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Designing Legal Experiences


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Designing Legal Experiences

Online Communication and Resolution in Courts

Maximilian A. Bulinski and J. J. Prescott¹

I INTRODUCTION

Technological advancements are improving how courts operate by changing the way they handle proceedings and interact with litigants. Court Innovations is a socially minded software startup that enables citizens, law enforcement, and courts to resolve legal matters through Matterhorn, an online communication and dispute resolution platform. Matterhorn was conceived at the University of Michigan Law School and successfully piloted in two Michigan district courts beginning in 2014. The platform now operates in over 40 courts and in at least eight states, and it has facilitated the resolution of more than 40,000 cases to date.² These numbers will continue to grow as new categories of disputes and other legal matters become eligible for online management and resolution and as more court systems recognize the economic and social benefits of adopting online platform technology.³ This case study chronicles the development, implementation, and refinement of Matterhorn.

Implementing software in the legal world can be cumbersome, especially when adoption requires the coordination and agreement of multiple public entities with overlapping – but not identical – goals. We hope that by sharing the story of Matterhorn’s creation and growth over the last few years, we can light the way for the next generation of court-focused technology and e-governance tools, especially those that relate to the criminal justice system. We also hope to offer valuable lessons for transitioning ideas for progress into realized change.

First, we outline the social problem that Matterhorn was initially designed to address – minor warrants – and how that focus led to Matterhorn’s now-broader aim of improving court access generally. Second, we describe Matterhorn and how it works in practical terms. Third, we present an analysis of the platform’s underlying design philosophy and objectives. Fourth, we address two challenges that Court Innovations encountered and overcame in implementing Matterhorn in a variety of courts with diverse stakeholders. We conclude that Matterhorn has demonstrated the value of using online platform technology to resolve disputes in courts and has succeeded in producing measurable improvements in court accessibility and efficiency.

¹ Prescott is a co-founder and equity holder of Court Innovations Inc., a University of Michigan startup that develops and implements online case resolution systems.

² For current information on where Matterhorn operates, visit www.getmatterhorn.com.

³ See Maximilian A. Bulinski and J. J. Prescott, “Online Case Resolution Systems: Enhancing Access, Fairness, Accuracy, and Efficiency,” *Michigan Journal of Race & Law* 21 (2016): 205, 249.

II THE INSPIRATION

In Michigan, over one million arrest warrants were active as of 2014.⁴ Although some of these warrants sought the arrest of individuals accused of committing felonies, the majority were what we refer to as “minor warrants” and were issued for something much less serious and even mundane:⁵ either failing to appear in court to deal with a minor legal issue or failing to pay a court-ordered fine.⁶ On this score, Michigan is no outlier among the states; in fact, there are other state court systems that issue even more minor bench warrants on a per capita basis.⁷

Again, these “minor warrants” are not search warrants or arrest warrants for serious crimes. A failure to appear in court or to pay a court-ordered fine, while certainly not laudable, does not carry the same social condemnation as does a traditional or even minor criminal act. Nevertheless, warrants for these minor failures still have significant economic and social consequences for people. The threat of arrest and the confusion about how to resolve the situation leads people with outstanding warrants to avoid police, courtrooms, and other government officials.⁸ People with warrants are less likely to report crimes and serve as jurors or witnesses in legal proceedings, and are more likely to withdraw from public life by refraining from voting or engaging in civic activities.⁹

People typically resolve minor warrants by physically entering a courthouse and effectively self-surrendering. This is a trickier process than many people might expect. Even after overcoming the associated fear and confusion and any other barriers to appearing in court, the wait to see a judge is often lengthy and of uncertain duration. If someone is unable to pay or has no credible reason for missing a court date, showing up to court with a failure-to-appear or failure-to-pay warrant outstanding can result in arrest.¹⁰ Even in courts where incarceration is rare, arrest and detention are still real possibilities, and people often believe that they will be arrested if they self-surrender without sufficient resources to pay what they owe or a good explanation for their failure to appear.¹¹ The prospect of being arrested at the courthouse conjures up images of missing work, losing employment or benefits, and being unable to take care of family. It is therefore unsurprising that many people decide against physically appearing in court to attempt to resolve an outstanding minor arrest warrant.

⁴ Brad Heath, “For a Million Fugitives, Freedom Starts at County Line,” *USA Today*, 2014, available at: www.usatoday.com/story/news/nation/2014/08/06/fugitives-las-vegas-wont-pick-up/13607595.

⁵ *Id.*

⁶ See Daniel J. Flannery and Jeff M. Kretschmar, “Fugitive Safe Surrender: Program Description, Initial Findings, and Policy Implications,” *Criminology & Public Policy* 11 (2012): 437, 449.

⁷ At the extreme end of the spectrum, the municipal court of Ferguson, Missouri, issued over 9000 warrants in 2013 in cases stemming in large part from minor violations such as parking infractions, traffic tickets, or housing code violations. The population of Ferguson is roughly 21,000. Civil Rights Div., US Dep’t of Justice, “Investigation of the Ferguson Police Department” March 4, 2015: 12. Outstanding minor warrants are an issue in many states. “To take just a few examples: The State of California has 2.5 million outstanding arrest warrants (a number corresponding to about 9% of its adult population); Pennsylvania (with a population of about 12.8 million) contributes 1.4 million more; and New York City (population 8.4 million) adds another 1.2 million.” *Utah v. Strieff*, 136 S. Ct. 2056, 2073 (2016) (Kagan, J., dissenting). Michigan’s population is currently just under ten million. Kristi Tanner, “Michigan’s Population Increased for the Fifth Straight Year in 2016,” *Detroit Free Press*, December 20, 2016, available at: www.freep.com/story/news/local/michigan/2016/12/20/michigan-population-increase-census/95631726.

⁸ See Meagan Cahill, “Focusing on the Individual in Warrant Clearing Efforts,” *Criminology & Public Policy* 11 (2012): 473, 476.

⁹ Bary H. Weinberg and Lyn Utrecht, “Problems in America’s Polling Places: How They Can Be Stopped,” *Temple Political & Civil Rights Law Review* 11 (2002): 401, 431.

¹⁰ Flannery and Kretschmar, “Fugitive Safe Surrender,” *supra* note 6, at 446.

¹¹ *Id.* at 449.

These long-standing warrants are clearly problematic for the people facing them, but courts would also like to resolve these lingering cases. The number of cases resolved by a court, and the speed and efficiency with which judges and court staff resolve them, can affect the perceived success of the court.¹² Moreover, outstanding court debt usually has implications for a court's budget, as courts are often partially funded by the fines and fees they collect.¹³ Thus, courts are usually happy to forego arrest and work with people who have minor warrants to identify a mutually beneficial way to resolve the dispute.

Yet even though resolving these warrants has benefits for both litigants and courts, and even though resolving them should be painless, relatively few of them are actually resolved in a timely way, if at all. If people with warrants are fearful and therefore unwilling to self-surrender, law enforcement must expend resources to locate, apprehend, and bring these individuals to court. This is a problem, though, because the execution of these warrants is a low priority for resource-pressed police departments focused on more serious crime in their communities, and courts are likewise unable to afford more active ways of resolving these cases. Thus, many warrants that could easily be resolved if individuals and judges could communicate with each other in a low-risk, low-cost way instead remain outstanding for months or years.

In response, some courts have developed amnesty programs to help reduce the number of outstanding minor warrants.¹⁴ But amnesty programs can be costly and time intensive, and there is a limit to how often they can be used without sapping the legitimacy of court orders. Forgiveness, although helpful to the people whose warrants are waived or treated favorably, is only a temporary and somewhat arbitrary patch that fails to address the real problem: the significant hurdles that keep people from using courts to resolve their cases.

Minor warrants are undoubtedly a significant issue nationwide, but in an important sense, warrants are just the tip of the iceberg. Working with courts and other stakeholders soon made it clear that Matterhorn had the potential to do far more than address the deluge of minor warrants in the USA. It was poised to enhance access to justice generally. To see this, consider that by the time an unpaid fine becomes a warrant, a person has already struggled, sometimes for months, to address the legal issue that underlies the warrant. These are usually legally straightforward disputes – such as traffic or parking tickets, or disagreements over property or income tax assessments – but they present outsized difficulties for community members and constitute an important court-access issue themselves.¹⁵ Some individuals may not be able to use their courthouse's resources effectively because they have a rigid employment schedule or cannot make alternative family-care arrangements. Limited access to affordable transportation or a disability can present additional obstacles to accessing a courthouse, both physically and financially. And even if a person manages to make it to court, they may struggle to

¹² At a minimum, a large number of outstanding warrants or other matters that take a long time to resolve make a court *appear* less administratively efficient and therefore less successful.

¹³ Arthur W. Pepin, "The End of Debtors' Prisons: Effective Court Policies for Successful Compliance with Legal Financial Obligations," presented at the *Conference on State Court Administrators*, July 25–29, 2015, Omaha, NE.

¹⁴ Amnesty programs are often run in community centers, churches, or other "safe" places. See, e.g., James Orland, "Warrant Amnesty Programs," OLR Research Report, 2016, available at: www.cga.ct.gov/2016/rpt/2016-R-0315.htm.

¹⁵ See Bulinski and Prescott, "Online Case Resolution Systems," *supra* note 3, at 217–235; Monica Llorente, "Criminalizing Poverty Through Fines, Fees, and Costs," American Bar Association, October 3, 2016, available at: www.americanbar.org/groups/litigation/committees/childrens-rights/articles/2016/criminalizing-poverty-fines-fees-costs.html.

resolve the issue in a single visit. Often, people discover the lines are too long, they come on the wrong day or at the wrong time, or they do not have the proper paperwork.¹⁶

Because of these hurdles, many people have no practicable way to contest or negotiate what amounts to a government accusation made against them in the form of a tax assessment, a civil infraction summons, a family court show-cause hearing, or a minor misdemeanor charge.¹⁷ The same is true of a claim made against someone by a private party in a small claims setting. And even if someone is able to resolve their case in front of a judge, the social problem remains that using courts to address relatively minor issues requires considerable industry and an enormous outlay of resources before a judge and a court user can interact one-on-one.

Clearly, logistical and social impediments often make it challenging for citizens to resolve warrants, civil infractions, and minor misdemeanors before a judge in a physical courthouse. Unresolved legal issues can become a social problem, especially when jurisdictions allow unpaid civil fines to transition into arrest warrants. These disputes are relatively easy to rectify if a litigant and a judge can communicate in person, even if just for a few moments, but arriving at this final stage often requires great effort and sacrifice for the litigant – relative to the stakes of the legal issue – as well as significant time and coordination effort on the part of judges and court staff. As a result, this meeting too often does not happen. If and when it does happen, it has almost always been a long and costly slog for both sides.

Matterhorn's premise is that online technology can facilitate the dispute resolution process by reducing communication and coordination costs between courts and citizens. To that end, Matterhorn offers an online environment in which people with pending legal issues can converse with judges (or prosecutors, police, other parties, etc.) in an efficient and structured way, and contest, negotiate, and resolve claims that affect them without fear of arrest or the inconvenience and costs of accessing a brick-and-mortar courthouse.

III HOW MATTERHORN WORKS: THE BASICS

At its core, Matterhorn is an online platform that allows citizens to communicate with judges, prosecutors, law enforcement, and other decision makers, as well as other private parties. The primary goal of this communication is to resolve an existing legal matter accurately and efficiently, so the structure of the platform directs communication toward that end. During this communication, there may also be other intermediate aims – such as educating litigants, collecting case information, and giving citizens an opportunity to record their views on a case – all of which may be valuable even if the case is not resolved through the system.

Matterhorn is easy to use and understand, but the specific variant of Matterhorn a litigant will experience depends on the facts of the case, the type of case, the court, and possibly the judge. For example, resolving an active minor warrant may only require communication with a judge (who may ask different questions than another judge), whereas resolving a civil infraction or minor misdemeanor will regularly include law enforcement or prosecutorial

¹⁶ The costs of unresolved legal issues tend to grow exponentially over time, as citations lead to bench warrants and exploding financial penalties when litigants fail to appear in court or negotiate an agreement with the court on how to resolve their outstanding debt. People who accrue multiple outstanding warrants will face even higher access barriers (e.g., greater fear of arrest), making them even less likely to appear in court as the situation escalates, which in turn increases courts' administrative burdens.

¹⁷ For many, the ultimate difficulty is affording the court-ordered fine. Failure to pay fines (if one has not demonstrated their inability to pay) usually leads to the issuance of a warrant and its associated costs and other consequences. See Civil Rights Div., *supra* note 7, at 3, 42.

The image shows a screenshot of a web form titled "Wrigley Court Online Resolution" with the subtitle "Windy City, USA". The form is for a "Traffic Ticket Search" and contains the following fields and controls:

- Driver's License Number:** A text input field with the example "ex: M12345678".
- Driver's License State:** A dropdown menu currently showing "Michigan".
- Date of Birth:** Three separate input fields for "MM", "DD", and "YYYY".
- Buttons:** A "SUBMIT" button and a "Cancel" link.

FIGURE 3.14.1 Matterhorn litigant access.¹⁸

participation in addition to judicial involvement. Despite this heterogeneity, it is possible to provide a basic overview of how litigants access Matterhorn, what Matterhorn does, and how decision makers interact with litigants through the platform.

To begin the resolution process, a litigant must access Matterhorn from the court's website. Once there, a litigant must search for their case using identifying information such as their driver's license number (Figure 3.14.1). Matterhorn uses the entered information to search active databases for cases that pertain to the individual in question. If the search locates any open cases, the platform applies criteria formulated by the relevant court or judge to these matters to determine which of them, if any, are eligible for online resolution. Eligibility criteria typically relate to the nature of the offense and the litigant's previous interactions with the justice system.

If a case is eligible for online resolution, Matterhorn presents the litigant with their procedural options (Figure 3.14.2). These options typically include doing nothing, retaining the option of going to court in person to resolve the matter, and seeking an online review of the case in the hopes that communicating with a decision maker will result in a favorable outcome. When litigants choose to use Matterhorn to attempt to resolve their legal issues, the system establishes a communication channel with individuals by asking them to provide their contact information (e.g., email address or mobile phone number), so the court can electronically deliver information, instructions, requests, and/or any decisions to them at a later point in time.

Matterhorn next presents the litigant with a series of questions and requests and collects the litigant's responses. Matterhorn is configurable, which means a court's requests can target any information deemed relevant to how a decision maker processes or decides a case. The court and its judges design these queries with the needs and obligations of the court in mind, and question content is specific to the facts and law of the case. These inquiries can be "smart," appearing only when they are relevant based on answers to previous questions. One uniformly included request directs litigants to provide a statement explaining their reasons for accessing the court using Matterhorn – i.e., the remedy they seek, such as an offense reduction or the

¹⁸ Figures 3.14.1–3.14.3 derived from Matterhorn, used with permission.

The screenshot displays the 'Wrigley Court Online Resolution' interface for 'Windy City, USA'. The top navigation bar includes 'Home', 'About', and 'FAQs'. The main content is divided into two sections:

- Case Details (Left Panel):**
 - Name: MJ CARTWRIGHT
 - Offense Date: Dec 8, 2016
 - Offense: SPEEDING/SPD 1-10 OVER
 - Fine: \$150
 - Points: 2
- Eligible for review! (Right Panel):**
 - Text: "The court may be willing to offer you a reduced charge – one with **fewer or no points**. Submit your request and the court will get back with you within 3 days with a decision and next steps."

"If you don't get an offer, you still have the same options you do today: schedule an in-person hearing at the courthouse, or pay the original fine."
 - Button: GET STARTED
 - Text: "If you choose to pay the original fine, you can [pay online](#), mail payment to the address on the ticket, or call the court at (555) 969-0000 to pay by credit card."

Wrigley Court

555 East 1st Street

Windy City, USA

FIGURE 3.14.2 Eligibility for review.

withdrawal of an outstanding warrant – and why they believe their application should be granted.

The stage concludes with the system informing litigants that any offer of resolution (e.g., a reduced fine amount) is conditional on compliance (e.g., paying the new fine amount promptly). Once the case has been submitted through Matterhorn, it is presented digitally and directly to a court clerk, prosecutor, law enforcement officer, magistrate, or judge – whomever is appropriate for the court, the type of case, and the facts of the case. These decision makers then determine how to resolve the request based on the data presented to them by Matterhorn, including information submitted by the litigant, records already in the case file, or data compiled from other germane databases (Figure 3.14.3). Often relevant in a traffic case, for example, are the specifics of the charged infraction, the surrounding circumstances, the content of the request, the litigant's past infractions, and the litigant's interactions with the court via the system.

Finally, Matterhorn notifies the litigant of the decision. If the decision maker wishes to resolve the case by making an offer (e.g., a reduced sanction), Matterhorn provides the litigant with the option to accept or reject the decision maker's proposal. If the litigant accepts, the system directs the litigant to comply as soon as possible (e.g., pay any prescribed fines or fees via a link to the court's online payment portal). If the litigant declines the decision maker's offer – or accepts it but does not comply with its requirements within the time frame specified by the court or judge – the system automatically rescinds the offer, informs the litigant of the rescission, and restores the original charge. This latter outcome returns the litigant to the status quo ante, as if the online proceeding had never occurred.

FIGURE 3.14.3 Judge's reviews of a litigant's request.

IV DESIGN PHILOSOPHY AND GOALS

Matterhorn was fashioned to make courts – and therefore justice – easier to access and to improve the efficiency and accuracy of legal outcomes. Accomplishing these goals requires that both litigants and decision makers perform their essential roles in resolving disputes easily, quickly, and well. Improved performance, in turn, requires replacing or eliminating extraneous features of the system that are now outmoded for some types of disputes.

In today's courts, people find it difficult to address and resolve even minor legal issues. Many of these difficulties involve barriers to accessing the courthouse, fear or confusion related to appearing in court in person, and the inability to take time off from work or other responsibilities to visit a courthouse during its business hours. Technology can help people overcome these difficulties most of the time.¹⁹ In the end, the critical one-on-one stage with a judge or other decision maker – during which a litigant conveys substantive concerns and contentions, seeks understanding, answers material questions, presents relevant evidence, and chooses how to proceed – is the only stage *necessary* to fairly and accurately resolve a legal dispute. For this reason, it seems logical that litigants should have a communication platform of some kind that decision makers find useful and credible.

¹⁹ Many of the challenges of access to justice that relate to getting to the courthouse can be avoided entirely if a one-on-one, in-person interaction with a judge is no longer considered essential. Likewise, fear of arrest if one presents oneself to the court disappears for all but those who might view an online platform as a means by which the government can discover their location and arrest them. Other barriers (e.g., confusion about the legal issues involved in one's case or the difficulty in conveying one's views to a judge) change and likely improve, but do not disappear.

Matterhorn seeks to enhance litigants' ability to provide information and evidence that is material to an issue, express their opinions and make their arguments, understand their options, and ultimately resolve or manage the dispute. In place of an inefficient courthouse, Matterhorn offers a simple, easy-to-use online interface with straightforward instructions and targeted information requests specific to a case or claim. The platform's goal is effective communication with decision makers, and these features all work toward that end. Matterhorn is available at any time from any mobile device and allows a litigant to communicate with a decision maker asynchronously. A litigant can respond to a communication from a court via Matterhorn at night after his children have gone to bed, and the judge can respond in the morning during normal business hours. Matterhorn also incorporates reminders of upcoming deadlines and offers guidance on procedures and resources. These features help to mitigate, or even eliminate, the traditional burdens of going to court.

Many district judges, for their part, face a never-ending stream of minor cases to resolve, sometimes dozens or hundreds in a day. Even minor delays or inefficiencies in scheduling, accessing case information, waiting for someone to speak, and dealing with confusion and fear can waste hours per day. Waiting, repeating directions, searching for information, recording a decision in longhand, even banging a gavel – not one of these acts is essential to “judging.”²⁰ These administrative tasks may plague a judge's day, though, and the ability to complete such tasks is not why society values judges – or why, for that matter, a voter chooses one judge over another. What is critical is that judges learn the facts and the law relevant to resolving the case at bar, weigh the arguments and evidence, and then make a decision that will hopefully end the dispute. Society relies on judges to make judgments, not to recite rules by rote or file administrative paperwork.

If technology can alter or replace the outmoded exoskeleton originally constructed to support the essential decision-making process, judges will have greater capacity to handle tougher cases, enabling them to better fulfill their core functions as judges. In the remainder of this section, we describe how the Matterhorn platform has been structured to enhance the efficiency and accuracy of judicial decision making.²¹

If rendering legal determinations is the heart of what judges do, the first step in building a successful platform is to ask how judges approach decisions in minor cases. Judges face a high volume of minor cases, so they often make their legal determinations quickly based on little information. Given their time constraints, this approach is understandable: Judges struggle to keep up with their caseloads if they spend more than a few moments on each case.²² To succeed, judges commonly employ rules of thumb, but the specifics of these rules

²⁰ Admittedly, judges serve other public functions, and making or at least announcing noteworthy decisions in person in open court – regardless of the content of the substantive decision itself – may also be important. Even so, in the context of an uncountable number of minor issues that are individually of no interest to the public, rendering an accurate and fair decision is ultimately the touchstone of the judge's role.

²¹ Matterhorn was built to provide many of the same benefits to judges and other decision makers as it does to litigants. Judges can access the platform from anywhere, and the technology is quick and easy to use on their end as well. Matterhorn is highly configurable to a judge's individual preferences, eliminating many efficiency losses that result from structures that are designed to accommodate the desires of the average or median judge. Perhaps most important, judges can handle cases more quickly because in-person process inherently involves delay and diverse approaches to how evidence is presented. Judges must necessarily entertain irrelevant arguments and evidence, sifting through them for the relevant tidbits.

²² The size of most traffic judges' dockets makes it infeasible to spend more than a few moments on a case without falling substantially behind. See, e.g., Bobby Allyn, “Speeders Have Made Milwaukie's Municipal Court the Busiest in Clackamas County,” *The Oregonian*, November 18, 2010, available at: www.oregonlive.com/milwaukie/index.ssf/2010/11/speeders_have_made_milwaukies_municipal_court_the_busiest_in_clackamas_county_1.html.

can vary significantly across courts and judges.²³ At the same time, judges may also desire information beyond what a case file contains, despite the fact that the standard approaches to obtaining such information – such as asking the litigant to provide a document or answer a question – may prove either too costly or too time intensive to justify whatever value it might afford to the judge’s decision-making process. Moreover, dissecting new documents or other sources of potentially useful information can be cognitively challenging, and judges may pass up the opportunity to access and use additional information when the costs of doing so exceed the benefits.

Matterhorn cuts through this laborious process, enhancing judicial decision making and enabling judges to thrive within the constraints of their institutional role. Matterhorn endeavors to free judges to spend more of their time actually judging by providing them many of the same benefits that it offers to litigants as well as giving them the power to configure their decision-making environment to suit their own judicial philosophy, preferences, experience level, and skill set. Matterhorn’s goal is not to make courts more efficient at the expense of judicial discretion and flexibility or by somehow automating the decision-making process. Rather, its goal is to make judging more efficient and accurate while leaving a judge’s discretion intact. Matterhorn is thus easy to use and customizable by design, and was created with the view that technology should empower, not constrain, decision makers. Specifically, by supporting effective gathering, filtering, and delivery of information, Matterhorn frees judges to spend much more of their time deliberating and eventually arriving at better judgments.²⁴

A Gathering Information

With respect to more effectively gathering information, Matterhorn takes as given that judges often receive very little information when making decisions, especially in minor cases. Matterhorn’s development team regularly speaks with judges, prosecutors, and other decision makers about how best to provide them with more useful information and in a more useful format, while avoiding useless detail and visual clutter that will serve only to distract the decision maker and delay or distort the decision.

What information would judges like to know when deciding, for example, whether to reduce a charge? Currently, judges have limited access to court-related data from outside of their districts, including relevant information about the parties. The amount of shared data depends in large part on the organization of the courts. A unified court system is one in which a state has effectively consolidated many local courts into one all-encompassing court system that is centrally governed, usually with shared software and data systems. In states that have unified court systems, data availability may be less of an issue, but central management of data does not necessarily mean that courts will have access to the full spectrum of that data. The information may only be available to the central administrative agency and not incorporated into the daily operations of courts. In non-unified systems, the problem is even worse.

²³ In the context of mediating a traffic ticket, for example, some judges may be willing to agree to the reduction of a ticketed charge to a less severe infraction if the litigant has accrued no more than three tickets in the past few years. For other judges, though, the number may be only one ticket over the same period. See Richard A. Ginkowski, “Traffic Court 101: Practical Pointers from the Bench,” *Criminal Justice* 29 (2014–2015): 11, 13.

²⁴ The benefits of enhanced decision making redound not only to citizens facing outstanding warrants, traffic fines, and the like, but also to those with matters that are more complicated and require in-person, traditional procedures and hearings. With Matterhorn, judges can spend less time on minor cases and therefore more time on cases and issues that require their sustained attention and expertise.

Different courts may utilize different software and data standards, resulting in different methods of data collection and record-keeping. Thus, even if two neighboring district courts want to share their data, they are likely to run into technical compatibility challenges right at the outset.

Michigan, where Matterhorn was first implemented, lacks a unified court system. However, as is the case with some other states, Michigan does have a statewide data repository, the Judicial Data Warehouse (JDW), that aggregates specific data from district courts across the state and translates them into a common format to make it possible to assemble cross-court comparisons.²⁵ Although the JDW has proven to be useful for state-level court administrators who are interested in analyzing statewide trends and evaluating the relative performance of individual courts on certain metrics, district courts appear rarely to use JDW data, and generally there is no practical way for judges to access data from other courts for use in their decision making. Courts in Michigan and in many other states effectively operate in information silos.

Thus, Matterhorn was designed against a background in which judges in traffic cases often make decisions based solely on a paper print-out of a litigant's driving record and what is written on the ticket by a police officer, and in which judges make decisions about canceling minor warrants without being able to check whether the individual in question has outstanding warrants in other district courts. Early versions of Matterhorn sought to improve the information resources of judges by incorporating useful JDW information into the judicial dashboard. Later versions of Matterhorn integrated Michigan's driver and driving history information into the platform, making critical information easy to digest and immediately accessible to judges.

Judges also have no ability to access data from any of the dozens of other government databases that exist in Michigan and in other states, many of which contain information that is pertinent to common judicial inquiries. For example, judges often evaluate an individual's ability to pay court-assessed fines and fees, and may consider whether to allow the person to comply with an obligation via a payment plan.²⁶ Other state agencies collect data on individual income, employment, receipt of public benefits, and more, all of which are relevant to ability-to-pay determinations and structuring payment plans. But if judges want such information, courts must collect it by hand on a case-by-case basis from each litigant. The process is daunting for all parties. It precludes many litigants from making otherwise reasonable requests and, even when they do, it often circumscribes the information judges have available to them in making these common, yet important, decisions.²⁷

Matterhorn offers a richer data environment in which judges need only exert minimal effort to integrate more useful information into their decision-making process.²⁸ From a technical standpoint, incorporating data into the platform from another source in

²⁵ Michigan Courts, "Technology: Supporting Timeliness, Efficiency, Access," available at: <http://courts.mi.gov/education/stats/dashboards/pages/dashboard-jdw-why.aspx>.

²⁶ See Meghan M. O'Neil and J. J. Prescott, "Targeting Poverty in the Courts: Improving the Measurement of Ability-to-Pay Fines," *Law & Contemporary Problems* 82 (1) (2019): 199–216.

²⁷ *Ibid.* Court Innovations has recently piloted an online Ability-to-Pay Assessment Tool which, despite not linking directly to other government databases, does streamline and standardize the data collection and analysis processes while at the same time making it easier for litigants to request relief from court-ordered debt.

²⁸ Matterhorn is also capable of automating and delivering *analysis* of data that decision makers consider relevant to the resolution of a case. To illustrate, if courts have access to data from other districts and other relevant agencies, Matterhorn can present useful comparative or predictive information that may improve judicial decision making. Rather than just evaluating an individual's driving record through the prism of their own experience, judges might prefer to compare the record of the driver to *all* other drivers in the district, county, or state, or use all driving records and traffic safety data to predict how likely the litigant in question is to be involved in a driving accident in the next year, for example.

a scalable way is not very difficult. But there are other hurdles. Obtaining permission from relevant agencies or other data “owners” can be challenging for a host of reasons. Stakeholders have raised privacy concerns, and agencies may be wary of giving data to developers who operate as private companies. The permission and access problem is compounded if information needs to flow both ways. For example, if Matterhorn pulls data from a source regarding a litigant’s history (e.g., past infractions) to inform a judge’s decision, this source may need to be updated *ex post* to account for the judge’s eventual finding. The combination of technical, procedural, and political concerns about how, when, and where data can flow across agency and court boundaries complicates implementing court-related software like Matterhorn.

B Filtering Information

When it comes to filtering the information presented to a judge, Matterhorn seeks to improve the decision-making environment in at least two ways. First, Matterhorn can reduce cognitive overload and information fatigue by curtailing the delivery of irrelevant information, which might delay and perhaps skew the outcome of a case. Second, Matterhorn is configurable, meaning that judges and other decision makers can modify how Matterhorn works to fit their preferences, such as specifying the precise information litigants are required to provide to the court, altering how cases are flagged, and streamlining how information is presented so that each judge has only what is needed and only when it is needed. We turn now to how Matterhorn approaches these filtering tasks.

Although limited access to pertinent information may be an obstacle to high-quality and efficient decision making, minimizing the availability of irrelevant information to decision makers is also important to well-functioning courts. Simply put, reading documents or examining data that have been made part of a case file for the sake of completeness, but that are irrelevant to resolving the issue at hand, takes time and can distract and exhaust a decision maker.²⁹ Cognitive resources are limited, and decision making can become less accurate as judges fatigue.³⁰ By structuring the decision-making environment to minimize the waste of judicial attention, Matterhorn both speeds up and improves the accuracy of case resolution.

Obscuring irrelevant information in the decision-making process can also reduce bias – and the perception of bias – in the judicial system. One well-documented source of distrust of the legal system is the perception that judges themselves are biased (whether explicitly or implicitly) in their decisions because of their awareness of a litigant’s race, gender, appearance, or social class.³¹ Matterhorn’s ability to structure what judges “see” means that information that is socially charged or likely to produce bias can be removed from view. How this is done can be determined at the judge, court, or case level. Assigning a judge a case file replete with all relevant information, but stripped of any irrelevant or potentially prejudicial information, may work to restore public faith in the fairness of courts. If people trust judges, court personnel, and the judicial process itself, they are more likely to participate in the justice

²⁹ John Tierney, “Do You Suffer from Decision Fatigue?” *New York Times*, August 17, 2011, available at: www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html.

³⁰ Shai Danziger, Jonathan Levav, and Liora Avnaim-Pesso, “Extraneous Factors in Judicial Decisions,” *Proceedings of the National Academy of Sciences* 108 (17) (2011): 6889, 6890.

³¹ See Richard R. W. Brooks and Haekyung Jeon-Slaughter, “Race, Income, and Perceptions of the U.S. Justice System,” *Behavioral Sciences & the Law* 19 (2001): 249, 251–252.

system and comply with its commands.³² Procedures that build trust of this sort effectively remove a barrier to access; they keep people coming to court to resolve their issues.

Matterhorn's configurability also helps courts manage case volume by allowing judges to automate certain judge-specific preferences. For example, judges can choose *ex ante* which cases will be presented to them through Matterhorn and which require a face-to-face setting. Furthermore, if a court or a judge has criteria for determining whether a litigant must appear in court or instead can address the dispute using Matterhorn, these eligibility rules can be implemented directly within Matterhorn. Judges can also configure Matterhorn to emphasize certain case characteristics considered important to a case's resolution so they are not overlooked, and judges can even directly implement individualized decision rules that turn on those characteristics (e.g., automatically providing a litigant found in violation of a law with the judge's individual explanation of how a particular law works). Thus, judges can use Matterhorn to buttress their individual approaches to judging, allowing them to avoid reinventing the wheel for each case, and therefore resolve cases more quickly and accurately.

To see how judges can use Matterhorn's configurability to better manage dockets, consider the following scenario: Three judges in a district have different standards for when they will even *consider* reducing a charge to a lower offense. Judge A will consider anyone who has three or fewer tickets in the past six months. Judge B contemplates offense reduction only for individuals who have not had a ticket in the past month. Judge C takes a long-term view and considers reducing charges for anyone who has had fewer than five tickets in the past two years. Satisfying a judge's criterion may not be a sufficient condition for the judge to offer a reduction, but it is a necessary condition before the judge will consider other factors. Among those cases the judges will consider, there are some that are closer calls and others for which the outcome, based on a judge's sanctioning philosophy, is obvious.

How much time should each judge spend evaluating the driving record of Jane Smith, who had three tickets last month? Does the answer depend on whether last month was a typical or atypical month for Jane? A computer algorithm can quickly inform these judges where Jane falls, given their rules, and whether they should take time to consider adjusting her ticket. Judge B will presumably deny the request and can configure Matterhorn to alert him to the issues he considers dispositive. That way, he will not waste time reviewing other aspects of the case. Judges A and C will presumably look at the case more closely, perhaps configuring Matterhorn to highlight other case characteristics – and, importantly, not necessarily the same characteristics – that the judges view as relevant in a case like Jane's.

In all cases, Matterhorn enables judges to do what it took them longer to do, and with less consistency, without Matterhorn. Still, the varying approaches the three judges take toward cases raises an important philosophical issue: Is it *fair*? Should similarly situated individuals expect equal outcomes regardless of the judge they are assigned and the court in which they appear? Our legal system trusts that judges are knowledgeable and deserving of discretion in managing their dockets and making judgments, and it explicitly contemplates that judges may hold different perspectives on the efficacy of different approaches to punishment and civil sanctions. Even so, social or political tolerance of variation of this sort presumably has limits, and Matterhorn can help us better understand and perhaps police its scope.

Regardless of whether judges should make more uniform judgments, Matterhorn presents opportunities to improve how decision makers function. If judges ought to be free to structure their decision-making environment, Matterhorn can make their lives easier and their

³² Sara C. Benesh, "Understanding Public Confidence in American Courts," *Journal of Politics* 68 (2008): 697, 704.

decisions more consistent by eliminating the repetitive administrative tasks of gathering the information the judge considers relevant and removing or obscuring data that the judge considers likely to distract, delay, or prejudice. But if consistency *across* judges is important, sharing how each judge uses Matterhorn with other judges (or with the public) may nudge their decision-making philosophies toward some shared norm.³³

Judges may be unfamiliar with how their approach to resolving cases compares to how other judges operate in their roles beyond what is dictated by statute. In the process of formalizing these judge-made eligibility and decision rules and standards for implementation within Matterhorn, judges in courts using Matterhorn have been made privy to other judges' assumptions, and to the information other judges feel they need in order to make accurate decisions. Formalizing these ideas into a software platform can encourage conversations between judges and across courts about their relative merits. By enabling judges to become more aware of how their fellow judges exercise their discretion, Matterhorn encourages communication and learning among judges as to the logic underlying their varied methods, perhaps prompting some to adapt and hopefully improve their approaches.

C *Delivering Information*

With respect to delivering information, once the appropriate informational content for a particular case and judge is determined, Matterhorn can augment decision making by delivering this content instantaneously in ways designed to improve understanding and reduce inefficiency. These delivery improvements include not just flexibility in how judges receive case information – on their cell phones, tablets, etc. – but also the conscious exploration and use of strategies designed to improve a judge's experience, increase comprehension, reduce fatigue, and so on. Matterhorn's future trajectory will likely include ongoing incremental refinements designed to reduce the time and energy judges spend on activities that are *not* judging, so the public can maximally benefit from their expertise.

V IMPLEMENTATION CHALLENGES

Once Matterhorn's design philosophy and goals were ironed out, the many technical and training-related aspects of implementing Matterhorn in courts proved to be relatively simple. These undertakings included constructing the platform, teaching court users to use and understand the platform, configuring the platform to fit varying court preferences, and integrating the platform with other software and data sources already in use. Potential concerns in these categories were easy to predict and navigate. Matterhorn's key implementation challenges thus became: (1) convincing courts and other stakeholders of the value of Matterhorn and ultimately swaying them to adopt it; and (2) ensuring the availability of Matterhorn to citizens as a way of accessing justice and inducing them to use it.

A *Persuading Courts to Adopt Matterhorn*

Designing, marketing, and implementing technological change in public sector institutions differs in important ways from creating and implementing technology for the private sector.

³³ Of course, if it were desirable, court administrators or state supreme courts could use Matterhorn to impose greater consistency across judges by homogenizing the information environment and eligibility criteria and by making these choices public.

In particular, persuading *courts* to pilot and commit to new solutions, especially technological ones, requires lining up a lot of ducks, and in some cases identifying, convincing, and leveraging a champion from within the courts to bolster the effort.

Generally, government organizations move at their own pace.³⁴ Courts have historically been slow to enact litigant-oriented institutional change.³⁵ Although judges, especially chief judges, have significant control over their courthouse's administration,³⁶ they are already familiar and comfortable with how their courts work. They have developed their own approaches to their dockets, and though their methods may not be perfect, they generally get the job done. Moreover, we do not typically imagine judges as savvy business types who focus on balance sheets, customer service, and efficiency. Judges think of themselves as jurists; they interpret laws, decide cases, and do justice. Judges also understand at some deep level that courts are essential government services and therefore will never go out of business. Accordingly, reform and technology adoption tend to proceed slowly in courts.

That said, courts do have a bottom line. They face the market pressure of competing government priorities and are often assessed using quantitative metrics. Judges are public officials, and government waste is rarely popular with voters. Furthermore, judges independently value providing high-caliber procedures and accurate outcomes, and so will often consider even costly reforms that are capable of improving the quality of their court's work. Therefore, even if judges are typically averse to change, it may be surprising when courts are slow to adopt even technology that seems to check every box by reducing costs, saving the time and effort of court personnel, and providing swifter and more accurate justice. Courts were particularly hesitant initially to adopt Matterhorn for two reasons: (1) political risk and legal uncertainty; and (2) consensus-oriented management and the involvement of other stakeholders.

Judges appear to view new technology as politically risky. This is particularly true for technology that at first seems complicated or that could potentially alter case outcomes in unexpected ways.³⁷ Judges, whether elected or not, are public officials, and may be particularly sensitive to the possibility of *public* failure.³⁸ Unlike most court technology, Matterhorn is technology that litigants – members of the public – use. If it works poorly, constituents may punish a judge at the polls. Chief judges might also worry about the career and social consequences of failing in front of their judicial peers. Judges likely fixate on the worst-case scenario; even when there is a strong possibility of the technology making their processes significantly better, judges may conclude adoption is not worth the risk.

A corollary to the idea that judges fear public failure is the idea that judges fear making an embarrassing *legal* mistake. From Matterhorn's beginning, judges have worried that the platform's approach may not be lawful or, even if lawful, might be at odds with the spirit of certain laws. These judges have feared that implementation might generate a response from the legislature that would undo their efforts. For example, a couple of judges have expressed concerns in casual conversations that hearings may technically be defined as "in-person" events, though court rules often do not specify and are open to interpretation. Matterhorn is

³⁴ James Joyner, "Why Government IT Sucks," *Outside the Beltway*, October 13, 2013, available at: www.outsidethebeltway.com/why-government-it-sucks.

³⁵ Consider the adage, "if it's not broken, don't fix it."

³⁶ See generally Catherine D. Perry, "From the Bench: Lessons Learned as a Chief Judge," *American Bar Association Litigation Journal* 38 (1) (2011).

³⁷ See "The 'C.S.I. Effect'," *The Economist*, April 22, 2010, available at: www.economist.com/node/15949089.

³⁸ See Adam Liptak, "Judges Who Are Elected Like Politicians Tend to Act Like Them," *New York Times*, October 3, 2016, available at: www.nytimes.com/2016/10/04/us/politics/judges-election-john-roberts.html?_r=0.

innovative, and seems in some ways to be an obvious way to improve how courts operate. For some judges, it seems too good to be true, and the sheer fact that Matterhorn is not *already* in place is interpreted as evidence that Matterhorn must violate some rule, and they worry they risk revealing ignorance about the nature of that constraint if they adopt it without explicit permission from someone with authority.

Consequently, Court Innovations has from the very beginning worked hard to persuade courts that Matterhorn is in fact compliant with the law, including local court rules and relevant state statutes. Matterhorn's earliest adopters hesitated to consider Matterhorn for fear of running afoul of a rule or statute because, in that case, subsequently *reforming* court rules or state statutes to be consistent with Matterhorn's use would presumably require a significant investment of time and resources. Over time, Court Innovations has been able to address these concerns either through software design or collaborative legal research, and no conflicts or difficulties with court rules or state statutes have emerged to date. Nor has Court Innovations had to seek legislative reform or other sorts of rule changes.

Another obstacle to implementation concerns how courts make decisions to innovate, especially when those decisions require the acceptance, if not the enthusiastic endorsement, of other stakeholders, such as prosecutors. Even excluding outside partners, if a chief judge is confident that a software solution will be beneficial, but other judges are skeptical or court personnel are wary, adoption is at least likely to be significantly delayed. Although a few courts have a single chief judge who can simply choose to change a process or adopt new technology, many courts essentially operate by consensus. The democratic nature of consensus-driven courts makes them slower to adopt new technologies; getting everyone on board consumes a lot of effort and time, which some chief judges may decide is simply not worth it.

Matterhorn is not merely technology for use in the internal management of courts; it is also intended to facilitate litigant communication with parties other than judges and court personnel. The adoption and implementation process therefore requires the buy-in of prosecutors, city attorneys, law enforcement, and other entities. Every court operates in a unique way, and each court may interact with many prosecutors' offices and law enforcement agencies. To make matters more complicated, the set of relevant stakeholders may differ from one type of case to another. For each case type (other than warrants), coordinated acceptance by at least several of these outside agencies appears necessary both for Matterhorn to be useful in a sufficiently large number of cases and to lend legitimacy to the court's decision to use the software. Figuring out whom to approach, and when, is its own strategic puzzle that takes time to solve.

A final hurdle to adoption by courts is rooted in judges' discomfort in using unfamiliar technology and in a common initial assumption that Matterhorn "resolves cases" for courts on its own, eliminating decision makers from the process, or at least downgrading their role. In reality, Matterhorn does nothing of the sort. Matterhorn's *sine qua non* is to enhance and improve decision making, not to replace it with some computer-based algorithm. Overcoming this misinterpretation of Matterhorn's goals and operation has required thinking about how best to frame the way Matterhorn works, and to emphasize that the platform is configurable to the point of allowing a judge to decline to use Matterhorn altogether. In other words, stressing that judges are always in control, and that the platform is simply a tool that improves decision making and ultimately makes judges better, has proven to be critical.

B Persuading Citizens to Use Matterhorn

Even a well-designed online platform for resolving legal issues will fail if citizens do not use it. There are a few dimensions to this problem. First, Matterhorn was designed in part to benefit a group of citizens with whom courts have no current connection (e.g., individuals with outstanding minor warrants). How do you make these potential users aware of Matterhorn's availability? Second, even when a means of communication exists, citizens are busy and typically already have a preconception of what it means to go to court – that is, physically walking into a courthouse. A mention of a new online option in a letter or in the small print on a ticket may not be sufficiently conspicuous. Third, Matterhorn operates as an *additional* means of accessing courts. Litigants retain all the traditional options and can still choose to come to court in person or simply ignore their issue if the platform does not seem fair or easy to use.

One of the chief aims of Matterhorn has been emptying the ocean of outstanding minor failure-to-pay and failure-to-appear bench warrants in this country. These warrants result from a person's earlier inability to resolve a legal issue in a timely fashion. Law enforcement or courts can often confirm or collect a litigant's physical mailing address when the issue originally materializes (e.g., when someone receives a ticket alleging an infraction), but it is common for socioeconomically disadvantaged people to move frequently,³⁹ and so by the time a bench warrant is issued (often because the person is unable to pay a legal fine), courts regularly cannot reach the litigant in question – even with the good news of a new way to access the court and resolve their delinquent obligation online. An ongoing challenge for Matterhorn, therefore, has been making the public aware of its availability. This is critical because even a flawless interface will fail if citizens are unaware of it.

Increasing awareness of Matterhorn has been complicated. Although traditional advertising can theoretically reach a large audience, it is often expensive and can fail to convey the critical message.⁴⁰ Public service announcements are a clear precedent, but there is also something that feels a bit untoward about courts, which are funded by taxpayers, taking out advertisements.⁴¹ People with warrants might smell a trap, and others might be suspicious because courts are dependent on fines and fees. Overall, though, the primary limitation is resources. In a world with unlimited resources, targeted advertising and educational campaigns would do wonders.⁴² But in the real world, the stumbling block continues to be how to most efficiently get the word out to the right people in a format they can understand and trust.

This hurdle is exacerbated by the fact that Matterhorn has not yet been adopted across an entire state. Instead, it has been implemented court by court, following an S-curve adoption pattern.⁴³ Furthermore, courts that have adopted the software are often geographically dispersed, and many court districts are small (generally, tied to county lines or even smaller). This produces two problems. First, broad advertising will reach citizens who do not yet have

³⁹ Rebecca Cohen and Keith Wardrip, "Should I Stay or Should I Go?," Center for Housing Policy, 2011: 3, available at: http://mcstudy.norc.org/publications/files/CohenandWardrip_2009.pdf.

⁴⁰ See Elaine K. F. Leong, Xueli Huang, and Paul-John Stanners, "Comparing the Effectiveness of the Web Site with Traditional Media," *Journal of Advertising Research* 38 (1998): 44, 53.

⁴¹ See James L. Gibson, Jeffrey A. Gottfried, Michael X. Delli Carpini, and Kathleen Hall Jamieson, "The Effects of Judicial Campaign Activity on the Legitimacy of Courts: A Survey-based Experiment," *Political Science Quarterly* 64 (2010): 1, 10.

⁴² See, e.g., "The Real Cost Campaign," FDA, January 19, 2017, available at: www.fda.gov/TobaccoProducts/PublicHealthEducation/PublicEducationCampaigns/TheRealCostCampaign.

⁴³ See generally John M. Golden, "Innovation Dynamics, Patents, and Dynamic-Elasticity Tests for the Promotion of Progress," *Harvard Journal of Law & Technology* 24 (47) (2010): 83–84.

access to Matterhorn. Second, issues might not always occur in a citizen's residential district, and most citizens interact seldom enough with the courts that it is easy for them to get confused about courthouses and districts, and which options are available where. Wide advertising efforts such as public radio service announcements, television advertisements, or social media announcements may confuse or frustrate the public if they reach counties that have yet to adopt the software, or reach individuals who have access to Matterhorn at some courts but not others. These techniques may well increase awareness of Matterhorn generally, and even drive court interest in adoption, but on the whole, broad messaging is a mixed bag.

An alternative to widespread advertising of Matterhorn is to notify litigants directly. Posting notices in courthouses is one logical way to go about this, but it may undercut some of the efficiency gains of the platform. If a litigant must come to court to find out that they may not have had to come to court, some will be understandably irritated – but not as irritated as they might be if they then leave the court and attempt to log in at home, only to find that their case is not eligible to be resolved online. Thus, notice must be carefully crafted or occur in a way that encourages litigants to experiment with Matterhorn in a low-stakes way.

But appearing in court to resolve an outstanding issue is not the first interaction that an individual has with the legal system. In traffic cases, for example, a person is issued a citation. At least for new cases, a paper citation is an opportunity to inform citizens about the availability of Matterhorn, and to this end, Court Innovations has partnered with law enforcement agencies to print information about Matterhorn on traffic and parking tickets. This is a more direct way to inform only the most relevant people, and to reach them before they have invested time, money, and effort heading to a court or before they have given up because the costs of accessing justice are too high. Using tickets or summons is also more cost-effective than many other options like reaching out through community groups or sending mailers.

On the other hand, this approach is far from perfect. Many citizens do not read the small print,⁴⁴ and many legal issues do not involve a form of communication at the outset of the dispute. Court Innovations continues to make efforts to make printed information more salient and to devise strategies to reinforce this notice, such as encouraging police officers to inform citizens verbally of the availability of Matterhorn.

Besides, awareness of Matterhorn-like technologies alone is hardly sufficient to ensure that most or even many people will use them to access courts. For a system to succeed, it must be accessible to the public, trusted, and easy to use. Usability and user acceptance testing are therefore critical components of successful platform implementation.⁴⁵ Questions evaluated during testing include: Do people understand what they are doing? Is the software credible? Do they understand where they are in the process and the status of their case at any point in time? If they are not native English speakers, does the software seamlessly translate into their preferred language? Would they recommend it to a friend or family member? And perhaps most importantly: Do they feel that they were heard?⁴⁶

There are many legal considerations as well. Implementation responsibilities include staying in compliance with and abreast of changes to relevant regulations, for example.

⁴⁴ See, e.g., Andy Greenberg, "Who Reads the Fine Print Online? Less than One Person in 1000," *Forbes*, April 8, 2010, available at: www.forbes.com/sites/firewall/2010/04/08/who-reads-the-fine-print-online-less-than-one-person-in-1000/#2d92c4307017.

⁴⁵ Abhijit A. Sawant, Pranita H. Bari, and P. M. Chawan, "Software Testing Techniques and Strategies," *International Journal of Engineering Research and Applications* 2 (2012): 980, 985.

⁴⁶ Bulinski and Prescott, "Online Case Resolution Systems," *supra* note 3, at 231.

The US Department of Justice is increasingly interested in how web interfaces, either government-based or privately hosted, meet emerging accessibility requirements, particularly with regard to the Americans with Disabilities Act.⁴⁷ A well-designed user interface requires an unwavering commitment by software designers to abandon their own notions of the “right” design or approach and to engage in frequent, aggressive user testing that employs a variety of methods to discover the most effective approach for different audiences.

One of the primary motivations behind Matterhorn’s design was enabling people to go to court when they otherwise would be unable to do so. But, lamentably, not everyone has access to the internet, and if citizens are unable to access the platform via the internet, an online solution is limited in its ability to increase access to the justice system and courts specifically. This poses both practical and philosophical problems.

The first step in addressing this challenge is measuring internet access in the relevant populations to determine the extent of the lack of internet access. The digital divide has been well documented, of course,⁴⁸ but fortunately it has narrowed significantly in recent years.⁴⁹ Moreover, internet use among minority groups is rapidly approaching parity with the rest of the nation.⁵⁰ Smartphone ownership trends also indicate that the digital divide is becoming less of a problem over time.⁵¹ In a recent survey, the number of mobile phone users who own internet-enabled smartphones increased by almost 10% in a single year,⁵² with more than 50% of adults in the USA having access to the internet through their phone in 2013, and significant growth occurring at the lower end of the income distribution.⁵³ Designing internet solutions is valuable, but as this data shows, accessibility can be enhanced by ensuring that the technology can be used on mobile devices. This will only become more true over time. Accordingly, Matterhorn has been fully functional on mobile devices from day one.

The digital divide appears to be closing, particularly with the rise of smartphones, but there will always be people who lack the means to access new technologies. Developers should be mindful of disparities in internet availability and consider the implications for tools that are designed to improve access to justice for those who are often disadvantaged or disenfranchised. A system that benefits some portion of the population and puts no one in a worse position is a good thing from some perspectives. But if not everyone is able to experience the gains from a system, technology designed to enhance access may aggravate disparities and seem unfair,⁵⁴ which is a principal concern when dealing with courts and the opportunity to be heard.⁵⁵ For this reason, Court Innovations continues to work to ensure that Matterhorn is

⁴⁷ Jonathan Lazar and Harry Hochheiser, “Legal Aspects of Interface Accessibility in the U.S.,” *Communications of the Association for Computing Machinery* 56 (12) (2013): 77.

⁴⁸ See, e.g., Council of Economic Advisers, *Mapping the Digital Divide* (Washington, DC: Council of Economic Advisers, 2015); see also US Census Bureau, “Measuring America: A Digital Nation,” March 23, 2016, available at: www.census.gov/library/visualizations/2016/comm/digital_nation.html.

⁴⁹ See Pew Research Center, “Internet/Broadband Fact Sheet,” January 12, 2017, available at: www.pewinternet.org/fact-sheet/internet-broadband.

⁵⁰ *Ibid.*

⁵¹ Bulinski and Prescott, “Online Case Resolution Systems,” *supra* note 3, at 236–237.

⁵² *Ibid.*

⁵³ See Aaron Smith, “Record Shares of Americans Now Have Smartphones, Own Broadband,” Pew Research Center, January 12, 2017, available at: www.pewresearch.org/fact-tank/2017/01/12/evolution-of-technology.

⁵⁴ See generally Kentaro Toyama, *Geek Heresy: Rescuing Social Change from the Cult of Technology* (New York, NY: Public Affairs, 2015), 49.

⁵⁵ At the same time, Matterhorn may approximate a second-best solution, given the difficulties many face when trying to access justice at courthouses. Currently, many citizens have effectively no access to our justice system as a result of its outmoded design and reliance on physical courthouses. Systems that differentially improve the lot of those disadvantaged by the existing arrangement may reduce disparities on the whole.

broadly available to all segments of the population – especially those who suffer the most from limited access – through one’s computer, a public computer, one’s smartphone, or even a friend’s smartphone.

Implementing Matterhorn has been an adventure for Court Innovations. Progress has required time, patience, and imagination. Overall, the technological issues have been predictable, generic, and relatively easy to resolve. Convincing judges, prosecutors, law enforcement, and the public to embrace and use Matterhorn, however, has proved far more challenging (though perhaps not more than was expected). Nonetheless, Court Innovations has made great progress. Along the way, it has discovered unexpected dimensions to more predictable implementation impediments, and has also managed to work out creative solutions to manage these issues, offering lessons that will be useful to those who seek to innovate and improve our justice system.

VI CONCLUSION

Matterhorn enables citizens to communicate with judges, prosecutors, law enforcement, and other decision makers, including private parties, to resolve legal issues. Court Innovations conceived of Matterhorn to target the large volume of outstanding minor warrants in this country, but quickly realized that such a platform could also generally improve court access and efficiency and enhance the decision-making environment of judges. In many ways, Matterhorn is sensible and predictable, and undoubtedly all courts will eventually use platforms like Matterhorn. Indeed, by many metrics, Matterhorn has already transformed the courts in which it currently operates: default rates are lower, cases close faster, and litigants report better access.⁵⁶ Nevertheless, court technology is a difficult area in which to successfully innovate. Persuading judges to use Matterhorn and alerting the public to its value have been significant obstacles. Court Innovations’ success, however, demonstrates that progress is possible, and its story offers useful lessons for future innovators.

⁵⁶ Court Innovations, “Online Resolution Outcomes: Putting Court Access Technology to Work,” 2016: 3, available at: http://getmatterhorn.com/static/Matterhorn_Outcomes_White_Paper_2016.pdf; J. J. Prescott, “Improving Access to Justice in State Courts with Platform Technology,” *Vanderbilt Law Review* 70 (2017): 1993–1994.