the parties is critical to reducing the cost of the process.³³⁰ While such cooperation is in

critical factor weighing in favor of ordering production of ESI, even if production is unduly burdensome).

³²⁹ Sklansky & Yeazell, *supra* note 21, at 684.

³³⁰ See, e.g., ABA SECTION OF LITIGATION MEMBER SURVEY ON CIVIL PRACTICE: DETAILED REPORT 3 (2009), at <http://www.abanet.org/litigation/survey/docs/report-aba-report.pdf> [<https://perma.cc/6U7F-ZDFD>] (reporting that 95% of the litigators surveyed

tension with the adversarial model, it is not entirely incompatible with it. As Judge Paul Grimm has observed, “[h]owever central the adversary system is to our way of formal dispute resolution, there is nothing inherent in it that precludes cooperation between the parties and their attorneys during the litigation process to achieve orderly and cost effective discovery of the competing facts on which the system depends.”³³¹

In criminal cases, too, early experiences with e-discovery confirm the insight that cooperation can help resolve some of the recurring disputes about voluminous digital evidence. As Part V discussed, early experience with digital discovery tends to confirm the benefits of cooperation, and studies of criminal law practice more broadly have documented a longstanding practice of reciprocal accommodation between the parties in criminal cases.³³² Along the same lines, early consultations between the parties on digital discovery mechanics and openness to cooperation can go a long way toward solving some frequent problems, such as distributing fairly the burdens of formatting and reviewing digital files, finding adequate methods for safeguarding sensitive information, and ensuring discovery access by detained defendants.

Drafters of the Federal Rules of Criminal Procedure are therefore correct to emphasize the importance of collaborative practice and require the parties to meet and confer about digital discovery early in a criminal proceeding, as the proposed Rule 16.1 does.³³³ In the notes accompanying the proposed rule, the drafters also encourage the parties to refer to the ESI Protocol, which can further usefully guide cooperation.³³⁴ Cooperation about digital discovery mechanics, such as the format of discovery, the location of key documents, and security and redaction measures to be taken, can reduce the time, effort, and expenses needed to review digital evidence. To promote such cooperation, rule drafters could presumptively place the

believe that collaboration and professionalism by attorneys can reduce client costs); *see also* SEVENTH CIRCUIT ELEC. DISCOVERY COMM., SEVENTH CIRCUIT ELECTRONIC DISCOVERY PILOT PROGRAM REPORT ON PHASE ONE 39, at [https:// www.discoverypilot.com/sites/default/files/phase1report.pdf](https://www.discoverypilot.com/sites/default/files/phase1report.pdf) [<https://perma.cc/4ZX2-EV5E>] (survey finding that Principles encouraging cooperation in discovery appear to be generally effective at improving discovery practices and promoting the just, speedy, and inexpensive resolution of cases).

³³¹ *Mancia v. Mayflower Textile Servs. Co.*, 253 F.R.D. 354, 361 (D. Md. 2008).

³³² *See supra* Parts V.A–B.

³³³ Draft Rule 16.1, *supra* note 22.

³³⁴ *Id.* Courts should likewise encourage the parties to confer with one another and to work out solutions to e-discovery problems. In the Western District of Oklahoma, local rules require such a conference; within a week after the conference, the parties have to file a Joint Statement of Discovery Conference, in which, among other things, they state contested issues of discovery. W.D. OKLA. LOCAL R. CRIM. P. 16.1(b) App. V.

burden of reformatting or cataloging digital evidence on the party with greater resources in most criminal cases—the prosecution. Such a presumption would encourage the prosecution to cooperate with the defense in finding ways to reduce its own production burden. The prosecution may argue in individual cases that it does not have greater resources than the defense to process digital evidence and that the presumption should therefore not apply.

Organizational innovations could also help spur cooperation in digital discovery. Prosecutors' offices, public defenders' offices, and courts can all create units of specialized attorneys and tech experts who can handle ESI. The ESI experts within the public defenders offices could be made available to private defense attorneys as well, at cost. A model for a similar arrangement comes from the Dallas Federal Public Defender's Office, which has already made ESI storage and maintenance services available to private defense attorneys appointed by the court in some cases.³³⁵ Lawyers who are proficient in ESI can serve as "points of contact" at public defenders offices and U.S. attorneys offices and help negotiate digital discovery disputes that arise in cases handled by these offices. A similar framework was proposed by the Joint Electronic Technology Working Group to encourage collaboration in making e-discovery available to detained defendants.³³⁶ If implemented more broadly to handle all ESI-related problems that arise in criminal cases, it can improve the fairness and efficiency of digital discovery.³³⁷

But while efforts to promote cooperation are important starting points, they are not sufficient. Negotiations will falter in certain cases, either because the cost and complexity of digital discovery are too high or because one or both of the parties do not have a sufficient incentive to cooperate. In yet other cases, the disparity of resources between the parties may be so high that cooperation could produce inequitable results. For all those reasons, courts and legislators must establish baseline rules for digital discovery in criminal cases. As civil practice suggests, active judicial management and detailed digital discovery rules are critical backstops when cooperation falls apart.

³³⁵ See *supra* notes 85–86 and accompanying text.

³³⁶ McEnany & Elm, *supra* note 145, at 49.

³³⁷ Surveys of civil litigators have found that lack of technical understanding is a key reason for the failure of cooperation in e-discovery. See *supra* note 247 and accompanying text. The creation of specialized units in the criminal justice system would therefore be critical to the success of e-discovery cooperation in criminal cases.

2. Encouraging Judicial Management

A key insight that applies in both the civil and criminal contexts is that judges can promote a more efficient and fairer discovery process by actively managing the process from an early stage. To increase the speed and lower the cost of digital discovery, judges can require the parties to develop a discovery plan shortly after the meet and confer session, impose deadlines for discovery, order a “phased discovery,” and, where necessary, resolve disputes about abusive discovery.³³⁸ In civil cases, such management techniques have been effective in reducing the costs of discovery.³³⁹

While many of these techniques can streamline the process without impairing the defendant’s rights or the public’s interest in transparency and truth-seeking, others—such as monetary caps—are likely to be problematic if applied to the criminal context. Criminal cases aim to vindicate an important public interest in accurate factfinding about alleged breaches of fundamental community norms. Because criminal cases may result in deprivation of liberty by the state, they also implicate fundamental constitutional rights of the accused. Courts must therefore be careful not to curb discovery in a way that may jeopardize the public’s interest in accurate factfinding or the defendant’s due process rights, including the right to receive exculpatory evidence from the prosecution. Just as judges have been more reluctant to limit discovery in civil cases concerning constitutional and civil rights matters, so it would be less appropriate to restrict discovery in criminal cases.³⁴⁰

Judges must also intervene to ensure that serious disparity of resources does not undermine the fairness of digital discovery. Such intervention is particularly important in criminal cases in order to safeguard the defendant’s rights to due process and effective assistance of counsel. These rights have been interpreted to mean that the defendant must be given a reasonable opportunity to prepare for trial³⁴¹ and to compel witnesses on his behalf.³⁴² In cases with voluminous digital evidence, to provide a

³³⁸ For a similar proposal calling for more active judicial management of discovery in criminal cases generally, see McConkie, *supra* note 51, at 122–25.

³³⁹ See *supra* note 330 and accompanying text.

³⁴⁰ See, e.g., *Simon v. Nw. Univ.*, 2017 WL 467677, at *2 (N.D. Ill. Feb. 3, 2017).

³⁴¹ See, e.g., *People v. Maddox*, 433 P.2d 163, 166 (Cal. 1967) (“That counsel for a defendant has a right to reasonable opportunity to prepare for a trial is as fundamental as is the right to counsel.”).

³⁴² Indeed, the Compulsory Process Clause expressly provides the defendant with the right to have the state’s assistance in compelling evidence for trial on the defendant’s behalf. But because courts have interpreted the Clause to provide no more than what the Due

reasonable opportunity to prepare for trial, judges may need to mediate discussions between defense, prosecution, and detention facilities to ensure access to discovery for detained defendants.³⁴³ To ensure that the defense is able to obtain material evidence held by third parties, judges can reduce the restrictions on defense subpoena powers, as a number of courts have already done.³⁴⁴ Likewise, in cases where the defense needs the consent of a third party in order for a service provider to release electronic communications material to the defense, the court can order the third party to either produce the communications directly or provide the needed consent so the service provider can produce them.³⁴⁵ If the social media or email account owner who could provide the relevant consent is dead or unreachable, the court could order the prosecution to use its search and seizure powers to obtain the evidence from the social media provider.³⁴⁶

To ensure the robustness of *Brady* rights to exculpatory evidence in the era of digital evidence, courts must also actively manage disputes about who should bear the costs of reformatting, cataloging, or reviewing of voluminous digital evidence. Some commentators have suggested that prosecutors should be required to actively seek out *Brady* evidence within a mass of digital files and flag this evidence for the defense.³⁴⁷ Such an approach would be unworkable in our adversarial system. Prosecutors would find it cognitively difficult to seek out and recognize all the evidence that is favorable to the defense and contrary to their theory of the case.³⁴⁸

Process Clause already demands, I focus on the Due Process Clause here. *Pennsylvania v. Ritchie*, 480 U.S. 39, 56 (1987).

³⁴³ *McEnany & Elm*, *supra* note 145, at 60. For examples of such judicial involvement, see *United States v. Bundy*, 2017 WL 81391 (Jan. 9, 2017).

³⁴⁴ See *supra* note 127 and accompanying text.

³⁴⁵ *Facebook, Inc. v. Super. Ct. (Touchstone)*, 15 Cal. App. 5th 729, 746 (Ct. App. 2017).

³⁴⁶ See *Facebook, Inc. v. Super. Ct.*, 192 Cal. Rptr. 3d 443, 445 (Cal. App. 1st Dist. 2015), *review granted and opinion superseded sub nom.* *Facebook, Inc. v. S.C. (Hunter)*, 362 P.3d 430 (Cal. 2015).

³⁴⁷ See Justin P. Murphy & Matthew A.S. Esworthy, *The ESI Tsunami A Comprehensive Discussion About Electronically Stored Information in Government Investigations and Criminal Cases*, CRIM. JUST., Spring 2012, at 31, 41; see also Oran, *supra* note 93, at 129–30 (“Under a rebuttable presumption that the defense is not equally or better able to find *Brady* material within the file, the prosecution must also conduct its own search and identify any such evidence it finds.”).

³⁴⁸ Caroline Buisman, *The Prosecutor’s Obligation to Investigate Incriminating and Exonerating Circumstances Equally: Illusion or Reality*, 27 LEIDEN J. INT’L L. 205, 224 (2014). Even if a prosecutor were inclined to seek out *Brady* evidence for the defense, he or she may not have an adequate basis for the inquiry, since she does not question the defendant and cannot always predict what the defense’s strategy or theory of the case is likely to be.

The approach would also “place prosecutors in the untenable position of having to prepare both sides of the case at once.”³⁴⁹

While courts should not impose such an impracticable burden on the prosecution, they can intervene in other ways to ensure that prodigious document productions do not undermine the defendant’s right to exculpatory evidence. First, courts could consider the capacity of each party to review the evidence and shift cataloging and reviewing burdens to the prosecution if necessary to ensure the fairness of the proceeding. Specifically, if the defendant presents a special need for assistance (for example, if the defendant is detained and acting *pro se* or is represented by an under resourced appointed counsel), while the prosecution has the requisite staff and resources, the court may require the prosecution to take certain steps to catalog the evidence so as to help the defense find potentially exculpatory evidence. Such steps could include providing a detailed table of contents, indexing the disclosed evidence, and providing a presumptive identification of *Brady* documents among those files the prosecution has already reviewed.³⁵⁰ Failure by the prosecution to identify *Brady* material in this situation would not in itself constitute a due process violation as long as the prosecution has disclosed the *Brady* material to the defense. Nonetheless, the court could impose sanctions on the prosecution if it concludes that the latter has failed to comply with a court order to identify *Brady* material in documents reviewed by the prosecution.

In cases where the defense shows substantial need, the court may also order the prosecutor to share a database or software program that the prosecutor has used to search through ESI. While such a database or program may in some cases be protected as work product,³⁵¹ in civil cases, the privilege can be overcome on a showing of substantial need.³⁵² In criminal cases, the work product privilege is stricter and does not contain a “substantial need” exception, but courts can order disclosure where the items to be disclosed may contain *Brady* material.³⁵³ Courts may also be

³⁴⁹ United States v. Ohle, 2011 WL 651849, at *4 (S.D.N.Y. Feb. 7, 2011).

³⁵⁰ Cf. Oran, *supra* note 93, at 129–30 (proposing that courts take into account the defendant’s resources in apportioning the duty to identify *Brady* material).

³⁵¹ It is not entirely clear whether a database prepared by information technology staff or contractors would be protected by the work product doctrine—the question is whether it contains the mental impressions of the prosecutor concerning the litigation. See, e.g., Gov’t of Virgin Islands v. Fahie, 419 F.3d 249, 257 (3d Cir. 2005).

³⁵² Under the federal rules, the party must show “substantial need” for the materials and that it “cannot, without undue hardship, obtain their substantial equivalent by other means.” FED. R. CIV. P. 26(b)(3)(a)(ii).

³⁵³ See, e.g., United States v. Armstrong, 517 U.S. 456, 475 (1996) (Breyer, J., concurring) (“Because *Brady* is based on the Constitution, it overrides court-made rules of

able to order discovery of work product under their inherent authority to manage the pretrial and trial proceedings, even where the evidence is not necessarily exculpatory, if it is material to the defense and the interests of justice require such discovery.³⁵⁴ Current law on this point is uncertain, however, so an express rule could help judges manage digital discovery more effectively.

Finally, to ensure fairness in digital discovery, court decisions and rules should regulate discovery waivers that arise from lopsided bargains in criminal cases. Such waivers are likely to be increasingly attractive to prosecutors as the prosecution's discovery burdens increase in ESI-heavy cases. But by limiting the information that the defendant receives (including potentially exculpatory evidence), discovery waivers can undermine the fairness, accuracy, and transparency of a criminal judgment. As a recent D.C. Circuit decision highlighted, negotiated discovery waivers are often problematic because they arise from a plea bargaining dynamic where the prosecution holds most of the bargaining chips, and defense attorneys are not always faithful agents of their clients.³⁵⁵ A rule or judicial order could therefore require attorneys to justify any "substantial discovery waivers" before such waivers are accepted as part of a plea agreement.³⁵⁶

procedure."); *United States v. Heine*, 2016 WL 5934421, at *5 (D. Or. Oct. 11, 2016); *Ex Parte Miles*, 359 S.W.3d 647, 670 (Tex. Crim. App. 2012).

³⁵⁴ *State v. Laux*, 117 A.3d 725 (N.H. 2015) (holding that court has inherent authority to order discovery of certain work product information in the interests of justice); *Miles*, 359 S.W.3d at 670 (noting that trial court must permit discovery if "the evidence sought is material to the [d]efense of the accused").

³⁵⁵ *Price v. U.S. Dep't of Just. Att'y Office*, 865 F.3d 676, 679 (D.C. Cir. 2017). The court explained that the uneven bargaining power leads to waivers that are inconsistent with public policy interests:

[T]his uneven power dynamic lurks in the background in cases like these and calls for a careful consideration of Price's claim. Here Price has shown, through real-world examples, that enforcing a FOIA waiver would make it harder for litigants in his position to discover potentially exculpatory information or material supporting an ineffective-assistance-of-counsel claim. This is especially true given that, "with rare exceptions, only the waiver" in such cases "has the requisite knowledge and interest to lodge a FOIA request in the first place." Amicus Br. 27. On the other side of the scale, the government has offered us nothing more than the unsupported blanket assertion that FOIA waivers assist in effective and efficient prosecution, without any support or explanation how. Under these particular circumstances, and based on the briefing in this case, we have little trouble in concluding that the public interest in enforcing Price's waiver is outweighed by the harm to public policy that enforcement would cause.

³⁵⁶ *Brown*, *supra* note 53, at 167. At the insistence of prosecutors, waivers of discovery and many other rights have become increasingly common in federal prosecutions. *See generally* Klein et al., *supra* note 191. On the other hand, some federal judges have used

Some courts may even choose to entirely ban certain discovery waivers—such as waivers of future DNA testing or of future *Brady* disclosures.³⁵⁷

In short, an active court can help the parties streamline digital discovery and ensure that the process proceeds fairly. To encourage courts to take up this role, state and federal rules of criminal procedure should expressly provide for judicial management of digital discovery. While judges can arguably already manage the process actively under their inherent authority, many remain passive in the absence of an express rule.³⁵⁸ Particularly when dockets are overcrowded, judges might be hard pressed to provide active management.³⁵⁹ For all those reasons, an express rule requiring judicial involvement is important.

3. Employing Judicial Adjuncts

Regardless of how active judicial management of discovery is introduced, it is likely to place significant burdens on judges. For that reason, the rules should also authorize “judicial adjuncts”—neutral third parties, such as magistrates, special masters, or coordinating discovery attorneys (CDAs)—to help the parties manage digital discovery in criminal cases. This approach is already being used in most civil cases with large amounts of ESI, and it appears to work well.³⁶⁰

In criminal cases, a number of courts have appointed defense attorneys to serve as CDAs in select multi-defendant cases with gargantuan ESI,

their authority to issue standing orders or enact local court rules to require broader or earlier disclosure. *See* McConkie, *supra* note 51, at 63.

³⁵⁷ *Price*, 865 F.3d at 679 (invalidating a negotiated waiver of right to request public records under FOIA because waiver failed to serve a legitimate criminal justice interest).

³⁵⁸ CARDONE REPORT, *supra* note 71, at 232 (noting that there are judges “who believe it is inappropriate to become involved in document and ESI discovery”); Draft Minutes, Criminal Rules Meeting, Sept. 19, 2016, at 7, *in* Advisory Committee on Criminal Rules, Meeting, Washington, D.C., April 28, 2017, at 25 (noting that problems with managing massive e-discovery are “not going to arise in the courtroom of an experienced judge, highly engaged, who will craft case management orders to accommodate these situations. The concern is that if the judge is inexperienced or not as engaged as he should be, Rule 16 procedures become the default and as a result counsel will have great difficulty preparing for trial.”).

³⁵⁹ *See, e.g.*, Darryl K. Brown, *Defense Counsel, Trial Judges, and Evidence Production Protocols*, 45 TEX. TECH L. REV. 133, 144–45 (2012) (noting the pressure on judges to move cases along). *But cf.* Nancy J. King & Ronald F. Wright, *The Invisible Revolution in Plea Bargaining: Managerial Judging and Judicial Participation in Negotiations*, 95 TEX. L. REV. 325, 327 (2016) (finding that judges may become more managerial both to expedite cases and to advance other goals, such as ensuring a just disposition); Jenia I. Turner, *Judicial Participation in Plea Bargaining: A Comparative View*, 54 AM. J. COMP. L. 199, 253–54 (2006) (same).

³⁶⁰ Grimm, *supra* note 249, at 154–56.

where coordination among several defendants in reviewing discovery is needed. The CDA is an attorney who has special expertise in handling electronic discovery and who does not represent a particular defendant, but instead coordinates discovery for all defendants.³⁶¹ The CDA helps the parties find the relevant tools to store, organize, and review the evidence received and resolve disputes about the mechanics of digital discovery.³⁶²

Appointing one defense attorney to manage discovery for multiple defendants may raise ethical questions in some cases, as “it is unclear whether the CDA is ever expected to act as an attorney—and, if so, on whose behalf.”³⁶³ If the CDA “represent[s] the defendants’ legal interests in any manner, then he or she will have responsibilities to all defendants at the same time,” yet the different defendants’ interests may come into conflict.³⁶⁴ CDAs’ functions therefore have to be defined narrowly and carefully in multi-defendant cases. Courts must also conduct a special hearing to advise defendants of their right to separate and conflict-free representation and ask defendants whether they agree to joint representation by the CDA.³⁶⁵

In addition to the potential ethical questions surrounding CDA appointment in multi-defendant cases, CDAs may be expensive. The federal Defender Services Office has argued, however, that if a knowledgeable CDA is appointed, “the overall case processing times and

³⁶¹ The federal Defender Services Office (DSO) has contracted with five national CDAs, who are experts on e-discovery. When federal defense attorneys or judges reach out to the DSO, the Office can help assess the need for a CDA and coordinate the appointment of a CDA as necessary. Defender Services Office, Coordinating Discovery Attorneys, *at* <https://fd.org/litigation-support/coordinating-discovery-attorneys> [<https://perma.cc/RK3W-TAVX>].

³⁶² *See, e.g.*, *United States v. Vujanic*, 2014 WL 3868448 (N.D. Tex. Aug. 6, 2014); *United States v. Flores*, 2014 WL 1308608, at *1 (N.D. Cal. Mar. 28, 2014) (CDA appointed for RICO gang case involving hundreds of thousands of documents, 15,800 audio recordings, and 100 videos, many of which were heavily redacted to protect the safety of witnesses); *United States v. Shafer*, 2011 WL 977891, at *3 (N.D. Tex. Mar. 21, 2011). The functions and duties of a CDA remain somewhat ill-defined. As one court observed:

A CDA is an attorney, yet it is unclear whether the CDA is ever expected to act as an attorney—and, if so, on whose behalf. A CDA is not intended . . . to participate in strategic coordination among counsel for co-defendants. Rather, he or she would be performing tasks that each individual defense counsel would otherwise perform, but would be doing so on behalf of all defendants.

United States v. Hernandez, 2014 WL 4510266, at *4 (S.D.N.Y. Sept. 12, 2014).

³⁶³ *Hernandez*, 2014 WL 4510266, at *4.

³⁶⁴ *Id.*

³⁶⁵ *Id.*

costs are likely to be reduced.”³⁶⁶ As a result, the popularity of CDAs is growing, and courts and even some prosecutors in complex federal cases involving ESI are increasingly requesting or even requiring that defense attorneys obtain the help of a CDA.³⁶⁷

The court could alternatively appoint a special master to help coordinate digital discovery and mediate disputes that may arise. Special masters differ from CDAs in that they work on behalf of the court rather than the defense and therefore are not likely to raise ethical issues in multi-defendant cases. On the other hand, they are also likely to be expensive³⁶⁸ and not as successful in securing the trust of defense attorneys, which would diminish their effectiveness. Accordingly, special masters are less likely to be used on a regular basis in criminal matters.

Judges might, however, also be able to rely on federal magistrates to manage digital discovery disputes in criminal cases, as they already do in civil cases.³⁶⁹ Although the involvement of magistrate judges is not cost-free, it may ultimately be more efficient if it reduces discovery disputes between prosecutors and defense attorneys and expedites case resolution in voluminous ESI cases. The value of involving magistrates in criminal case discovery has already been recognized by local rules that have expanded magisterial participation in this area.³⁷⁰ And at least at the federal level, magistrate judges are likely better able to absorb discovery duties than are district court judges. Over the last three decades, the number of magistrate judges has increased at a much higher rate than the number of district

³⁶⁶ Defender Services Office, Coordinating Discovery Attorneys, at <https://fd.org/litigation-support/coordinating-discovery-attorneys> [<https://perma.cc/PEV6-FTYG>].

³⁶⁷ CARDONE REPORT, *supra* note 71, at 233.

³⁶⁸ Thomas E. Willging et al., *Special Masters' Incidence and Activity, Report to the Judicial Conference's Advisory Committee on Civil Rules and Its Subcommittee on Special Masters* 7 (FED. JUD. CTR. 2000), <http://www.uscourts.gov/sites/default/files/specmast.pdf> [<https://perma.cc/TQA7-A4AG>] (finding that the typical rate for special master fees in civil cases was \$200 per hour and that the median total compensation in twelve civil case appointments studied was about \$63,000). *But cf.* Josh Gerstein, ‘Special Master’ in Cohen Raid Bills \$47K for First Week’s Work, POLITICO (May 29, 2018), <https://www.politico.com/story/2018/05/29/michael-cohen-bills-legal-611507> [<https://perma.cc/7BUD-3UKE>] (reporting on special master in high-profile criminal case who charged roughly \$700/hour for privilege review of voluminous ESI).

³⁶⁹ Grimm, *supra* note 249, at 154–56 (discussing the use of magistrates in managing discovery in civil cases); McConkie, *supra* note 51, at 100–01 (discussing the authority and expanding use of magistrates in managing pretrial proceedings, including discovery, in criminal cases); Turner, *supra* note 359, at 265 (discussing the authority of magistrate judges to handle pretrial matters, including plea negotiations, in criminal cases).

³⁷⁰ McConkie, *supra* note 51, at 100–01.

judges.³⁷¹ A few courts have already relied on the services of magistrates to handle voluminous digital discovery in criminal cases, and express encouragement of this practice can help enhance the fairness and efficiency of the process.³⁷²

4. Drafting Detailed Rules

In addition to managerial judging, more detailed rules are necessary to address the multiple challenges of e-discovery in criminal cases. Such rules can provide greater predictability, facilitate negotiations between the parties, and reduce disputes, leaving less to the discretion and managerial skills of judges. Draft Rule 16.1 of Federal Rules of Criminal Procedure, which mandates consultation between the parties, is a critical first step in this direction.³⁷³ Criminal rules could follow the civil model even further and require the parties to develop a discovery plan or explain why they were not able to develop such a plan. The plan would consider digital discovery issues such as those enumerated in the ESI Protocol and any other points of contention regarding discovery. It would force the parties to acknowledge their discovery obligations early in the process and prod them toward cooperation. It would also provide the court with a better tool to manage the discovery process should cooperation fail later in the proceedings.³⁷⁴

Local rules in certain federal districts have already experimented with such a “discovery checklist” approach to discovery.³⁷⁵ This is an important source of information for what provisions might be effective. But local rules cannot provide a long-term, comprehensive solution. Under the Rules Enabling Act, they cannot substantially exceed existing provisions in the

³⁷¹ *Id.* at 101 (citing Douglas A. Lee & Thomas E. Davies, *Nothing Less Than Indispensable: The Expansion of Federal Magistrate Judge Authority and Utilization in the Past Quarter Century*, 16 NEV. L. J. 845, 856–57 (2016)).

³⁷² *See, e.g.*, United States v. Crinel, 2016 WL 5779778 (E.D. La. Oct. 4, 2016); United States v. Slade, 2011 WL 5291757 (D. Ariz. Sept. 30, 2011); United States v. Marin, 662 F. Supp. 2d 155, 160 (D.D.C. 2009).

³⁷³ Draft Rule 16.1, *supra* note 22.

³⁷⁴ *See* McConkie, *supra* note 51, at 92–93 (noting that local rule requirements for pretrial conferences and discovery plans promote cooperation between the parties, but also “make it easier for the court to impose sanctions for failure to meet any agreed-upon deadlines”).

³⁷⁵ *Id.* at 90–92, 95–97 (citing W.D. TEX. LOCAL R. CRIM. P. 16(A); D. NEV. LOCAL R. CRIM. P. R. 16-1; D. MASS. LOCAL R. 116.5); *see also* General Order Regarding Best Practices for Electronic Discovery of Documentary Materials in Criminal Cases, G.O. 09-05 (W.D. Okla. 2009); Best Practices for Electronic Discovery in Criminal Cases (W.D. Wash. 2013).

Federal Rules.³⁷⁶ Furthermore, dealing with discovery issues through local rules or individual judicial discretion raises the problem of disparate treatment of federal defendants based on the court in which their cases are brought. For those reasons, uniform state and federal rules on digital discovery are needed.

Rules of procedure can promote a fairer discovery process by requiring that the parties produce ESI in a “reasonably usable” form and a searchable format—a requirement present in the civil rules and imposed by some courts in criminal cases. In fact, one jurisdiction—New Jersey, recently adopted criminal rules on e-discovery which require that files must generally be provided in publicly available formats or with software that would allow the recipient to review the files.³⁷⁷ Going beyond the New Jersey model, the rules can specify that if proprietary software is needed to access the files, and the receiving party does not have the software, the court may require the producing party to convert the file to a different format.³⁷⁸ Additionally, the rules may authorize the court to order the party producing the ESI to provide other technical assistance to enable the receiving party to view the documents.³⁷⁹ Where the receiving party shows that metadata are important to the case, the rules could further authorize the court to order that files be produced in their native format, as well as in a searchable format.³⁸⁰ In practice, the prosecution is likely to be producing most of the evidence so it will ordinarily have to bear the costs of reformatting. But in most cases, it will also have significantly greater resources than the defense. In those few situations where the asymmetry of resources is reversed,³⁸¹ the rules could permit the prosecution to move the court to shift some of the reformatting costs to the defense.³⁸²

The rules could also offer more concrete guidance on the organization of the ESI produced in discovery. To begin, they could require the producing party (again, typically the prosecution) to provide an index or detailed table of contents for disclosed ESI, which could help the receiving party sift through voluminous data.³⁸³ New Jersey, the only state to

³⁷⁶ 28 U.S.C. § 2072 (2012); FED. R. CRIM. P. 57(a)(1); McConkie, *supra* note 51, at 115.

³⁷⁷ See N.J. CT. R. 3:13–3.

³⁷⁸ For civil cases along these lines, see *supra* note 288 and accompanying text.

³⁷⁹ For civil cases along these lines, see *supra* note 289 and accompanying text.

³⁸⁰ See N.J. CT. R. 3:13–3; see also note 96 and accompanying text.

³⁸¹ For a recent example, see Sam Pearson, *Deep-Pocketed Arkema Tough Target for Texas Prosecutors*, BLOOMBERG NEWS, Aug. 7, 2018.

³⁸² For an example of a rule authorizing the shifting of costs from the prosecution to the defense under certain circumstances, see N.J. CT. R. 3:13-3.

³⁸³ *Id.*

regulate digital discovery in criminal cases so far, has a similar rule on its books.³⁸⁴ Prosecutors have also provided indexes or tables of contents on their own initiative in a number of cases, suggesting that the requirement is not impractical.³⁸⁵

The rules could also authorize the court to impose further organizational requirements after evaluating the volume and searchability of the evidence produced, the resources of the defense, and the ability of the defendant to assist his or her lawyers with review of the evidence. Specifically, the court could require the prosecution to identify the most relevant documents in the production, as well as documents that the prosecution has not reviewed. It could further require the prosecution to provide indexes for audio and video files and make them as searchable as possible. Where the receiving party (typically the defense) shows good cause, the rules may also permit it to use limited interrogatories regarding the sources and organization of voluminous ESI produced.³⁸⁶

In summary, more detailed provisions on the form and organization of digital discovery can help encourage and guide informal discussions between the parties. Such rules can also help judges manage digital discovery to achieve fairness and efficiency when discussions between the parties fail to produce an agreement.

5. Investing in Training and Technology

Beyond implementing the legal reforms discussed in the previous sections, state and federal authorities and professional associations can facilitate digital discovery by investing in training and technology for the lawyers and judges who handle ESI-intensive criminal cases. Such training has occurred with federal judges and attorneys who handle e-discovery in civil cases, and it is beginning to happen in criminal cases.³⁸⁷ Professional

³⁸⁴ *Id.*

³⁸⁵ See *supra* Part V.A. As another comparison point, prosecutors in England and Wales must also provide a “disclosure schedule” that is in many ways akin to an index. The schedule needs to identify each item containing stored data, provide a “description of what steps have been taken, by whom, to examine and analyse [sic] the information held on the storage media, on a chronological basis (e.g., a log detailing times and duration of access,” and “a listing of the information held on the media, either compiled by the investigator . . . based on keyword searches or ‘sampling,’ or present on the media itself (e.g., a directory structure).” IAN WALDEN, *COMPUTER CRIMES AND DIGITAL INVESTIGATIONS* ch. 6 (2nd ed. 2016).

³⁸⁶ For civil cases along these lines, see *supra* note 308 and accompanying text.

³⁸⁷ See, e.g., Broderick et al., *supra* note 45; CARDONE REPORT, *supra* note 71, at 232–34; see also Eric H. Holder, Jr., *In the Digital Age, Ensuring That the Department Does Justice*, 41 GEO. L.J. ANN. REV. CRIM. PROC. iii (2012).

responsibility rules in over thirty states recognize the duty of attorneys to acquire an adequate understanding of technology—and digital discovery in particular—in order to assist their clients competently.³⁸⁸ State bar associations and other professional associations serving the criminal justice community have begun providing continuing legal education to ensure that attorneys are meeting their duties; attorneys should be encouraged to take advantage of these learning opportunities.

Technological advances such as predictive coding are also increasingly used in civil cases to reduce the cost of discovery, and they can be used successfully in criminal cases as well.³⁸⁹ The main obstacle at this point is the lack of expertise among defense attorneys with predictive coding and the lack of funding to hire the relevant experts and invest in the technology. But jurisdictions may be able to afford purchasing such technology for use in a centralized fashion, through a statewide or federal defender service.

To address the massive challenges that the growth of ESI presents for criminal cases more broadly, legislators ought to invest in a more robust digital discovery infrastructure for the criminal justice system, similar to the one already provided for federal prosecutors.³⁹⁰ This infrastructure would serve not only prosecutors' offices, but also the courts, public defenders, court-appointed defense attorneys, and perhaps even retained counsel (the latter at a cost). It would allow the parties to store and manage ESI and to resolve digital discovery disputes more efficiently and effectively. It would also permit more active judicial management of digital discovery.

In brief, better training, technology, and infrastructure would help the parties understand and solve more easily the challenges of digital discovery. Investment in this area would produce measurable returns in terms of quicker resolution of discovery disputes and quicker disposition of cases. It would also help ensure that the proliferation of ESI does not undermine the aims of discovery rules—to promote fairness, accuracy, and transparency in criminal adjudication.

³⁸⁸ See, e.g., State Bar of California, Standing Comm. on Prof'l Responsibility & Conduct, Formal Op. 2015-193 (2015); MODEL R. PROF'L CONDUCT 1.1 cmt. 8. As of September 24, 2018, thirty-one states had adopted the comment to Rule 1.1 requiring lawyers to maintain technological competence. Robert Ambrogi, *Tech Competence*, LawSites Blog, <https://www.lawsitesblog.com/tech-competence/> [https://perma.cc/87CM-5AST] (last visited Sept. 24, 2018).

³⁸⁹ See *supra* notes 267–272 and accompanying text.

³⁹⁰ See *supra* notes 73–77 and accompanying text.

VII. CONCLUSION

Thanks to technological advances, the volume of evidence available in criminal cases is growing. An increasing number of crimes are committed or facilitated in cyberspace.³⁹¹ Even for ordinary crimes, the pervasive nature of digital communication—via smartphones and other digital devices—makes electronically stored information a standard feature of criminal cases.³⁹² Law enforcement itself is also relying ever more on digital surveillance technologies and investigation by software.³⁹³ As a result, the disclosure and review of electronic evidence is no longer the exclusive concern of lawyers handling complex civil cases and white-collar crime prosecutions. Instead, judges, defense attorneys, and prosecutors across the criminal justice system face the unique challenges of digital discovery.

The growing demands of digital discovery are likely to push the parties to cooperate and negotiate about digital discovery, just as they already negotiate about other aspects of the case. Greater cooperation could help reduce the cost and volume of discovery, and in some cases, alleviate unfairness in the process, and courts have rightly begun to encourage it. But negotiations in criminal cases are not always fairly balanced, and they do not always succeed. Accordingly, courts and legislators need to consider regulation of digital discovery that provides a backstop when cooperation falters.

The civil procedure model offers some useful insights for such regulations. These include rules requiring the court to intervene and manage e-discovery when negotiations fall apart, techniques designed to reduce the cost of e-discovery, and principles designed to address asymmetries of resources and information.

The civil litigation model has its limitations, however, and policymakers must chart new ground to address some of the unique demands of criminal cases. To redress the vast resource, information, and bargaining disparities in criminal cases, and to protect defendants' rights to due process and effective counsel, courts may need to intervene more actively in digital discovery in criminal cases. Where the interests of justice require it, courts could help defendants obtain evidence from third parties, receive evidence in a format that permits adequate review for exculpatory material, and access digital discovery in detention. These and

³⁹¹ See *supra* notes 38–42 and accompanying text.

³⁹² See *supra* notes 34–37 and accompanying text.

³⁹³ See *supra* notes 44–45 and accompanying text.

other measures can help prevent the cost and complexity of digital discovery from undermining the fairness of the criminal proceedings.

