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Should We Make Crime Impossible?

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ABSTRACT

Technology often makes possible what once was impossible, but it also can do the reverse: it can make impossible what once was possible. Specifically, technology has opened the door to “impossibility measures,” government programs aimed at making it effectively impossible to engage in certain criminal conduct. But even if we can, should we make crime impossible? This question will soon be before legislators and policymakers, and intuitive reactions to potential impossibility measures are confused and contradictory. Yet until now, legal scholars have failed to provide a satisfactory analytical framework for those decision-makers who will be forced to decide whether making criminal conduct impossible is a proper government function. This Essay provides such a framework by examining in detail the possible benefits of impossibility measures and their likely costs. It then proceeds to illuminate this analysis further by applying the framework to an impossibility measure that is close to implementation: the Driver Alcohol Detection System for Safety (DADSS), a car-based technology aimed at preventing drunk driving.
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INTRODUCTION

Most technology makes possible what once was impossible. This Essay does not deal with that technology. Rather, it discusses the use of technology to make impossible what once was possible. In particular, it discusses what will be called “impossibility measures,” government mandates that aim to make certain classes of criminal conduct effectively impossible.

The idea behind impossibility measures, that the government could require the use of technology to render some criminal conduct impossible, is not new, but advances in technology are making them increasingly feasible. Modern vehicles are run by a computer, and car companies have begun to use that computer to improve safety by taking control of the car out of the hands of the driver in emergencies. When combined with existing technology that allows the car to communicate with roadside devices about road conditions, these computers could simply prevent drivers from speeding, running red lights, or violating other traffic laws. Particularly promising is the Driver Alcohol Detection System for Safety (DADSS), a car-based technology under development by the federal government and car manufacturers that aims to prevent drunk

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1 Technology companies often pride themselves on the notion that their technology opens the doors of human possibility. See, e.g., Marcia Hansen, Technology Rocks: Yes, and You Make the Impossible, Possible, INTEL: THE INSIDE SCOOP (April 13, 2011), http://scoop.intel.com/technology-rocks-yes-you-make-impossible-possiblemake-the-impossible-possible/ (“Technology helps us make the impossible, possible. Or, another way to state this thought is, ‘The Processor is an Expression of Human Potential.’”).

2 These impossibility measures are similar to what Professor Edward Cheng calls “Type II structural laws.” See Edward K. Cheng, Structural Laws and the Puzzle of Regulating Behavior, 100 NW. U. L. REV. 655, 664 (2006).


4 While thirty-five years ago a new car might have contained a simple computer to regulate spark plug timing, a new car today is a “computer on wheels” that collects and assesses countless amounts of data and uses that data to control the basic operations of the vehicle. See Jim Motavalli, The Dozens of Computers That Make Modern Cars Go, N.Y. TIMES, Feb. 5, 2010, at B6.


driving, and that was recently named one of Time Magazine’s best inventions of 2011.

Similarly, the possibilities for computer-based impossibility measures are bounded only by the imagination of legislators. Digital music players could refuse to play digital music obtained unlawfully. Computer systems that now monitor Internet traffic for terrorist communications could instead prevent those communications altogether. Databases that track consumer purchases could be repurposed to prevent individuals from buying the ingredients for methamphetamine or explosives. Cellphones could be programmed to prevent those under a restraining order from harassing their victims.

Finally, advances in medical science, pharmaceuticals, and psychiatry have opened the door to make even the most “traditional” crimes impossible to commit. The beginnings of this possibility are seen in “chemical castration” drugs administered to sexual predators to eradicate their sexual urges and thus remove their motivation to commit sexual offenses. Drugs already exist that may be used to dampen a broader range of anti-social desires. And a recent study

7 See infra § III.
9 See JONATHAN ZITTRAIN, THE FUTURE OF THE INTERNET AND HOW TO STOP IT 108 (2008); Danny Rosenthal, Assessing Digital Preemption (and the Future of Law Enforcement?), 14 NEW CRIM. L. REV. 576, 579 (2011) (discussing “digital preemption,” “a law enforcement model in which a government or private party programs a digital device (like a cell phone) or application (like an Internet browser) to eliminate opportunities to use that device or application to break the law or engage in other conduct deemed undesirable”).
10 ZITTRAIN, supra note 9, at 108.
suggests that some drugs may reduce implicit racism.\textsuperscript{15} While a government mandate requiring the administration of drugs such as these that eradicate the desire to engage in criminal conduct seems far-fetched now, their potential existence requires consideration of the possibility.

One might argue that impossibility measures present no novel issues, but rather are just an amplification of the idea of “structural controls,” by which the government deters undesirable courses of actions by making them more difficult, more likely to be punished, or less rewarding.\textsuperscript{16} Government-mandated “default rules,” for example, encourage socially-beneficial behavior in areas such as financial decision-making and employment.\textsuperscript{17} Similarly, “coding” in the architecture of cyberspace permits the government to regulate online behavior.\textsuperscript{18} And these structural controls can curb criminal behavior as well. The Situational Crime Prevention movement is based on the notion that manipulation of environmental factors can deter crime by making it either less possible or more costly.\textsuperscript{19} A steering column lock, for instance, deters theft by making the crime more difficult to accomplish.\textsuperscript{20} And the police might deter prostitution by closing roads to make it more challenging for “johns” to cruise.\textsuperscript{21}

But the claim that impossibility measures are merely enhanced structural controls glosses over the critical distinction between the approaches. In making crime difficult or expensive to accomplish, structural controls apply the traditional notion that criminals are essentially, if not perfectly, rational actors who can be convinced that the criminal conduct in question is a bad idea.\textsuperscript{22} Impossibility measures do not aim to convince the criminal not to do wrong, however; they aim

\textsuperscript{15} Sylvia Terbeck \textit{et al.}, \textit{Propranolol reduces implicit negative racial bias}, \textit{Psychopharmacology} (2012), \textit{available at} http://www.springerlink.com/content/63v2561264075373.

\textsuperscript{16} See Rosenthal, \textit{supra} note 9, at 586-89 (contending that digital impossibility measures are merely a more effective version of other structural controls on criminal activity). For a background on the theoretical foundations of structural controls, see Cheng, \textit{supra} note 2, at 662-67 (2006).


\textsuperscript{18} See LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 3-8 (1999).


\textsuperscript{20} See Clarke, \textit{supra} note 3, at 241.

\textsuperscript{21} See Clarke, \textit{supra} note 19, at 111.

\textsuperscript{22} See RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 164-65 (2d ed. 1977) (arguing that the notion of the criminal as a rational actor has substantial empirical support).
to frustrate her efforts. Put another way, where structural controls and traditional crime-fighting tell criminals that they “shouldn’t” do something, impossibility measures make it so that they simply “can’t.” This distinction matters because it challenges the assumption that the criminal justice system is about shaping the choices that individuals make freely and punishing those who choose of their own free will to violate the law.23 In essence, impossibility measures seek the same goal as traditional crime fighting – the prevention of crime – but by new means.

Some respond to these new means with a sense of intense discomfort, describing government attempts to prevent criminal conduct in Orwellian language.24 For instance, the National Highway Transportation Safety Administration briefly required in the 1970s that all new cars be equipped with an ignition interlock to make it impossible to drive a car without wearing a seatbelt.25 Public outcry over the interlocks, including claims of “big brotherism,” led Congress to forbid the Department of Transportation from requiring them.26 Meanwhile, others offer unqualified optimism that impossibility measures are the solution to prevent further harm.27 Yet as is often the case, the reasoned position lies somewhere in the middle. Impossibility measures offer what traditional crime fighting cannot: near eradication of criminal conduct and its collateral harms.28 But there are costs, including novel intrusions on personal interests of autonomy and privacy.29

These conflicting, visceral responses suggest the need for some structured framework for analyzing the desirability of impossibility measures. Moreover, the impending feasibility of these measures demands that this framework be provided sooner than later and before legislators must decide whether to implement them. Yet the academic

28 See *infra* § II.A.
29 See *infra* § II.B.
discussion to-date fails to provide the needed depth and structure for this analysis. The scant existing discussions of impossibility measures are either incomplete or fail to recognize impossibility measures as a unique phenomenon requiring separate analysis. Meanwhile, considerations of structural controls are more fully developed, but generally proceed on the basis of foundational assumptions that avoid or obscure important questions. For instance, some assume that crime prevention is an unalloyed good and thus fail to engage with difficult normative questions raised by structural controls on crime. Others approach structural controls with an overriding skepticism about government interference that preempts a discussion of the practicalities of such controls. None of these discussions provide legislators (and future scholars) with a starting point for their analysis of specific impossibility measures.

This Essay does so by proceeding in four parts. Part I delineates in more precise terms what constitutes an impossibility measure. Part II establishes a framework for analyzing impossibility measures by setting forth the most common arguments that can be raised for and against their use. Part III applies this framework to the DADSS that aims to make drunk driving impossible. Finally, Part IV concludes the discussion by briefly suggesting some lessons of the DADSS example and highlights issues that are likely to arise in applying the framework to future measures.

30 Danny Rosenthal, for instance, limits his discussion to two issues that arise from impossibility measures that use digital technology. See Rosenthal, supra note 9; see also Colin Camerer, et al., Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism,” 151 U. PA. L. REV. 1211, 1253 (2003) (recognizing the potential to prevent drunk driving and concluding, without substantial analysis, that “the benefits are likely to overwhelm the costs”).

31 Christina Mulligan, for instance, conflates impossibility measures with other structural controls. See Christina M. Mulligan, Perfect Enforcement of Law: When to Limit and When to Use Technology, 14 RICH. J.L. & TECH. 13 (2008), http://law.richmond.edu/jolt/v14i4/article13.pdf, at *7-10 (discussing the differences between “perfect prevention,” “perfect surveillance,” and “perfect correction”); see also Rosenthal, supra note 9, at 586-89 (discussing digital preemption as merely a more effective version of other structural controls on criminal activity).

32 See Neal Kumar Katyal, Architecture as Crime Control 111 YALE L.J. 1039, 1129 (2002) (“My argument presumes that an overriding goal is to get rid of crime…”); Cheng, supra note 2, at 671 (dismissing potential privacy concerns of structural controls on the ground that society should reduce its focus on individual rights in favor of “more community-oriented, social welfare goals”).

33 See ZITTRAIN, supra note 9; LESSIG, supra note 18.
I. Defining Impossibility Measures

An impossibility measure is government action aimed at making it effectively impossible for individuals to engage in proscribed conduct. Specifically, impossibility measures possess three characteristics that, in conjunction, distinguish them from more traditional methods of crime prevention.

First, impossibility measures involve government, rather than private, conduct. Private entities frequently seek to protect themselves from crime by making that crime impossible. An individual afraid of burglary or home invasion may install locks on exterior doors or place bars over windows. Financial institutions put in place substantial security protocols to prevent theft. Corporations guard their data through cybersecurity measures. Impossibility measures differ from these private steps in that the government is the driver for the implementation of the measure.\(^3\) The government’s involvement is important for three reasons. First, it means that the measure constitutes state action and thus implicates constitutional concerns.\(^3\) Second, the involvement of the government heightens concerns about autonomy, privacy, and bodily integrity. And third, the government’s mandate makes it possible for the impossibility measure to be effective. For instance, it is one thing to hope that every homeowner will put bars on her windows. Though many or even most may do so, some will refuse. But if the government mandates that bars be on the windows of all homes, the compliance rate will be substantially higher.

Second, an impossibility measure seeks to make crime practically impossible rather than merely inadvisable. Many traditional crime-fighting tactics can be said to seek to make crime “impossible” by making it so a crime cannot be committed without the perpetrator being apprehended.\(^3\) For instance, local governments often install

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\(^3\) The government’s role in the implementation of a measure can be direct or indirect. For instance, imagine that the federal government sought to make it impossible for people to drive over a certain speed. It could implement such a policy directly, through a statute or regulation requiring that each new automobile be equipped with a speed governor that prevents it from exceeding a certain top speed. Or it could act indirectly by withholding funding or other benefits from carmakers who failed to equip new vehicles with a governor. In either case, the government’s role would qualify the policy as an impossibility measure.


\(^3\) Some scholars have called such measures “perfect enforcement.” See Mulligan, supra note 31, at *13; Posting of Daniel J. Solove to Concurring Opinions,
cameras at intersections with stoplights in order to catch those who run the light. In one sense of the word, these cameras make it “impossible” to run the red light because anyone doing so will inevitably be identified and punished. However, such measures are merely highly-effective examples of the traditional deterrence approach to law enforcement. Impossibility measures seek to do something else, however. Rather than focusing on the capture of perpetrators, impossibility measures seek to make it so that the criminal conduct cannot practically be accomplished in the first instance. In the example of the potential red-light runner, then, an impossibility measure might entail a government mandate that all motor vehicles be equipped with a device that senses when the vehicle is approaching a red light and automatically applies the brakes. As such, the impossibility measure does not aim to change the potential perpetrator’s decision-making process, either directly or indirectly; rather, it targets the conduct, and its effectiveness will be judged by how well it prevents that conduct.

Third, while traditional crime prevention often targets individuals who have been judicially determined to be most likely to offend, impossibility measures require no such finding. For instance, convicted criminals are incarcerated in part to incapacitate them and prevent them from committing additional crimes. Similarly, courts issue restraining orders that limit an individual’s movement upon a finding that the individual is likely to cause harm to another. Impossibility measures, on the other hand, apply to all people equally in seeking to prevent them from being capable of engaging in the prohibited conduct. This is the difference between a court-ordered requirement

38 See Impossible Definition, Merriam-Webster, http://www.merriam-webster.com/dictionary/impossible (last visited February 14, 2012) (defining “impossible” to mean both “incapable of being or of occurring” and “extremely undesirable”).
41 Of course, many crimes can be committed only by certain classes of individuals. For instance, only a felon can violate a statute making it a crime for a felon to possess a firearm, and only one using an electronic device can engage in cyberstalking. Impossibility measures that aim to prevent either crime therefore will disparately impact those individuals who fall into the class capable of committing the offense. Thus, impossibility measures may have a disparate impact on certain individuals, but the measures do not
that one convicted of drunk driving use ignition interlocks and a
government mandate of that an interlock be installed in all new
vehicles. The former is a traditional crime-control measure because it
targets only convicted drunk drivers. The latter is an impossibility
measure because it aims to prevent anyone who drives a car from
engaging in the prohibited conduct. This distinction matters because in
the context of traditional crime prevention, the prior judicial finding
justifies the restriction on individual liberty. Without that predicate
finding, justification for the government action must be found
elsewhere.

II. A Framework for Assessing Impossibility Measures

The following discussion sets forth the potential benefits of
impossibility measures and the arguments against the adoption of such
measures. These considerations are set out in the abstract, but with
examples as needed for clarity. Of course, the applicability and force of
any consideration will depend on the circumstances of the measure in
question.

A. Potential Benefits

The primary goal and effect of impossibility measures – the direct
prevention of criminal conduct – gives them an intuitive appeal. Crime,
after all, involves conduct that is presumed to be morally wrong and
harmful. Legislatures, whose job it is to define criminal conduct, do
so based on a judgment that the targeted conduct is sufficiently
reprehensible and harmful to society to justify the use of the criminal
justice system to prevent and punish its commission. Thus the harm
that any impossibility measure would aim to prevent, being the same harm that is punished by a criminal statute, is a substantial one.\textsuperscript{46}

In addition to avoiding the harm caused by the crime itself, impossibility measures allow society to avoid the costs of investigating, prosecuting, and punishing the completed criminal conduct. Specifically, by preventing some criminal conduct, an impossibility measure would allow police and prosecutors to focus their limited resources on the investigation and prosecution of crimes that as yet cannot be rendered impossible.\textsuperscript{47} The prevention of some crimes also would reduce the strain on overburdened judicial resources. Similarly, the cost of incarcerating a criminal averages a little under $24,000 per year.\textsuperscript{48} Individuals who are prevented from committing crime would not need to be incarcerated, thus reducing incarceration costs and freeing up government resources for other purposes.

Preventing an individual from committing crime also prevents her and those connected to her from suffering the negative effects of incarceration. For the criminal, the costs of incarceration, including lost economic and social opportunities and the collateral legal consequences of conviction, can be devastating.\textsuperscript{49} Incarceration also

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\textsuperscript{46} This does not mean that the criminal law perfectly tracks the desires and goals of society. The substantial literature on overcriminalization recognizes as much, criticizing the use of the criminal law to punish conduct that is insufficiently harmful or morally culpable. \textit{See} Erik Luna, \textit{The Overcriminalization Phenomenon}, 54AM. U. L. REV. 703, 716 (2005) (“Overcriminalization, then, is the abuse of the supreme force of a criminal justice system--the implementation of crimes or imposition of sentences without justification.”). The trend toward overcriminalization can be traced to political pressures that drive the expansion of criminal sanctions and prevent their contraction. \textit{See} Stuntz, \textit{supra} note 45, at 529-57. Concerns that a particular impossibility measure might enforce an overly-broad criminal law are addressed infra \S II.B.1.a.i.
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places financial and emotional stress on the family of the criminal, leading to problems including the breakup of families and emotional and behavioral issues in children.\(^\text{50}\) Communities also suffer when potentially-productive adult members are incarcerated as social ties that permit community growth are severed and orderly social norms are disrupted.\(^\text{51}\) These costs can be avoided if a perpetrator is prevented in the first instance from ever engaging in criminal conduct.

Moreover, impossibility measures avoid the constitutional and policy problems that can arise from the traditional law enforcement process. Perhaps most significantly, these measures are equal in their application. Traditionally, police and prosecutors must make choices about which instances of criminal conduct to investigate and prosecute.\(^\text{52}\) Similarly, prosecutors and judges make decisions about punishment.\(^\text{53}\) These choices can be infected by improper considerations that give rise to either Fourth Amendment or Equal Protection concerns, like race, ethnicity, and gender, or can be influenced by factors that are simply irrelevant, like politics or personal animus. By removing the need for the investigation, prosecution, and punishment of the targeted criminal conduct, impossibility measures eliminate these issues.\(^\text{54}\)

In addition, traditional law enforcement necessarily focuses on the investigation of specific offenses and the individuals suspected of


\(^{53}\) See McCleskey v. Kemp, 481 U.S. 279, 297 (1987) (“Because discretion is essential to the criminal justice process, we would demand exceptionally clear proof before we would infer that the discretion has been abused.”); Carissa Byrne Hessick & F. Andrew Hessick, \textit{Recognizing Constitutional Rights at Sentencing}, 99 \textit{CAL. L. REV.} 47, 52-56 (2011) (discussing the discretion afforded to judges at sentencing to consider individual facts about the defendant, including religion, age, and charitable activities, and the constitutional limitations on that discretion).

involved in those crimes. As a result, suspects are stopped by the police and subject to harm to their privacy and autonomy interests that results.\textsuperscript{55} Though the imposition of these harms is not unreasonable and does not violate the Fourth Amendment when the police have the appropriate quantum of suspicion that the targeted individual is involved in criminal activity,\textsuperscript{56} the harms are avoided by an impossibility measure that prevents the criminal conduct in the first instance. And police inevitably stop innocent individuals in the absence of sufficient suspicion, thus resulting in what Professor Colb has termed “targeting harm.”\textsuperscript{57} An impossibility measure avoids this harm as well.

Finally, by preventing criminal conduct, an impossibility measure also may create an “upward spiral” of societal norms that support and encourage law-abiding behavior.\textsuperscript{58} Put another way, if certain criminal conduct is made essentially impossible, some may come to see the conduct as something that is inappropriate and “not done.”\textsuperscript{59} These individuals will then put additional pressure on any remaining outliers to conform their beliefs to mainstream anti-crime norms.\textsuperscript{60} In this way impossibility measures can cause society to self-regulate, thus making the measures themselves less necessary to produce compliance with the law.

B. Potential Concerns

The reach of an impossibility measure can be long. Most directly, it impacts the potential perpetrator of the targeted criminal conduct, interfering with her liberty, possibly intruding on her interests in privacy or even her bodily integrity, and likely imposing some financial cost. A measure may interfere with the interests of a potential victim, whose liberty and autonomy may be curtailed by the paternalistic impulses of the government. A measure may intrude on disparate third-party interests, including the interests of the vendors of products

\textsuperscript{55} See Bernard E. Harcourt & Tracy Meares, \textit{Randomization and the Fourth Amendment}, 78 U. CHI. L. REV. 809, 852 (2011);
\textsuperscript{56} Terry v. Ohio, 392 U.S. 1, 17-22 (1968).
\textsuperscript{58} Cheng, \textit{supra} note 2, at 665.
\textsuperscript{59} See David J. Smith, \textit{Changing Situations and Changing People, in Ethical and Social Perspectives on Situational Crime Prevention} 147, 165 (Andrew Von Hirsch et al. eds., 2000) (noting that decreasing the volume of certain criminal conduct decreases the likelihood that others will learn that such behavior is permissible).
\textsuperscript{60} See id.


that might be required to include an impossibility measure and the interests that a parent has in making decisions that impact her child's well-being. And a measure will impact society more broadly, as a measure will change law enforcement practice and cause society to forego potential benefits of criminal conduct. These potential impacts of an impossibility measure are discussed in turn below.

1. Perpetrator Interests

The potential perpetrator of a crime will be most directly affected by an impossibility measure. She is prevented from engaging in the criminal conduct that is the target of the measure and may also find that some "adjacent" non-criminal conduct is prevented. And depending on the nature of the measure, she may find that her interests in privacy and bodily integrity also are compromised.

a. Autonomy

By their nature, impossibility measures curtail individual autonomy, and government interference with individual autonomy requires some justification.61 At a minimum, impossibility measures prevent individuals from engaging in criminal conduct, but their impact may be broader. Unless an impossibility measure is perfectly tailored to prevent only criminal conduct, the measure runs the risk of preventing individuals from engaging in non-criminal conduct as well. Finally, an impossibility measure may do more than prevent conduct; rather, it may require individuals to engage in some additional action in order to allow for differentiation between criminal and non-criminal conduct. Each of these restrictions on individual autonomy gives rise to distinct issues.

61 Liberalism, for example, holds that government interference with individual autonomy is justified only to prevent harm to others. See Todd E. Pettys, Sodom’s Shadow: The Uncertain Line between Public and Private Morality, 61 HASTINGS L.J. 1161, 1191-92 (2010) (discussing Mills’s harm principle).

62 Some define autonomy to exclude conduct, such as criminal conduct, that they normative assume that the individual should not be permitted to engage in. See, e.g., Kimberly Kessler Ferzan, Beyond Crime and Commitment: Justifying Liberty Deprivations of the Dangerous and Responsible, 96 MINN. L. REV. 141, 178 (2011) (“We certainly do not claim that criminals ought to have unfettered ability to commit crime and that any restrictions on that freedom interfere with their autonomy.”). The concept of autonomy used herein rejects such assumptions and instead describes the individual’s broader interest in being permitted to make decisions about her actions and to be able to give effect to those decisions. This of course does not mean that an individual’s autonomy interests cannot justifiably be constrained, only that the two questions are distinct.
i. The freedom to commit crime?

The most obvious and direct impact of an impossibility measure is on the capacity of individuals to engage in criminal conduct. By foreclosing that avenue of conduct, the measure inhibits individual autonomy. As a legal matter, however, one’s freedom to engage in criminal conduct is not entitled to protection, as there is no legal “right to commit crime.” Thus, there almost certainly would be no legal relief for one who claimed injury from the inability to commit crime due to an impossibility measure.

But in reality societal perspectives on crime detection and prevention are more fine-grained than the monolithic legal rule and vary depending on the crime at issue. With respect to the most serious offenses, many elements of society want them prevented or punished at nearly any cost. The costs often deemed acceptable most notably include infringement on the constitutional rights of the criminal. At the other end of the spectrum, in some situations there is a prevailing sense that individuals should be given a “sporting chance” to get away with crime. Thus, there is criticism that some crime-fighting measures, such as speed traps and red-light cameras, are too effective and

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64 A criminal may have a right to be free of selective prosecution on an unconstitutional basis, and thus a “right” to commit the crime at issue at least to the extent that others are not prosecuted for the same conduct. See Gabriel J. Chin, Unexplainable on Grounds of Race: Doubts about Yick Wo, 2008 U. ILL. L. Rev. 1359, 1369-70. Because impossibility measures apply equally to an entire class of criminal conduct, however, they are not susceptible to a selective prosecution challenge.

65 It is this concern that no doubt motivates, at least in part, the popular perception that too many criminals “get off” on technicalities. See Deborah L. Rhode, Access to Justice: Again, Still, 73 FORDHAM L. Rev. 1013, 1018 (2004).

66 See Mary D. Fan, The Police Gamesmanship Dilemma in Criminal Procedure, 44 U.C. Davis L. Rev. 1407, 1421-22 (“We have a deep ambivalence when it comes to conceptualizing which strategies are deemed ‘fair’ and what ‘fair’ should mean for police because of a sense that criminals should be brought to justice, not given a ‘sporting chance.’”).
As a result, some jurisdictions have outlawed these enforcement tactics. These criticisms suggest two bases for concern about highly-effective crime detection methods that carry over to impossibility measures. First, some criminal statutes target conduct that arguably should not be a target of the criminal justice apparatus. These arguments typically arise in two contexts. The first is when the prohibited conduct is simply perceived to result in harm that is insufficiently serious to justify criminal punishment. The second involves so-called "vice" crimes that are criticized as paternalistic in that they prohibit voluntary transactions in which the prohibited conduct causes harm only to the individual who chooses to engage in it. Though citizens may acquiesce to the criminalization of this conduct on the understanding that the statutes will not be comprehensively enforced, substantial political resistance may arise if the targeted conduct is rendered effectively impossible. Alternatively, if making certain conduct impossible may indeed give rise to self-reinforcing societal norms

69 There are also complaints raised about highly-effective detection that do not carry over to impossibility measures. For instance, some complain that because it is practically impossible to obey all traffic laws all the time, punishing all violations improperly treats everyone like a criminal. See Clarke, supra note 19, at 135 (“People have to be given a sporting chance of getting away with crime, especially the ordinary everyday offenses that all of us might commit.”). By preventing the criminal conduct in the first instance, however, impossibility measures impose no criminal punishment and thus treat no one like a criminal. Some effective crime detection is also criticized because it effectively detects only some lawbreakers, such as those in a given geographical area, and thus can be applied discriminatorily. Impossibility measures seek to prevent all instances of prohibited conduct and are therefore insulated from this criticism. Finally, speed traps and red-light cameras are frequently criticized for aiming to increase government revenue instead of enhancing public safety. By seeking to eliminate the criminal conduct completely, rather than punish it more efficiently, impossibility measures do not give rise to this concern.
71 See id. at 704 (cataloguing such non-serious criminal offenses as the coloring of birds and rabbit and the failure to return library books).
72 Id. at 705-06.
opposed to that conduct, the government decision-maker should be especially certain that impossibility measures target only behavior that society truly condemns. Otherwise, impossibility measures may create citizens who comply unthinkingly with relatively unimportant norms.

Second, impossibility measures exacerbate the overdeterrence that already results from overbroad and imprecise statutes. Imagine, for example, that a city sets a speed limit on a given road because most accidents on the road involve cars driven over that speed. Such a speed limit is overbroad in that it imprecisely targets the underlying harm of unsafe driving. Certainly, to the extent that the limit deters some unsafe drivers from exceeding the speed limit, it will reduce injuries. But there will also be cases of people who could safely drive in excess of the posted limit and who are deterred unnecessarily from doing so. In turn, an impossibility measure that prevents everyone from exceeding the speed limit on the road will multiply the overdeterrence.

Any amount of overdeterrence can be criticized for being an unnecessary restriction on individual autonomy. That being said, this overdeterrence is often an acceptable cost of having a rule that is easily complied with and enforced as opposed to a more normative directive that requires case-by-case assessment. But overdeterrence becomes particularly problematic when the overdeterred conduct is entitled to constitutional protection. Thus, impossibility measures that may impact such conduct, like speech, may be subject to constitutional challenge on that basis.

ii. Prevention of non-criminal conduct

Any technology that seeks to prevent criminal conduct will inevitably forbid some non-criminal conduct. This overbreadth may occur either by design or by mistake. In the ideal case, the criminal conduct that an impossibility measure seeks to prohibit will be defined by a

73 See supra notes 58-60 and accompanying text.
74 It is for this reason that it is a mistake to divorce concerns about the wisdom of the underlying criminal prohibition from concerns about the technology used to render the criminal conduct impossible. But see Mulligan, supra note 31, at *12-*16 (arguing against conflating concerns over the substantive criminal prohibition and concerns about the technology used to enforce it).
determinate legal rule, and the measure can be designed to perfectly enforce that rule. But most criminal prohibitions are not so determinate. They require an assessment of the defendant’s mens rea or some attendant factual circumstance that is not amenable to perfect measurement. In such cases, impossibility measures must be designed to be over-inclusive, under-inclusive, or both. To the extent that a measure is over-inclusive, it will prevent some non-criminal conduct by design. Moreover, even when a legal prohibition is determinate, the measure that enforces that prohibition, like all technology, will be subject to some rate of standard error in its attempt to distinguish criminal from non-criminal conduct. Similarly, the measure may also be subject to non-standard malfunctions that cause it to prevent clearly non-criminal conduct.

Once again, such overbreadth is not per se fatal to an impossibility measure, as the occasional error may be determined to be an acceptable cost for preventing the targeted criminal conduct. Rather, the extent to which such overbreadth counsels against implementing an impossibility measure depends on the answer to two related questions. First, how often does the impossibility measure prevent non-criminal conduct? The answer to this question is empirical and would include both the extent of designed overbreadth and the rate at which measurement error or malfunction might result in unplanned overbreadth. Second, what is the nature of the non-criminal conduct that may be prevented by the measure? The answer to this question can give rise to both constitutional and policy issues.

With respect to the latter, some genres of non-criminal conduct, like speech, the ownership of firearms, and the exercise of religion, are entitled to constitutional protection. If an impossibility measure

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78 See Harry Surden, The Variable Determinacy Thesis, 12 Colum. Sci. & Tech. L. Rev. 1, 74 (2011). A speed limit is an example of such a rule: it draws a bright line and a speed governor could be designed to prohibit a vehicle from ever exceeding that speed.

79 The only way to nullify this risk of error would be for the legislature to make avoidance of the impossibility measure itself a crime. See id. at 86-90 (discussing how legal rules with indeterminate boundaries may be made more amenable to computation and thus technological enforcement). For instance, in the case of the tamper-sensing ignition interlock, the legislature could redefine the crime of auto theft to include taking possession of an automobile in contravention of the tamper-sensing technology. Such a circular redefinition merely replaces the concern over error with a concern that the law is now detached from any underlying moral justification. See supra notes 70-72 and accompanying text.

80 See U.S. Const. amends. 1, 2.
prevents some instances of such conduct, it may be invalidated on constitutional grounds. For instance, the government might mandate the filtering of all Internet traffic to prevent the transmission of child pornography. Though the transmission of child pornography is not entitled to constitutional protection, any overbreadth in the application of the measure would prevent conduct that is protected by the First Amendment. In the usual case, overbreadth is of this sort is not fatal if it is not substantial. Impossibility measures present a unique situation, however. Typically less-substantial overbreadth can be remedied through a case-by-case analysis to determine when a given prohibition may not be applied. But because they prevent the non-criminal conduct from every taking place, impossibility measures are true prior restraints, which are strongly disfavored under the First Amendment.

Constitutional issues also may arise if an impossibility measure deprives an individual of some constitutionally-protected “liberty” or “property” interest. Property interests entitled to due process protection cover a broad range and include welfare benefits, utility services, and professional licenses. Resolution of due process claims raised by impossibility measure typically occurs on a case-by-case basis and depend on a court’s balance of the factors set out in Mathews v. Eldridge: the private interest at stake, the risk of erroneous deprivation of that interest and the value of any additional safeguards, and the Government’s interest, including the burdens of such safeguards. As explained by Professor Citron, automated decision making about protected interests raises due process issues because of the difficulty of providing adequate notice and a meaningful opportunity to be heard to effected individuals. An automated impossibility measure almost certainly suffers these same difficulties. And impossibility measures

82 See Broadrick v. Oklahoma, 413 U.S. 601, 615 (1973) (holding that “where conduct and not merely speech is involved, we believe that the overbreadth of a statute must not only be real, but substantial as well, judged in relation to the statute’s plainly legitimate sweep” before the statute will be invalidated under the First Amendment).
83 Id. at 615-16.
may give rise to even greater due process concerns if the Government provides no hearing is provided for those erroneously deprived of a protected interest.\textsuperscript{89} Thus, to the extent that a measure may impact a protected interest, the government must take pains to tailor the measure and any hearing process to accommodate individual due process rights. Such tailoring may include ensuring that measures create a meaningful record of their decision making and creating meaningful opportunities for effected individuals to challenge the technology underlying the measure.\textsuperscript{90}

Moreover, an overbroad impossibility measure may cause non-constitutional harms. First, it unnecessarily interferes with individual autonomy by foreclosing a non-criminal avenue of conduct. Second, it may prevent conduct that, while not protected by the constitution, is beneficial to society. For instance, an impossibility measure that seeks to make it impossible to sell pirated software may also prevent some valid transactions. Such non-criminal transactions presumably benefit to society, and their prevention is thus cause for concern. On the other hand, an impossibility measure could risk prohibiting activity that is legal but of little societal value. For example, an impossibility measure that prevents the manufacture of an illegal drug might also prevent the manufacture of similar toxic, but not illegal, chemicals with no legitimate use. In such a case, overbreadth in the measure would be of far less concern.

iii. Compelled action

An impossibility measure also may compel action on the part of an individual as part of screening whether she is engaged in criminal activity. As a general matter, the compulsion of action intrudes on autonomy interests more than the prevention of action, and the more significant the compulsion, the greater the intrusion.\textsuperscript{91} Thus, current alcohol ignition interlocks, which require the driver to provide a breath

\textsuperscript{90} See Citron, supra note 88, at 1305-08.
\textsuperscript{91} See Eric Rakowski, The Sanctity of Human Life, 103 YALE L.J. 2049, 2089 (1994)(“Political morality and constitutional law typically make coerced action more difficult to justify than coerced inaction, because requiring somebody to act usually infringes his bodily autonomy and personal freedom more than does compelling him to refrain from acting.”).
sample by blowing into a tube before the car will start, are more intrusive on autonomy than a passive BAL-measurement system.

b. Privacy

Some impossibility measures also may intrude on the potential perpetrator’s privacy interests. Typically, a measure must gather some information in order to determine whether particular attempted conduct would be innocent or criminal. For instance, technology that seeks to prevent cars from speeding would need to determine a vehicle’s speed in order to determine whether a given press on the accelerator would result in the vehicle exceeding the speed limit. The extent that the collection of such information intrudes on cognizable privacy interests depends on the nature and quantity of information gathered by the technology and how broadly that information is disseminated. Each measure must be assessed on an individual basis, and how invasive that measure is will depend on the technology in question and will nature of the criminal conduct that the measure seeks to prevent. Despite the particularized nature of the inquiry, there are a number of reasons why impossibility measures have the potential to give rise to serious privacy concerns.

First, because impossibility measures must distinguish criminal from non-criminal activity, they will often collect data about conduct that falls just short of or is very similar to criminal conduct. In either case, an individual is likely to have a substantial privacy interest in the information collected. Allegations that one attempted to engage in criminal conduct can be damning to one’s reputation. Similarly, an

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93 It is possible, of course, for the technology used to effectuate a measure to gather no information at all. For example, the government could mandate the installation of bars and automatic deadbolts on the windows and doors of all homes in order to prevent burglary. Because such technology does not differentiate between legal and criminal conduct, it gathers no information.
94 It is for this reason that at common law false claims that an individual engaged in criminal conduct constituted defamation per se. See, e.g., Geraci v. Probst, 938 N.E.2d 917, 923 (N.Y. 2010) (claim that plaintiff committed misdemeanor was defamation per se); Lynch v. Lyons, 20 N.E.2d 953, 955 (Mass. 1938) (claim that plaintiff committed a crime is actionable per se).
individual may have significant privacy interests in conduct that falls just short of being criminal.\textsuperscript{95}

Second, even if the information collected by a given impossibility measure does not itself lead to a substantial intrusion on individual privacy, the aggregation of that information with other data may create privacy concerns. As scholars and courts have recognized, discrete pieces of information that standing alone reveal little about a person can be aggregated by an interested entity, be it an individual, corporation, or government, to build a comprehensive picture of that person’s private life.\textsuperscript{96} Because they will often involve private activities and are unlikely to be obtainable elsewhere, the data collected by an impossibility measure will likely be of great interest to those entities like data brokers and fusion centers that aggregate, buy, and sell data to their government and commercial partners.\textsuperscript{97}

Third, impossibility measures may be open to piggybacking by other technology. For instance, a speed governor that prevents an automobile from exceeding speed limits could easily house additional technology that gathers information about the vehicle’s use that is unnecessary to the core function of the device. For instance, the governor could include a GPS function to allow tracking of the car’s location or devices that assess driving habits. This additional data would multiply the value of the measure as a data-gathering device.

\textsuperscript{95} For instance, an impossibility measure that seeks to prevent individuals from accessing websites containing child pornography would also learn when an individual visited websites containing other types of pornography. The constitution protects an individual’s right to access obscene materials in “the privacy of [her] own home.” Stanley v. Georgia, 394 U.S. 557, 565 (1969).


For all these reasons, impossibility measures create particular dangers to individual privacy. The value of the information that a measure can gather, either as part of its core function or through piggybacking technology, will create substantial pressure to permit the collection and distribution of these data. The protection of individual privacy will require both strict limitations on the gathering and distribution of data and effective enforcement of those limitations.

c. Bodily integrity and personhood

An impossibility measure also may intrude on the potential perpetrator’s interests in bodily integrity, dignity, and personhood. These intrusions can range from the seemingly insignificant to the obviously troubling. For instance, current BAL ignition interlocks may require the driver to provide a breath sample by placing a tube in her mouth. This intrusion, which is temporary and causes no permanent harm, may be viewed as relatively minor. On the other hand, an impossibility measure requiring that everyone ingest a drug to suppress anti-social proclivities would likely be viewed as exceedingly intrusive.

2. Victim interests

An impossibility measure also might seek to prevent crime by preventing potential victims from engaging in conduct that makes them vulnerable to crime or by requiring them to take some protective action. Such measures would give rise to the same issues outlined in

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99 But see Washington v. Harper, 494 U.S. 210, 237 (1990) (Stevens, J., concurring in part and dissenting in part) (“Every violation of a person’s bodily integrity is an invasion of his or her liberty.”).
100 See Riggins v. Nevada, 504 U.S. 127, 135 (1992) (“[F]orcing antipsychotic drugs on a convicted prisoner is impermissible absent a finding of overriding justification and a determination of medical appropriateness.”); Harper, 494 U.S. at 221-22 (“[R]espondent possesses a significant liberty interest in avoiding the unwanted administration of antipsychotic drugs under the Due Process Clause of the Fourteenth Amendment.”).
101 For instance, the federal government could mandate that e-mail providers block any communication containing a Social Security number with the goal of preventing identity theft through phishing. See DAVID KIM & MICHAEL G. SOLOMON, FUNDAMENTALS OF INFORMATION SYSTEM SECURITY 487 (2012) (defining phishing as a “type of fraud in which an attacker attempts to trick the victim into providing private information”).
102 For example, the government could require that all software publishers include anti-copying measures in their products to prevent theft.
the previous section, but would impact the autonomy, privacy, bodily integrity, and financial interests of the potential victim rather than the potential perpetrator of the criminal conduct. In most cases, these potential victims will be blameless for their vulnerability to crime, or at least less to blame than the potential perpetrator. Because the victim bears less or no blame for the potential crime, the decision to intrude on her interests requires even greater justification than a similar intrusion on the interests of the potential perpetrator.

Moreover, measures that restrict the autonomy of a potential crime victim are classic examples of paternalism in which the government restricts an individual’s liberty in the name of protecting her from harm. Paternalism is not inherently undesirable of course, and the extent to which a paternalistic policy requires additional justification is a normative question outside the scope of this Essay. Nonetheless, it is a consideration that may weigh against an impossibility measure that restricts the autonomy of a potential crime victim.

3. Third-party interests

Impossibility measures also may intrude on the interests of third-parties, i.e., individuals or entities that are neither the potential perpetrators nor the potential victims of the targeted criminal conduct. Such intrusions will typically fall into two categories. First, an impossibility measure may require a manufacturer of a product to include some feature in the product that restricts its use. The Department of Transportation’s short-lived mandate that all new vehicles include an interlock system to prevent driving without wearing a seatbelt is one example of such a measure. While such

103 See supra § II.B.1.
104 The moral standing of a crime victim (or potential crime victim) is of course complex. See generally Aya Gruber, Righting Victim Wrongs: Responding to Philosophical Criticisms of the Nonspecific Victim Liability Defense, 52 BUFF. L. REV. 433 (2004) (discussing the moral and philosophical role of the victim in the criminal justice system). Even with that being so, it seems uncontroversial to claim that most potential crime victims bear less moral responsibility for their vulnerability to crime than do the individual who exploit that vulnerability through their criminal conduct.
105 See Gerald Dworkin, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (2010), http://plato.stanford.edu/entries/paternalism/ (defining paternalism broadly as “the interference of a state or an individual with another person, against their will, and defended or motivated by a claim that the person interfered with will be better off or protected from harm”).
106 See id.
measures do restrict the liberty of manufacturers, government-mandated safety precautions are common and manufacturer interests are protected by rule-making procedures.\textsuperscript{108} Moreover, any financial costs of implementing an impossibility measure can and will be passed from the manufacturer on to consumers. As a result, the interests of manufacturers generally will carry less weight than the other concerns outlined herein.

Second, an impossibility measure may interfere with the relationship between a third-party and a potential criminal or crime victim. The most obvious example of such a relationship is that between a parent and child. Thus, an impossibility measure that prevents minors from placing certain information online in order to prevent cyberstalking would interfere with a parent’s right to make decisions about her child’s online activities. This right may be entitled to constitutional protection.\textsuperscript{109} And even if such a measure survived constitutional scrutiny, it may face substantial political opposition in light of the centrality of the parent-child relationship in American society.\textsuperscript{110} Other relationships may be impacted as well, such as those between employers and employees, spouses, and legal guardians and their wards. Each of these relationships is due a different level of deference by the law and by society. The nature of any impacted relationship and the extent of the impact must be considered in assessing an impossibility measure.

4. Societal interests

The impact of impossibility measures will extend beyond those directly affected by the government mandate. There will be costs that society also must pay. Impossibility measures are not free, and some portion of society will have to pay that financial cost. Measures also will change drastically the rate at which crimes are committed and necessitate

\textsuperscript{108} See Kenneth Culp Davis, A New Approach to Delegation, 36 U. CHI. L. REV. 713, 726 (1969) (“The courts should recognize that administrative legislation through the superb rule-making procedure marked out by the Administrative Procedure Act often provides better protection to private interests than congressional enactment of detail.”)

\textsuperscript{109} See Susan S. Kuo, A Little Privacy, Please: Should We Punish Parents for Teenage Sex?, 89 KY. L.J. 135, 169-71 (2000-01) (discussing the fundamental nature of a parent’s right to make childrearing decisions).

\textsuperscript{110} See Wisconsin v. Yoder, 406 U.S. 205, 232 (1972) (“The history and culture of Western civilization reflect a strong tradition of parental concern for the nurture and upbringing of their children. This primary role of the parents in the upbringing of their children is now established beyond debate as an enduring American tradition.”).
some adaptation by the police. Furthermore, by preventing crime measures also will prevent punishment of that crime and thus may short-circuit the educational function of the criminal justice system. Finally, measures may prevent those rare instances in which criminal conduct benefits society. These issues are addressed below.

a. Financial Cost

Any impossibility measure will come at some financial cost by incorporating the price of developing and implementing the underlying technology. The question of who properly should bear this cost is one of fairness. In the typical criminal justice arena, there are two strands of thought. First, the institutional costs of crime-fighting, including the costs of policing and prosecuting and the costs of incarceration, are borne by society generally. This distribution is fair because these government functions benefit all members of society. Second, a criminal’s decision to engage in wrongdoing gives rise to a moral obligation to society and to their victims to pay for the harms that they cause.

Impossibility measures generally seem to fit better in the former context than the latter. First, all of society benefits from the efforts of police to investigate and prevent crime, and so too does society as a whole benefit from an impossibility measure that prevents that crime from occurring. As such, it seems proper that the cost of an impossibility measure should be spread across society. Second, identifying the subset of society that is morally obligated to pay for the

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111 See supra notes 47-48 and accompanying text (discussing the cost shifting and cost savings that could result from an impossibility measures). Some states have attempted to obtain reimbursement for the cost of incarceration from prisoners. See Sara Feldschreiber, Fee at Last? Work Release Participation Fees and the Takings Clause, 72 FORDHAM L. REV. 207 (2003); S.P. Conboy, Prison Reimbursement Statutes: The Trend toward Requiring Inmates to Pay Their Own Way, 44 DRAKE L. REV. 325 (1996). Despite these efforts, the costs of policing, prosecution, and incarceration tend to be spread across society.

112 See Union Refrigerator Transit Co. v. Kentucky, 199 U.S. 194, 203 (1905)

113 See S. REP. NO. 104-179, at 12 (1995), reprinted in 1996 U.S.C.C.A.N. 924 (noting purposes of Mandatory Victims Restitution Act to “ensure that the loss to crime victims is recognized, and that they receive the restitution they are due” and “to ensure that the offender realizes the damage caused by the offense and pays the debt owed to the victim as well as to society”); see also Ruth Jones, Inequality from Gender-Neutral Laws: Why Must Male Victims of Statutory Rape Pay Child Support for Children Resulting from Their Victimization, 36 GA. L. REV. 411, 456 (2002) (arguing that the costs of victimization should be borne by society as a whole).
measure is essentially impossible. Ideally, one could distinguish those who genuinely wish to engage in the prohibited criminal conduct but are prevented from doing so by the impossibility measure from those who have no desire to do so. This desire gives rise to some moral culpability and thus could form the basis of a requirement that members of the former group bear the cost of the measure.\footnote{114} Traditionally, criminal law identifies those with a genuine desire to engage in criminal activity by requiring some guilty act before holding someone liable for an attempt.\footnote{115} In the language of attempt law, one who tries to engage in criminal conduct but is foiled by an impossibility measure would be said to have engaged in a completed attempt.\footnote{116} Yet the known existence of the measure means that the failed attempt no longer signals the desire to engage in criminal activity and the attendant moral culpability. To see this, imagine an individual who has no desire to break the law. In the absence of the measure, that individual would err on the side of caution and not attempt potentially criminal conduct for fear that she might succeed in committing a crime. But knowing that the measure exists, that individual can now act freely and rely on the measure to prevent conduct that is truly criminal. From the standpoint of the outside observer, this individual is indistinguishable from one who truly desires to engage in criminal conduct. As such, it is not possible to identify the subset of individuals who should pay for the impossibility measure, and it is instead better to spread the cost of the measure broadly.

b. Imperfect impossibility

Though the goal of an impossibility measure is to make the commission of a crime practically impossible, the reality is that the ingenuity of potential criminals is inexhaustible.\footnote{117} Indeed, for every impossibility measure, there will be those who are able, through luck, skill, or determination, to engage in the criminal conduct.\footnote{118} Moreover, error in

\footnote{114} For a discussion of moral culpability for attempted crimes, see generally Stephen J. Morse, Reasons, Results, and Criminal Responsibility, 2004 U. ILL. L. REV. 363.  
\footnote{115} See Ehud Gutel & Doron Teichman, Criminal Sanctions in Defense of the Innocent, 110 Mich. L. Rev. 597, 611-13 (2012) (recognizing the function of the actus reus requirement in ensuring that only the “guilty” are punished).  
\footnote{116} See JOSHUA DRESSLER, UNDERSTANDING CRIMINAL LAW 379-80 (5th ed. 2009).  
\footnote{118} See Cheng, supra note 3, at 665 (noting that structural mechanisms “confine[] violations to a small group of determined offenders).
the functioning of the measure may make the targeted conduct possible in some small percentage of attempts.\textsuperscript{119} As a result, even where certain conduct is the target of an impossibility measure, that conduct must remain criminal so that those who manage to evade the measure, either intentionally or through chance, can be prosecuted and punished for their anti-social behavior.

The narrowing of offenders to a small group can be beneficial to law enforcement agents, who should be able to achieve higher enforcement rates at a substantially lower cost.\textsuperscript{120} However, as the volume of the targeted criminal conduct decreases, police may shift resources to criminal violations that are not targets of impossibility measures.\textsuperscript{121} If that resource-shifting is too extreme, the result could be that police no longer seek to enforce the targeted criminal conduct. In turn, those individuals who are able to avoid the impossibility measure will be able to offend with little risk of punishment. And because the criminals who avoid the impossibility measure are likely to be the most committed to the criminal conduct, at the end of the day a measure may have the dangerous result of allowing the most dangerous criminals to avoid punishment.

Making one kind of criminal conduct effectively impossible also raises the possibility of displacement, by which the perpetrator who is frustrated in committing one offense instead commits another.\textsuperscript{122} Many different kinds of displacement are possible, and the most commonly criticized is victim displacement, by which the same crime occurs against a different target.\textsuperscript{123} But because they target an entire class of criminal conduct and thus do not leave some victims more vulnerable than others, impossibility measures are unlikely to result in victim displacement.\textsuperscript{124} Rather, a measure is more likely to cause two other

\textsuperscript{119} See infra notes 195 and accompanying text.
\textsuperscript{120} Id.
\textsuperscript{121} Indeed, that police could shift resources to other areas is one of the potential benefits of an impossibility measure. See supra notes 47-48 and accompanying text.
\textsuperscript{123} See id. at 316-18 (discussing criticism of victim displacement).
\textsuperscript{124} The prototypical example of victim displacement occurs when only some individuals use a steering wheel lock to prevent auto theft. Id. at 314. The lock alerts potential thieves that the targeted car will be hard to steal and instead redirects her to an easier target. Id. Critics argue that this displacement results in negative social utility: the end result is the same – a car is stolen – and the cost of the lock has been incurred. See id. at 317. But the widespread use of a precaution can have a socially-beneficial “halo” effect of deterring the
kinds of displacement: tactical displacement, by which the same crime is committed by a different method, and crime type displacement, by which a different crime takes place.125 Either type is troubling in that it undermines the benefit of the measure, but the extent of displacement is a matter of significant debate among social scientists.126 The amount of displacement caused by a measure is likely to depend on numerous factors, such as the nature of the targeted criminal conduct and the social characteristics of likely offenders.127

c. Undermining the educational function of the criminal justice system

One of the goals of the criminal justice system is moral education.128 Through punishment, criminals are taught directly what society considers right and wrong.129 Meanwhile, the imposition of punishment communicates the values of the society to others.130 But this educational function cannot be served if crimes are not committed and criminals are not punished.131 To put it another way, when individuals are simply prevented from being able to commit crime, they and the rest of society never have the opportunity to learn the underlying lesson that the conduct is wrong.132 Of course, to the extent entire class of criminal conduct. Id. at 314. An impossibility measure has a similar, but stronger, impact: it does not deter the class of criminal conduct, but prevents it entirely.
125 See Adam Bouloukos & Graham Ferrell, On the Displacement of Repeat Victimization, in RATIONAL CHOICE AND SITUATIONAL CRIME PREVENTION 219, 225 (Graeme Newman et al., eds. 1997).
126 See Mikos, supra note 122, at 318-20.
127 See Marcus Felson & Ronald V. Clarke, The Ethics of Situational Crime Prevention, in RATIONAL CHOICE AND SITUATIONAL CRIME PREVENTION, supra note 125, at 200-02.
129 Id.
131 See Cheng, supra note 2, at 667 (“[I]mposing structural controls may also potentially destroy social norms by absolving individuals of the responsibility to police themselves.”).
132 Moral education must be distinguished from the tendency of an impossibility measure to create self-reinforcing norms opposed to the targeted conduct, which is one of the potential benefits of such a measure. See supra notes 58-9 and accompanying text. The latter benefit is a function of social pressure in that people generally wish to conform their behavior to that of their peers. See Knud S. Larsen, The Asch Conformity Experiment: Replication and Transhistorical Comparisons, 5 J. SOC. BEHAV. & PERSONALITY 163, 163 (1990) (verifying that individuals tend to conform when under pressure of a unanimous majority). Though mere pressure to conform can resolve into a moral message, see John C.P. Goldberg & Benjamin C. Zipursky, Torts as Wrongs, 88 TEX. L. REV. 917, 948-49
that any impossibility measure is imperfect and some individuals still can commit the criminal conduct in question, the opportunity exists for moral education through the punishment of the remaining offenders. Somewhat ironically then, the more effective an impossibility measure is at preventing criminal conduct, the more it undermines the criminal law's function of teaching that the underlying criminal activity is not just prohibited but wrong.\textsuperscript{133}

d. Beneficial criminal conduct

In some limited situations, criminal conduct can be beneficial to society, and the prevention of crime in those situations could produce a net harm. For instance, one may exceed the speed limit in order to rush an injured person to the hospital or a captain may enter an embargoed port in a storm.\textsuperscript{134} Such cases typically result in either a discretionary decision not to prosecute or an application of the necessity defense.\textsuperscript{135} Yet, if an impossibility measure prevents the criminal conduct in question, society will suffer the greater harm that the conduct might otherwise have avoided. This concern suggests that any impossibility measure contain some sort of exception for anticipated emergency situations, but the existence of any exception to an impossibility measure opens the door to abuse of that exception.

Criminal conduct also can benefit society when it is used as a tool to advocate for positive social change. Opponents of the Vietnam War burned their draft cards in violation of federal law.\textsuperscript{136} Civil-rights activists staged sit-ins in alleged violation of trespass laws.\textsuperscript{137} More recently, members of the Occupy movement have trespassed as part of

\textsuperscript{133} This concern may carry less weight when the crime underlying the impossibility measure is \textit{malum prohibitum} rather than \textit{malum in se}, as the goal of moral education is less pronounced. \textit{But see} Stuart P. Green, \textit{Why It's a Crime to Tear the Tag off a Mattress: Overcriminalization and the Moral Content of Regulatory Offenses}, 46 EMORY L.J. 1533 (1997) (criticizing the distinction between \textit{mala prohibita} and \textit{mala in se} offenses).


\textsuperscript{135} \textit{See} WAYNE R. LAFAVE, CRIMINAL LAW 476-86 (3d ed. 2000).


their protest. The fact that these actions constitute violations of criminal statutes can be a critical part of the symbolic message of the protestors’ actions. Forbidding criminal conduct therefore can foreclose an avenue by which those fomenting for social change can effectively express their political message.

Similarly, criminal conduct may be the most, or only, effective means to challenge an unjust law. Virginia’s anti-miscegenation law was overturned through a challenge to the convictions of Mildred and Richard Loving for violating the statute. Texas’s prohibition on flag-burning was invalidated only after Gregory Lee Johnson was convicted under the law. And the Supreme Court invalidated Texas’s criminalization of private, homosexual conduct only when John Geddes Lawrence and Tyrone Garner challenged their convictions for engaging in such conduct. By rendering violation of the underlying criminal statute effectively impossible, an impossibility measure may thus undermine the ability of those who believe the statute unjust to protest it effectively. Consequently, it is important to society’s interest in having a just criminal code that impossibility measures not erect substantial barriers to political protest.

III. Should We Make Drunk Driving Impossible?

In 2008, the National Highway Traffic Safety Administration (NHTSA) began a five-year, $10 million joint program with the auto industry with the goal of developing vehicle-based technology to prevent drunk driving.

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138 See, e.g., Tracy Seipel et al., Occupy San Jose members protest in front of Mayor Chuck Reed’s house, SAN JOSE MERCURY-NEWS, Nov. 19, 2011.
139 See James M. McGoldrick, Jr., Symbolic Speech: A Message from Mind to Mind, 61 OKLA. L. REV. 1, 19-20 (2008) (arguing that the illegality of burning a draft card was a necessary part of the “force of [the] protest”).
140 See Letter from Martin Luther King, Jr. to Fellow Clergymen (Apr. 16, 1963), available at http://www.mlkonline.net/jail.html (arguing that in some circumstances it is necessary to disobey unjust laws in the cause of social reform). I am not arguing, of course, that all or most laws that might be the target of an impossibility measure are unjust or are unjust to the extent of the segregation laws that were the subject of Reverend King’s protest. Nonetheless, the consideration of any impossibility measure must recognize the potential that the law defining the targeted criminal conduct is unjust or may be determined to be unjust at some point in the future.
driving. The technology, called the Driver Alcohol Detection System for Safety (DADSS), would measure the driver’s blood alcohol level (BAL) using either distant spectrometry of the driver’s breath or touch-based spectrometry of the driver’s tissue. A drivable test vehicle incorporating the technology is expected in two years, and the DADSS could be incorporated in every new car sold in eight to ten years.

The development of the DADSS presents a marked shift in strategy in the fight against drunk driving. Over the past thirty years, a combination of traditional crime-fighting techniques and a public-relations blitz has contributed to a marked decline in the number of deaths that are caused by drunk driving. Legislatures have passed increasingly harsh penalties for repeat offenders. Government agencies and independent groups have spent large sums of money on education. Police have engaged in high-visibility enforcement efforts, such as sobriety checkpoints. Courts have sought to prevent recidivism by creative punishments, such as vehicle forfeiture and the mandated use of ignition interlocks. Though varied, these efforts push the standard crime-control buttons of general deterrence, specific deterrence, and incapacitation. Yet, the benefits of these approaches

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146 Id.
151 See Michigan Dept. of State Police v. Sitz, 496 U.S. 444, 451 n.9 (1990) (describing police “experiments” with sobriety checkpoints); Cafaro, supra note 148 at 23.
152 Cafaro, supra note 148, at 9.
153 See Blue Ribbon Panel, supra note 147, at 1-2.
tapered off in the mid-1990s,\textsuperscript{154} and drunk drivers continue to kill thousands of people each year.\textsuperscript{155}

Given the high costs of drunk driving and its stubborn persistence, a new approach was needed, the technology to prevent the criminal conduct altogether is an obvious next step.\textsuperscript{156} Traditional ignition interlocks, which require a driver to provide a clean breath sample before allowing her vehicle to start, are a staple of punishment schemes for convicted drunk drivers and have proven effective in reducing recidivism.\textsuperscript{157} But current interlocks are not politically palatable because they are intrusive, requiring the driver to breath into a tube every time the driver wishes to start her vehicle.\textsuperscript{158} Thus, the promise of the DADSS is to harness the effectiveness of traditional ignition interlocks in a system that will not “impede sober drivers from starting their vehicles” and is “small, reliable, durable, repeatable, maintenance free, and relatively inexpensive.”\textsuperscript{159}

Because the DADSS is still under development and the precise contours of the finished product are unknown, this discussion proceeds on a few assumptions. First, that the product will measure the driver’s BAL using one of the two technologies under development: distant spectroscopy to measure alcohol in the driver’s breath or touch spectroscopy to measure alcohol through the driver’s skin.\textsuperscript{160} Second, that the final technology will be reasonably, but not perfectly, “small, reliable, durable, repeatable, maintenance free, and [] inexpensive.” Specifically, it will be assumed that the DADSS will meet performance specifications requiring that the system be precise to 0.0003% BAL in range near the legal BAL limit.\textsuperscript{161} Third, that the federal government or

\textsuperscript{154} Id. at 2.
\textsuperscript{156} See Blue Ribbon Panel, supra note 147, at 3 (noting interest in three states, Canada, Sweden, and Finland for requiring ignition interlocks in all vehicles).
\textsuperscript{158} Blue Ribbon Panel, supra note 147, at 4.
\textsuperscript{160} See supra note 145 and accompanying text.
the States mandate its installation in all new motor vehicles. Though the DADSS program hopes that installation in vehicles will be “voluntary,” that seems unlikely. The public has proven to be resistant to ignition lock technology in the past, and interest groups have begun to align against the DADSS. Indeed, the DADSS program recognizes the hill it must climb in order to gain public support.

A. Potential Benefits of the DADSS

Preventing people with a BAL above the legal limit from driving would provide substantial benefits to society. The most obvious is that it would prevent many of the direct harms that drunk driving currently causes. In 2009, motor vehicle accidents involving a drunk driver killed more than 10,000 people, or almost one-third of all motor vehicle deaths. Accidents involving drunk drivers result in tens of billions of dollars annually in direct monetary costs and additional billions in lost quality of life. Moreover, governments spend billions of dollars on efforts to prevent drunk driving, including educational campaigns and targeted enforcement tactics, such as sobriety checkpoints. The costs of investigating drunk driving also are enormous, as police made more than 1.4 million drunk driving arrests in 2010. And as the punishments for drunk driving have become more severe, the costs of incarcerating those convicted of drunk driving have increased. These enforcement costs would be decimated by an effective DADSS.

162 See Press Release, Driver Alcohol Detection System for Safety, supra note 144.
163 See supra notes 25-26 and accompanying text (describing opposition to mandatory ignition interlocks keyed to whether the driver is wearing her seatbelt).
164 See INTERLOCK FACTS, http://www.interlockfacts.com (last visited Mar. 20, 2012) (a website created by the American Beverage Institute opposed to what it called “a little known effort to build ignition interlocks into all cars as original equipment”).
165 See Zaouk, supra note 161, at 27-31 (discussing the challenge of engendering public acceptance).
166 See TRAFFIC SAFETY FACTS, supra note 155.
168 See The National Center on Addiction and Substance Abuse at Columbia University, Shoveling Up: The Impact of Substance Abuse on State Budgets, at 11 (Jan. 2001) (identifying $915 million spent by states on highway safety and local law enforcement related to drunk driving);
170 See Patrick Marley, Drunk driving overhaul OK’ed by Senate makes 4th time a felony, MILWAUKEE JOURNAL SENTINEL, Nov. 6, 2009, at A1 (reporting that bill enhancing
Drunk driving convictions also have considerable collateral consequences on those convicted and their families. A drunk driving arrest, even for a first-time offender, can cost up to $10,000 in legal fees and other expenses.\(^{171}\) And as states have begun to impose mandatory jail time for repeat offenders, more drunk drivers have faced the consequences of imprisonment, including the loss of employment, injury to their economy prospects, social stigma, and harm to their familial relationships.\(^{172}\) Again, these consequences can be largely avoided by the installation of an effective DADSS in every vehicle.

By removing the need for traditional law enforcement techniques, such as traffic stops based on individualized suspicion, in the drunk driving arena, the DADSS would remedy any concerns that those techniques raise.\(^{173}\) Moreover, the DADSS would make sobriety checkpoints, the most visible law enforcement effort targeting drunk drivers, unnecessary. These checkpoints are subject to criticism on the ground that they permit police to target low-income or high-crime neighborhoods and thus disproportionately stop the poor or ethnic or racial minorities.\(^{174}\) By impacting all drivers equally, regardless of race or class, the DADSS would undercut these critiques. Checkpoints also are vastly, though not unconstitutionally, overinclusive in that they require the police to briefly stop a large number of innocent drivers in order to catch those who are intoxicated.\(^{175}\) These drivers suffer intrusions, albeit “minimal” ones, on their privacy and liberty interests.\(^{176}\) The DADSS would make such intrusions unnecessary.

Finally, by preventing drunk driving, the DADSS could reinforce anti-drunk driving norms. The creation of such norms has long been a focus of both private and government anti-drunk-driving advocates, and these educational efforts have borne substantial fruit.\(^{177}\) Preventing

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\(^{172}\) See supra notes 49-51 and accompanying text.

\(^{173}\) See supra notes 55-57 and accompanying text.

\(^{174}\) See Harcourt & Meares, supra note 55, at 871; Sherry F. Colb, Profiling with Apologies, 1 OHIO ST. J. CRIM. L. 611, 622 (2004).

\(^{175}\) See Michigan Dept. of State Police v. Sitz, 496 U.S. 444, 455 (1990) (noting expert testimony that checkpoints generally result in the arrest of one percent of drivers stopped).

\(^{176}\) Id. at 452.

\(^{177}\) See Nady El-Guebaly, Don't Drink and Drive: The Successful Message of Mothers Against Drunk Driving (MADD), 4 WORLD PSYCHIATRY 35-36 (2005); Dan M. Kahan,
drunk driving may further bolster these norms, particularly with respect to the wrongfulness of driving with a BAL just above the legal limit.  

B. Potential Concerns about the DADSS

Unlike impossibility measures that could have an impact on potential victims or on third-parties, the DADSS will impinge almost exclusively on the interests of the potential drunk driver. The class of potential perpetrators is vast, however, and eventually would include every individual in the country who drives. Moreover, like any impossibility measure, the DADSS would impact society’s interests.

1. Perpetrator Interests

The primary impact of the DADSS will be on the autonomy and privacy interests of drivers. These interests are discussed in turn.

a. Autonomy

The primary function of the DADSS is to prevent unlawful conduct, i.e., to keep drivers from operating their vehicles with a BAL exceeding the legal limit. In addition, the DADSS will inevitably prevent some individuals from engaging in legal conduct, i.e., from driving when they have a BAL below the legal limit.

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See supra §§ II.B.2, II.B.3.

Drunk driving, after all, is a conduct crime of which there are no true victims who could have their rights infringed upon. And while a government mandate that the DADSS be installed in all new vehicles will require third-party auto manufacturers to include the system in their products, the cost of doing so will be passed on to consumers.

The proposed DADSS technologies do not intrude in any meaningful way on the bodily integrity of the driver. First, the passive spectrometry of the driver’s exhaled breath, involves no intrusion at all. Second, touch spectrometry, which measures the reflection of infrared light off the driver’s skin, requires minimal intrusion by the light into the driver’s body. Though courts have found violations of bodily integrity to be of constitutional magnitude when the State exposes individuals to dangerous levels of radiations and lied about it, see Heinrich ex rel. Heinrich v. Sweet, 62 F. Supp. 2d 282, 313 (D. Mass. 1999) (collecting cases), the DADSS technology is easily distinguishable as the infrared light is non-dangerous and the exposure is brief.
i. The freedom to drive drunk?

As explained previously, there are essentially three conditions under which an impossibility measure raises concerns relating to an individual’s liberty interest in engaging in the targeted conduct: (1) if the criminal conduct is insufficiently serious to justify a criminal sanction; (2) if the criminal prohibition is paternalistic; and (3) if the regulated conduct is constitutionally-protected.\(^{182}\) In the case of drunk driving, the latter two conditions are not met. Though it often harms the intoxicated driver,\(^{183}\) drunk driving is punished primarily because of the enormous harm it inflicts on others.\(^{184}\) Thus, criminal prohibitions on drunk driving are not paternalistic.\(^{185}\) In addition, driving is not an activity entitled to direct constitutional protection.\(^{186}\)

The question remains, then, of whether drunk driving is a sufficiently serious offense to justify criminal punishment. Considering the harm caused by drunk driving as a whole, the answer is certainly in the affirmative.\(^{187}\) But all drunk driving is not the same. Those with a BAL well in excess of the legal limit cause substantially more fatalities than those with a BAL just over the limit.\(^{188}\) Studies have concluded that often legal, or at least less severely punished,\(^{189}\) activities like cell

\(^{182}\) See supra § II.B.1.a.i.

\(^{183}\) http://www-nrd.nhtsa.dot.gov/Pubs/811385.PDF (reporting that drunk drivers were 67% of the drunk driving fatalities in 2009).


\(^{185}\) See Gerald Dworkin, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (2010), http://plato.stanford.edu/entries/paternalism/ (defining paternalism broadly as “the interference of a state or an individual with another person, against their will, and defended or motivated by a claim that the person interfered with will be better off or protected from harm”).

\(^{186}\) For a discussion of the due process protections afforded to an individual’s interest in driving, see infra notes 199-213 and accompanying text.

\(^{187}\) See supra notes 166-170 and accompanying text.

\(^{188}\) Specifically, drivers with a BAL over the legal limit of 0.08grams/deciliter were involved in nearly 11,000 traffic fatalities in 2009, but more than 7,000 of those involved drivers with a BAL higher than 0.15 g/dL. Moreover, the National Highway Traffic Safety Administration estimates that a driver’s risk of being involved in an accident resulting in fatalities or serious injury increases with BAL. Centers for Disease Control and Prevention, Vital Signs – Alcohol-Impaired Driving among Adults (Oct. 7, 2011), available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6039a4.htm (finding that fatality risk of a driver with a BAL of 0.10 g/dL is 6 to 12 times that of a driver with a no alcohol and that the risk multiplier surpasses 20 when a driver’s BAL is over 0.15 g/dL).

phone use and text messaging while driving are more dangerous than “barely drunk” driving.\textsuperscript{190} Moreover, even though drunk driving is known to be dangerous, substantial segments of the population admit to drinking and then driving.\textsuperscript{191} As a result, it is unsurprising that juries exhibit sympathy for those accused of drunk driving, particularly in the close cases where the driver’s BAL barely exceeds the legal limit.\textsuperscript{192}

These observations suggest that while there is unlikely to be concern about the DADSS to the extent that it prevents “severe” drunk driving, there may be political pushback resulting from its ban on even borderline offending.\textsuperscript{193} Indeed, it is plausible that political pressures caused legislatures to criminalize conduct that most of society does not view as wrongful.\textsuperscript{194} To the extent that this may be true when it comes to distinguishing illegal drunk driving from legal driving after consuming some alcohol, discussion of implementing the DADSS provides an opportunity to re-align the criminal law with societal views.

\textbf{ii. Prevention of non-criminal conduct}

The DADSS promises to be accurate, reliable, and precise, and this discussion assumes that any adopted technology will accomplish these goals to at least a reasonable degree. But no DADSS, and no technology generally, can ever be perfectly accurate, reliable, and precise. To put it another way, all technology makes mistakes. And when the DADSS technology makes a mistake, the result may be that an individual with a BAL below the legal limit is prevented from driving.

In particular, the DADSS can make two main types of mistakes. First, the DADSS may make errors in the measurement of the driver’s BAL.

\textsuperscript{190} See Michael Austin, Texting While Driving: How Dangerous Is It?, CAR & DRIVER, June 2009, http://www.caranddriver.com/features/09q2/texting_ while_driving_how_dangerous_is_it_-feature (finding that text messaging can be more dangerous than drunk driving); Radley Balkio, Targeting the Social Drinker Is Just MADD, L.A. TIMES, Dec. 9, 2002, at Metro p.11 (reporting on a British study finding that cell phone use while driving causes greater impairment than a BAL of 0.08 g/dL).

\textsuperscript{191} JAMES B. JACOBS, DRUNK DRIVING: AN AMERICAN DILEMMA 43-44 (1989).

\textsuperscript{192} See Adam M. Gershowitz, 12 Unnecessary Men: The Case for Eliminating Jury Trials in Drunk Driving Cases, 2011 U. ILL. L. REV. 961, 979, 981-84.

\textsuperscript{193} This concern lurks behind the claims of the American Beverage Institute that the DADSS program will make it impossible to “enjoy a glass of wine with dinner” or “a beer at a ballgame.” http://interlockfacts.com/.

\textsuperscript{194} See Stuntz, supra note 45, at 557-59.
within the acceptance tolerance of the system. Such errors could result either in an “expected false positive,” where the DADSS wrongly concludes that an individual’s BAL is above the legal limit and prevents her from driving, or an “expected false negative,” where the DADSS wrongly determines that an individual’s BAL is below the legal limit and allows her to drive.\textsuperscript{195} An expected false positive prevents non-criminal conduct in that a “barely sober,” but legal, driver is prevented from driving.\textsuperscript{196} A DADSS can be calibrated to reduce or eliminate the risk of either expected false negatives or expected false positives by shifting the point at which the DADSS prevents operation of the vehicle up or down. Such adjustment comes at a cost, however, as reducing expected false negatives increases the number of expected false positives, and vice versa.\textsuperscript{197}

Second, the DADSS may err outside of specified tolerances or simply break down and stop functioning according to its specifications.\textsuperscript{198} Such breakdowns would result in either “erroneous false positives,” by which the DADSS forbids legitimate use of the vehicle, or “erroneous false negatives,” by which the DADSS allows criminal use of the vehicle. Assuming that the DADSS system would be developed to detect its own malfunctions, whether a breakdown will result in erroneous false positive or erroneous false negatives is a design decision.

The possibility of false positives that prevent individuals from engaging in legal conduct gives rise to two distinct issues. First, there may be procedural due process concerns that arise from the temporary

\textsuperscript{195} For instance, if the DADSS is manufactured to be accurate to within 0.001 gram per deciliter, it may allow an individual with a BAL up to 0.081 g/dL to drive or prevent an individual with a BAL as low as 0.079 g/dL from doing so.\textsuperscript{196} On the other hand, an expected false negative permits a “barely drunk” person to operate their vehicle. The problem of such false negatives is addressed infra notes 199-213 and accompanying text.\textsuperscript{197} Thus, a DADSS accurate to the program specification of 0.0003 grams per deciliter could be set to prevent operation of a vehicle whenever the BAL of the driver is measured at 0.0797 or above. This calibration would eliminate all expected false negatives, but would double the number of expected false positives.\textsuperscript{198} Both measurement errors outside of accepted tolerances and complete breakdowns of the system are inevitable, even if the DADSS is extremely reliable. And even exceedingly rare errors will cause substantial practical problem given the number of vehicles on the road at any given time and the number of trips that those vehicles taken each day. See Robert Strassburger, \textit{Campaign to Eliminate Drunk Driving: Advanced Technologies Research} (Apr. 14, 2008) (estimating that even if the DADSS is exceptionally reliable, it could result in thousands of potential errors outside of expected tolerances each day), available at http://www.dadss.org/node/59.
suspension of one’s ability to drive. Second, even if constitutional issues are addressed, policy reasons may dictate design decisions in how the DADSS handles potential errors.

(a) Procedural due process

Once an individual has been issued a driver’s license, she has a constitutionally-protected property interest in that license and is entitled to due process before the government interferes with that interest.\textsuperscript{199} The nature of the required due process, however, will depend on the balancing of the \textit{Eldridge} factors.\textsuperscript{200} The Supreme Court’s decisions in \textit{Dixon v. Love}\textsuperscript{201} and \textit{Mackey v. Montrym}\textsuperscript{202} are instructive. In each case, an individual whose driver’s license was suspended without a predeprivation hearing claimed that such a hearing was required by due process.\textsuperscript{203} The Court recognized that an individual’s interest in being able to drive is substantial, in part because the government cannot make a driver whole for the inconvenience and hardship that may result from erroneous deprivation.\textsuperscript{204} Nonetheless, the relative brevity of the prehearing deprivation, the administrative costs of provide a pre-deprivation hearing, and the government’s interests in deterring unsafe driving and removing unsafe drivers from the road weighed against requiring such a hearing.\textsuperscript{205}

These latter factors suggest even more strongly that a pre-deprivation hearing is not required by due process in the case of the DADSS. In \textit{Love}, the anticipated prehearing deprivation was twenty days long;\textsuperscript{206} here, the deprivation lasts only as long as the DADSS error. Even in the worst-case scenario, that would only be as long as required for the DADSS to be repaired. Moreover, requiring a pre-deprivation hearing, which would presumably need to occur after the DADSS measures a BAL above the legal limit but before the DADSS prevents the driver from driving, would render the system useless. And finally, unlike the suspension in \textit{Montrym}, which merely helped deter drunk driving,\textsuperscript{207}

\begin{itemize}
  \item \textsuperscript{200} See supra note 87 and accompanying text.
  \item \textsuperscript{201} 431 U.S. at 105.
  \item \textsuperscript{202} 443 U.S. 1 (1979).
  \item \textsuperscript{203} Love, 431 U.S. at 110; Montrym, 443 U.S. at 6.
  \item \textsuperscript{204} Love, 431 U.S. at 113; Montrym, 443 U.S. at 11-12.
  \item \textsuperscript{205} Love, 431 U.S. at 113-15; Montrym, 443 U.S. at 13-18.
  \item \textsuperscript{206} 431 U.S. at 109-10.
  \item \textsuperscript{207} 443 U.S. at 18.
\end{itemize}
the government’s interest in preventing drunk driving entirely is even stronger.

The only remaining *Eldridge* factor is the accuracy of the proposed process relative to the provided process.²⁰⁸ As explained, the accuracy of the DADSS will depend on the accepted error rate for the system and the rate at which it breaks down.²⁰⁹ Meanwhile, a pre-deprivation hearing would involve an assessment of any data provided by the DADSS and the functionality of the DADSS itself. By reviewing both how the DADSS works generally and the operation of the specific system in question, such a hearing would provide greater accuracy. But given that the DADSS cannot effectively prevent drunk driving if a pre-deprivation hearing is required, this increase in accuracy is unlikely to lead a court to require a pre-deprivation hearing.

Though this analysis suggests that a pre-deprivation hearing is not required by due process, the substance of an individual’s interest in driving may argue for some post-deprivation hearing.²¹⁰ While such a hearing could not undo an erroneous deprivation, it could provide a means by which an injured individual could obtain some remedy for it.²¹¹ Such a post-deprivation remedy is appropriate where, as here, pre-deprivation process would be impossible.²¹² In order to ensure that such a remedy could be effectively and efficiently provided, the DADSS should be designed to create a record of its operation that could be used in later hearings.²¹³

²⁰⁹ *See supra* notes 195-198 and accompanying text.
²¹⁰ In both *Love* and *Montrym*, the statutory schemes at issue permitted some post-suspension hearing. *See Love*, 431 U.S. at 109-10; *Montrym*, 443 U.S. at 7.
²¹² *See* Zinermon v. *Burch*, 494 U.S. 113, 128-30 (1990) (“*Parratt* and *Hudson* [v. *Palmer*, 468 U.S. 517 (1984)] represent a special case of the general *Mathews v. Eldridge* analysis, in which postdeprivation tort remedies are all the process that is due, simply because they are the only remedies the State could be expected to provide.”). A post-deprivation remedy also would provide an opportunity to identify and fix recurring problems in the operation of the DADSS. *See* Citron, *supra* note 88, at 1285-86 (recognizing the importance of correct technological processes to enhance the accuracy of future results).
²¹³ *See* Citron, *supra* note 88 at 1308.
(b) Policy

As explained above, the DADSS may cause two different kinds of false positives. The “expected false positives” are those that prevent a “barely sober” driver from driving due to an inaccurate BAL measurement within design specifications. On the other hand, “erroneous false positives” are those that result from DADSS malfunctions and may impact drivers with any legal BAL, or no detectable BAL at all. Though in each case, the false positive unnecessarily intrudes on individual autonomy, each kind of false positive gives rise to different issues.

With respect to barely sober drivers, their autonomy interests must be placed in the context of their threat to public safety. Though such individuals do not necessarily break the law by operating a motor vehicle, alcohol negatively impacts one’s ability to drive safely even at legally-permissible levels.\textsuperscript{214} As such, though the barely legal driver’s interest in being permitted to continue to drive may be the same, the weight that society ascribes to that interest is understandably diminished.

The more compelling case can be made for a person who is prevented from driving due to an erroneous false positive. Such a person is most likely sober and could be prevented from engaging in extremely important life activities, such as going to work, buying groceries, or visiting the doctor.\textsuperscript{215} Thus, from society’s standpoint, the infringement on the autonomy rights of such an individual is most severe.

With these observations in mind, a number of recommendations regarding the design and calibration of the DADSS become apparent. First, stringent precision requirements for any implemented DADSS technology would make instances of expected false and expected false negatives relatively rare. Second, stringent reliability requirements would reduce the frequency at which DADSS units malfunction and

\textsuperscript{214} Indeed, BAL is correlated with involvement in a fatal automobile accident even at levels below the legal limit. See http://www-nrd.nhtsa.dot.gov/Pubs/811385.PDF.
\textsuperscript{215} Though there are scant data on the percentage of all drivers who have some alcohol in their system at a given time, only 2.2\% of drivers have a BAL above the legal limit. http://www.nhtsa.gov/DOT/NHTSA/Traffic\%20Injury\%20Control/Articles/Associated\%20Files/811175.pdf. Even assuming that drivers with legal BALs take to the roads many times more frequently than drunk drivers, the majority of drivers are completely sober.
create erroneous false positives and false negatives. Third, the DADSS should be calibrated to have a cut-off slightly below the legal limit. Doing so would maximize expected false positives and minimize false negatives. Put another way, it would keep the greatest numbers of drunk drivers off the road while intruding on the autonomy interests only of those legal drivers who are most likely to create a risk to public safety. Fourth, inspection and testing of the DADSS unit should be part of a vehicle’s annual inspection so as to further reduce the risk of malfunctions.

b. Privacy

To ascertain whether a driver’s BAL exceeds the legal limit, the DADSS must at the very least collect data about the driver’s BAL. One such datum would show that the driver was or was not legally drunk on a particular occasion and sought to drive. An accumulation of such data over an extended period of time could provide a picture of the driver’s drinking and driving habits, even if those habits never result in illegal activity. This information certainly would be of interest to private parties, such as the driver’s insurance company who may view her as a greater insurance risk based on her habits or advertisers who may wish to target her for products like headache medicines and breath

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216 Given the numbers of cars on the road and the frequency with which people drive, any imprecision or unreliability is likely to result in a substantial number of expected erroneous results, however.

217 One design idea might be to include some sort of emergency override of the DADSS unit. The override could permit the driver to operate the vehicle while alerting local law enforcement of the override. Law enforcement could then respond to ensure that the driver was not intoxicated. While facially attractive, this solution is unsatisfactory for the sober driver, would create substantial work for law enforcement, and undermines the entire DADSS system. First, a sober driver who engages the override would likely face an uncomfortable and time-consuming interaction with the police as they attempt to ascertain whether the driver is in fact sober, thus creating a new inconvenience perhaps worse than the original one. Second, given the impact that alcohol has on decision-making, the emergency override no doubt would be overused by individuals who are not sober, thus leading to a substantial number of drunk drivers who are not removed from the roads. These drivers would require police intervention and create substantial risk to public safety.

218 For instance, an individual who regularly starts her car during the lunch hour with a measurable, but legal, amount of alcohol in her system would be revealed to be one who enjoys a drink or two at lunch. This could be evidence of any number of things, including alcoholism, an active social calendar, or an apathetic attitude towards her employment.

fresheners.\textsuperscript{220} Yet, the driver has a privacy interest in this information about her non-public behaviors that is recognized both constitutionally\textsuperscript{221} and by statute.\textsuperscript{222} Moreover, if information about alcohol consumption and driving is combined with other data, even more conclusions could be drawn about the driver.\textsuperscript{223} In other words, alcohol consumption can be a crucial piece in the “mosaic” of information that the government or private industry can collect on an individual in order to create a complete picture of that person’s private life.\textsuperscript{224} Finally, the DADSS provides an opportunity for piggybacking other technology in the vehicle, such as an accelerometer or GPS tracking device, that could collect data unrelated to the driver’s BAL level. Any of the information obtained by the DADSS or piggybacking technologies could then be shared remotely with the DADSS manufacturer, police, or other government agency, and ultimately with any interested party.\textsuperscript{225}

These privacy concerns counsel for strict controls in the design of the DADSS and tight regulations on the use of any collected data. Setting forth the precise contours of these restrictions is both premature and beyond the scope of this Essay. A few observations are in order,

\textsuperscript{221} See C.N. v. Ridgewood Bd. of Educ., 430 F.3d 159, 190 (3d Cir. 2005) (recognizing that information about drug and alcohol use is “intimate and private”) (internal quotation omitted).
\textsuperscript{222} See Pettus v. Cole, 57 Cal. Rptr. 2d 46 (Ct. App. 1996) (holding that psychiatrists violated employee’s privacy rights by disclosing information about employee’s drinking habits to employer); Marisa Anne Pagnattaro, What Do You Do When You Are Not at Work?: Limiting the Use of Off-Duty Conduct as the Basis for Adverse Employment Decisions, 6 U. PA. J. LAB. & EMP. L. 625, 641-46 (2004) (discussing statutory protections for the off-duty use of “lawful products” such as alcohol).
\textsuperscript{223} Taking the example of the individual who frequently drinks at lunch, see supra note 218, if GPS or credit card data also revealed that she was at a local hotel on those days when she was drinking, then this could be strong evidence that she is engaged in some illicit relationship.
\textsuperscript{224} See United States v. Maynard, 615 F.3d 544, 562 (D.C. Cir. 2010), aff’d sub nom., United States v. Jones, -- S.Ct. --, 2012 WL 171117 (Jan. 23, 2012) (“As with the ‘mosaic theory’ often invoked by the Government in cases involving national security information, ‘What may seem trivial to the uninformed, may appear of great moment to one who has a broad view of the scene.’”), quoting CIA v. Sims, 471 U.S. 159, 178 (1985); Duhigg, supra note 12 (discussing the aggregation of data by private companies to determine, for instance, which consumers are pregnant).
\textsuperscript{225} See Elizabeth E. Joh, Discretionless Policing: Technology and the Fourth Amendment, 95 CAL. L. REV. 199, 200-02 (2007) (discussing technologies that communicate driving and mechanical data from cars to police).
however. First, though a DADSS that creates no record of past BAL measurements would provide the greatest protection of driver privacy, documentation of the DADSS’s performance is necessary to ensure its proper function and to allow for a remedy should the DADSS erroneously prohibit vehicle operation. Second, consideration of piggybacking any data-gathering technology on the DADSS must involve a separate analysis of the privacy concerns at stake, including a consideration of the governmental purposes for obtaining the targeted information. Third, given the potential utility of DADSS data to private industry, legislators and privacy advocates should expect substantial political pressure to be brought to bear to allow its distribution. Fourth, any claims about the potential to anonymize collected DADSS must be viewed skeptically in light of recent experiences showing the difficulty in adequately “scrubbing” data of personal identifiers.

2. Societal Interests

Though its effects may be felt most directly by potential drunk drivers, the DADSS also promises to impact society more broadly. First, development and manufacture of the DADSS is not free, and society or some portion thereof must pay those costs. Second, the DADSS cannot prevent all drunk driving, and the impact of the system on efforts to apprehend and punish those remaining offenders must be considered. Third, the DADSS may undercut the ability of the criminal justice system to convey anti-drunk-driving norms. Fourth, without some accommodation the DADSS may prevent some instances where drunk driving produces a net social benefit.

226 See supra note 213 and accompanying text.
227 Dorothy J. Glancy, Privacy on the Open Road, 30 OHIO N.U. L. REV. 295, 313 (2004) (recognizing the likely demand for information collected by automobile-bound data collection technology). This pressure has been felt already in other areas in which government and private industry see sharing information about individuals to be mutually beneficial. See Mark Baard, Watchdogs push for RFID laws, WIRED, Apr. 5, 2004, http://www.wired.com/news/politics/privacy/0,62922-0.html?tw=wn_technology_security_3 (detailing opposition from government and private industry to restrictions on the use of Radio Frequency Identification (RFID) tags to gather consumer data).
228 See Paul Ohm, Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization, 57 UCLA L. REV. 1701, 1716-1727 (2010).
a. Financial cost

Requiring the installation of the DADSS in all new vehicles will give rise to two sets of financial costs: the cost of developing the technology and the cost of installing the technology in all new vehicles. Originally, the federal government allocated $10 million over five years to develop the DADSS in partnership with the auto industry, and Congress is currently considering an additional grant of $5 million in funding. Meanwhile, the cost of the units installed in vehicles will presumably be passed along to consumers. That cost is currently unknown, but given that traditional interlocks can cost more than a thousand dollars per year, it is likely to be significant.

As explained previously, a broad allocation of an impossibility measure’s cost is both just and practical. Thus, the federal government’s funding of the development of the DADSS technology is appropriate. Passing the costs of the actual DADSS on to the purchasers of new vehicles is not ideal, however. Though those who drive are the only ones capable of driving drunk, only a minority of drivers actually do so. As a result, passing the costs on to drivers generally does a poor job of burdening only the morally culpable. Moreover, all of society would reap the benefits of the eradication of drunk driving. For these reasons, should the government mandate the inclusion of the DADSS in new vehicles, it should pay the cost of the measure.

231 See supra notes 111-116 and accompanying text.
232 See Centers for Disease Control and Prevention, supra note 188 (finding that 1.8% of drivers reported an incident of alcohol-impaired driving past thirty days); 1 National Highway Traffic Safety Administration, National Survey of Drinking and Driving Attitudes and Behaviors: 2008 1, 5 (Oct. 2010) (finding that 20% of respondents reported driving within two hours of consuming an alcoholic drink in past year and 30% of these respondents reported driving when over the legal limit).
233 In this way, the DADSS differs from automobile safety measures like seat belts and air bags that generally protect and benefit only those inside the vehicle and thus should properly be paid for by the car’s owner.
b. Imperfect impossibility

Drunk drivers have proven themselves to be highly-motivated and adept at avoiding the current generation of ignition interlocks.\(^\text{234}\) Though DADSS technology differs substantially from current ignition interlock technology, it thus seems certain that the most technologically savvy and dedicated drunk drivers will continue to find ways to drive drunk even if DADSS technology is installed in all vehicles. Moreover, some “false negatives,” by which a DADSS allows an individual to drive with a BAL in excess of legal limits, are inevitable.\(^\text{235}\) Thus, some drunk driving will still occur, and many of those doing it are likely to be dedicated and repeat offenders who will present a particularly serious risk of harm. Consequently, the DADSS program must not result in law enforcement ignoring the problem of drunk driving. Rather, the emphasis should move from high-visibility efforts aimed at deterring the public at-large, like sobriety checkpoints, to strategies aimed at deterring, detecting, and incapacitating dedicated offenders.

The potential also exists that the DADSS will cause some crime displacement, with the most likely result being crime type displacement.\(^\text{236}\) Specifically, individuals who wish to get intoxicated may choose a drug other than alcohol so that their ability to drive will not be restricted.\(^\text{237}\) While such displacement may occur in some circumstances, the illegality and relative unavailability of most other intoxicants as compared to alcohol is likely to prevent the less committed drunk drivers from seeking them out. The likely result, then, is that police will see some increase in the number of individuals driving while impaired through the use of other substances, but that increase should pale in comparison to the decline in drunk driving. This reinforces the need for police to focus their efforts on strategies aimed at dedicated offenders.


\(^{235}\) See *supra* notes 195-198 and accompanying text.

\(^{236}\) See *supra* note 125 and accompanying text (defining types of crime displacement). Tactical displacement is not at issue because there is only one way to commit drunk driving and the DADSS would aim to render that means of committing the criminal conduct effectively impossible.

\(^{237}\) See Barry K. Logan, *Toxicology Considerations for Alcohol Detection in Motor Vehicle Operations* (July 17, 2007) (recognizing concern that the DADSS might displace users of alcohol to other substances), available at http://www.dadss.org/node/18.
c. Undermining the educational function of the criminal justice system

By making it practically impossible to drive drunk, the DADSS may interfere with the ability of the criminal justice system to teach society, through the punishment of offenders, that drunk driving is wrong. The extent to which the DADSS might undermine the educational function of the criminal justice system in this regard must not be overstated, however. First, the DADSS cannot prevent all instances of individuals driving with a BAL over the legal limit. The punishment of these offenders will provide the opportunity to reinforce this message. Second, the DADSS will only prevent one sub-class of the larger moral wrong of reckless driving. Ample other examples of similar illegal behavior, including driving while impaired by other substances or by alcohol at a level below the firm legal limits enforced by the DADSS, will remain for punishment and thus education.\textsuperscript{238}

d. Beneficial criminal conduct

There may be cases where drunk driving is necessary to avoid some greater societal harm. For instance, a husband may be in a position where his BAL is over the legal limit but he is the only one available to drive his pregnant wife to the hospital to deliver their child. The harm of the husband driving in this instance – the increased risk of an accident – is likely less than the harm if the husband is prevented from driving – the potential harm to his wife and child. Though such an example counsels in favor for some sort of emergency bypass for the DADSS, there are reasons to be cautious about creating such a loophole.

First, the frequency with which these situations will arise must be weighed against the likelihood that such a bypass will be abused. Occasions of true necessity to drive drunk, where no other options are available, are no doubt exceedingly rare. Abuse of a bypass also seems likely, even if such abuse were deterred by causing the bypass to trigger immediate police investigation. Individuals whose perceptions and judgment are impaired by alcohol are not the best candidates for a rational weighing of the costs of using the bypass, after all. And requiring police involvement whenever the bypass is used may undo

\textsuperscript{238} See, e.g., N.C. GEN. STAT. § 20-138.1(a) (2012) (defining “impaired driving” to include both driving with a BAL above 0.08 and driving “[w]hile under the influence of an impairing substance”).

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many of the investigatory cost-savings of the DADSS. Second, creating an exceptionless DADSS would have its own benefit of deterring drinking by those, like the husband with the pregnant wife, who might be called to drive in an emergency. These arguments are not conclusive, but they must be factored into the decision of whether to allow drivers to bypass the DADSS.

With respect to other instances of beneficial criminal conduct, drunk driving is not an expressive activity, and the prevention of it does not seem to curtail the methods available for those agitating for social change. Moreover, the prohibition on drunk driving is not the sort of law that seems open to attack on grounds that it is fundamentally unjust in the same way as anti-miscegenation laws or limits on speech. That being said, there are those who argue that drunk driving laws are bad policy or unjust and preventing these individuals from engaging in drunk driving removes an avenue by which they can challenge the law.

IV. Future Considerations

Preventing drunk driving is a low-hanging fruit when it comes to making criminal conduct impossible. The crime requires technology for its completion is essentially defined by a technological measurement. Thus, adapting automotive technology to incorporate the measurement of the driver’s BAL is intuitive, if not technologically simple. Moreover, the harms resulting from drunk driving are severe and widespread, making the DADSS more politically feasible than other potential impossibility measures. Nevertheless, as the discussion above reveals, even such a straightforward impossibility measure gives rise to a tangle of constitutional, legal, and policy issues. These issues likely will only multiply as the targets of impossibility measures migrate outward from this natural origin of technology-related crimes.

Predicting the future is a fool’s errand, of course, but a couple of areas seem ripe for potential impossibility measures. The first would be other offenses involving the operation of automobiles, such as

239 Though the investigation would be simplified by the existence of the BAL data from the DADSS, it would not be without complication as the police would need to evaluate whatever claim of emergency that the driver raises.
240 See Camerer et al., supra note 30, at 1253.
speeding, running a red light, or failing to wear seatbelt, that result in death and serious bodily harm. From a technological standpoint, these should be easy to make impossible, and much of the technology needed to do so is already under development. From the political standpoint, however, these offenses suffer from a perceived lack of seriousness. Moreover, the criminalization of the failure to wear a seat belt is a classic paternalistic offense. As a result, measures like red-light cameras that aim to curtail these offenses have met with staunch resistance. It seems likely that impossibility measures targeting similar offenses would meet similar or greater resistance in light of their greater efficacy.

Crimes that take place over the Internet, such as cyberbullying and cyberstalking, hacking, the distribution of child pornography, and theft of intellectual property, also may be amenable to impossibility measures in that they require technology for their commission. While such crimes are disparate in how they are committed, and thus how they might be rendered impossible, they give rise to some common concerns. Most pressing is the risk that any overbreadth in the impossibility measure might interfere with First Amendment rights. Moreover, it is difficult to imagine an automated system could distinguish licit from illicit activities without risking substantial overbreadth. Finally, the technologies that might be used to render such crimes impossible would likely be able to collect private data, thus raising substantial privacy concerns. Should these hurdles be cleared, however, many of these crimes are perceived as sufficiently serious to justify impositions on individual autonomy.

Finally, beyond the assessment of impossibility measures individually, it is important to consider the systemic risk that increased reliance on such measures may bring. As society becomes comfortable with the government imposing measures that narrowly target criminal activity for impossibility, we may become more open to less carefully-


244 The exception might be certain instances of theft of intellectual property. See I. Trotter Hardy, Criminal Copyright Infringement, 11 WM. & MARY BILL RTS. J. 305, 330 (2002) (discussing societal ambiguity surrounding some technical “theft” of intellectual property).
proscribed prohibitions. Thus, for instance, if the DADSS program is effective at curtailing drunk driving with only a minimal perceived intrusion on the autonomy and privacy of innocent drivers, society may be less careful in assessing a program that seeks to prohibit speeding or one that leaves the realm of traffic offenses. This concern counsels in favor of vigilant oversight of proposed impossibility measures by policy makers, citizen groups, and academics to ensure that any such measures are narrowly proscribed and that their contours are closely policed.