

RIDING WITH LITTLE BROTHER: STRIKING A BETTER
BALANCE BETWEEN THE BENEFITS OF AUTOMOBILE
EVENT DATA RECORDERS AND THEIR DRAWBACKS

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INTRODUCTION

An airplane crashes, leaving no survivors. The world, seeking answers, awaits the discovery of the “black box” that will reveal the cause of the crash. While the public looks to the “black box” to provide closure by explaining the reasons for an accident, “black boxes” also give airlines, airplane manufacturers, and the Federal Aviation Administration (FAA) an opportunity to improve the safety of air travel. Perhaps in part because of the wealth of information that a “black box” provides, air-

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plane crashes now occur less and less frequently—especially since November 2001.²

While airplane crashes are undeniably tragic events, less well-publicized car crashes take a steady, and shockingly high, toll. In 2005, American fatalities from car accidents reached an astounding 43,200.³ In fact, people between the ages of 5 to 33 are more likely to die from a car accident than from any other cause.⁴ Year after year the death rate remains nearly the same,⁵ suggesting that any real progress will require a significant change either in our transportation system or in the way we manufacture our cars. While advances in safety technology have the potential to make our cars safer in the future, it is unclear whether these improvements will be enough to significantly reduce traffic-related deaths. Despite the staggering number of automobile-related fatalities each year in the United States and despite the clear need for the development of new technology, there is little, if any, use of an analogue to the airplane's "black box" to help understand the causes of car accidents. Both the automobile industry and the government have been slow to introduce the use of "black boxes"—or, more technically, event data recorders (EDRs)—in American automobiles.

The basic concept of an EDR is not a new one. Airbag sensors, which provide information about changes in velocity, whether a person was wearing a seatbelt, and when or if the driver applied the brakes,⁶ have been in use since the 1970s and have indeed seen increasingly wide use in recent years.⁷ Nonetheless, airbag sensor technology falls short of what could be recorded if EDRs were used to their full potential.

The fact that airplanes have more extensive data recording technology than cars do is not surprising considering the differences between the aviation industry and the automobile industry as well as the inherent difference between airplanes and automobiles. The high initial costs of

² The recent Canadair crash in Lexington, Kentucky in 2006 was the first jet crash in the United States since 2001 to involve a jet plane that did not have propellers. See Ian Urbina & Amanda Van Benschoten, *49 Die in Kentucky Crash as Jet Takes Off From Wrong Runway*, N.Y. TIMES, Aug. 28, 2006, at A1.

³ NAT'L HIGHWAY TRANSP. SAFETY ADMIN., MOTOR VEHICLE TRAFFIC CRASH FATALITIES AND INJURIES (2006), <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/PPT/2006/810583.pdf> [hereinafter CRASH FATALITIES AND INJURIES].

⁴ NAT'L HIGHWAY TRANSP. SAFETY ADMIN., CRASHES ARE TOP CAUSE OF DEATHS IN US FOR AGES 5-33 (2006), <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2006/810568.pdf>.

⁵ CRASH FATALITIES AND INJURIES, *supra* note 3.

⁶ General Motors has put EDRs in cars since the introduction of the airbag in 1974. Karl A. Menninger, II, *Data and Voice Recorders in Airplanes, Motor Vehicles and Trains*, 84 AM. JUR. 3D *Proof of Facts* § 1 (2006).

⁷ See Patrick Mueller, *Every Time You Brake, Every Turn You Make—I'll Be Watching You: Protecting Privacy in Event Data Recorder Information*, 2006 WIS. L. REV. 135, 138 (2006).

EDR technology, the comparatively heavy regulation of the airline industry, and the fact that the number of planes is small relative to the number of cars, among other factors, explain why airplanes have more advanced recording technology than cars.

Happily for automobile safety advocates, the disparity between the two recording systems can, and likely will, change. EDR technology is quickly becoming more advanced, more widely available, and less expensive.⁸ However, with fewer technological and economic hurdles preventing automobile EDRs from providing information almost as detailed as that provided by “black boxes” in airplanes,⁹ new concerns are emerging. Many privacy advocates argue that the increased use of EDR technology puts the privacy interest of drivers in danger. This Note argues that, while there are valid privacy concerns associated with the use of EDR technology in cars, the high evidentiary and safety value of the data collected through EDRs should not be sacrificed on the altar of privacy. There are potential solutions that address all concerns about EDRs fairly and efficiently.

Part I examines EDR technology itself, particularly with respect to the automobile industry, describing its history, its current state, and trends that may change it in the future. Part II explains how the National Highway Transportation Safety Agency (NHTSA), legislatures, courts, and insurance companies have approached EDR data. Part III outlines the policy concerns implicated by EDR use. Part IV critiques past model EDR regulations and introduces legislative proposals that will preserve the safety function of EDRs and provide better incentives for the use of EDRs in cars, while still addressing privacy concerns.

I. EDR TECHNOLOGY THEN, NOW, AND IN THE FUTURE¹⁰

A. AIRBAGS AND THE INTRODUCTION OF EVENT DATA RECORDERS

Event data recorders find their origins in the first airbags, which the automotive industry introduced in 1974.¹¹ For airbags to work they must have a sensor that triggers deployment when required conditions exist, and they must also deploy rapidly to have any efficacy, so sensors must make “deployment decisions within 15 to 50 milliseconds after impact.”¹² There are two types of airbag sensors common in automobiles.

⁸ See *infra* p. 205–06.

⁹ See *infra* pp. 205–07.

¹⁰ In this note, I will primarily consider event-data recorders or “black-boxes” that are installed during the manufacturing process. While at times I will refer to the after-market installation of similar types of devices by parents, employers and rental agencies, this will be for the purpose of predicting future development of manufacturer-installed EDRs. See discussion *infra* notes 33–50 and accompanying text.

¹¹ See Menninger, *supra* note 6, § 10.

¹² *Id.*

The first are crash pulse sensors; they are located in the front of the vehicle and under the dashboard and trigger airbags to deploy when they sense a given amount of force. The second are acceleration sensors that deploy airbags when they detect sufficiently rapid deceleration.¹³ Both types of sensors use preprogrammed algorithms which automotive engineers tweak based on real-world information gathered from EDRs.¹⁴

Given the purpose of EDR technology, automobile manufacturers should, in theory, use EDRs to collect data not only from accidents where the airbag *did* deploy but also from accidents where it *did not* deploy. However, perhaps because of the early limitations of the technology and the larger importance of actual deployment data, safety engineers initially only received data from the devices where the airbags did in fact deploy.¹⁵ However, later EDR units recorded not only “deployment events” but also “near-deployment” events (events where the conditions of an airbag’s algorithm were almost met), thus providing safety engineers with additional useful information.¹⁶

B. HOW EVENT DATA RECORDERS WORK AND WHAT THEY RECORD

Event data recorders capture a wealth of information, but only for a very short period. The length of EDR recording time varies depending on the automobile manufacturer, but none record for more than five seconds.¹⁷ However, it is not current technological limitations that restrict the EDR’s recording time.¹⁸ Indeed, the cost of computer memory is negligible.¹⁹ The NHTSA has proposed to standardize EDRs recording time, but still to only eight seconds before the crash and for six seconds afterwards.²⁰

During that short recording period, all EDRs installed in cars and trucks record whether there were any error codes, how long it took the airbag to deploy, why, based on the algorithms, the airbag deployed, whether passengers were wearing seatbelts, and the change in velocity over time.²¹ General Motors’ EDR system also records the throttle position, engine rotations per minute, pre-crash vehicle speed, and whether

¹³ See *id.*

¹⁴ See *id.* But see Mueller, *supra* note 7, at 139 & n.21 (arguing that there is no proof that the automobile manufacturers are using the data for safety purposes based upon his unsuccessful attempts to get the public relations department of a number of major manufacturers to disclose their use of these data).

¹⁵ See Menninger, *supra* note 6, § 10.

¹⁶ See *id.*

¹⁷ See Mueller, *supra* note 7, at 138 (General Motors’ EDR records for a five-second span).

¹⁸ *Id.* at 165.

¹⁹ *Id.*

²⁰ *Id.* at 164–65.

²¹ See Menninger, *supra* note 6, § 10.

the brakes were in use.²² All EDRs keep this information on “non-volatile” memory, meaning that preservation does not require an electronic power source.²³ This is important because the accidents that trigger the EDR to collect data usually have the potential of cutting-off battery power to an automobile’s electronics.²⁴

As mentioned previously, modern EDR systems currently record data both when airbags deploy and when airbags almost deploy (“near-deployment events”).²⁵ EDRs treat these two types of data differently. When the airbags deploy, data from that accident stay on the EDR’s memory permanently.²⁶ On the other hand, when the airbag nearly deploys, the data from that incident stays in the EDR only until a driver has started the car 250 more times.²⁷

The format at that memory is saved in, though, depends on the manufacturer. Although the NHTSA has recently made efforts to standardize EDRs,²⁸ they currently record data in a variety of different formats depending on the manufacturer of the vehicle in question.²⁹ Most notably, despite the present proprietary nature of most EDR data, General Motors’ EDR data are also now easily accessible by interested third parties.³⁰ Specifically, private parties now can connect to a General Motors’ EDR with specialized equipment using software sold for Windows-based computers.³¹ Sales of such equipment and software to law enforcement and other interested parties have increased concerns about EDRs among privacy experts, and have generally increased the frequency and tenor of debates concerning EDR use.

C. PREDICTING THE FUTURE OF EVENT DATA RECORDERS IN CARS

What EDRs can do is almost certain to change in the near future. Changing regulatory trends and unforeseen technological advances make

²² See *id.*; see also KAREN KOEHLER & MICHAEL FREEMAN, LITIGATING MAJOR AUTOMOBILE INJURY AND DEATH CASES DATABASE, § 23:90 (2006).

²³ More specifically, EDRs record and store data on what are called Electronically Erasable Programmable Read Only Memory (EEPROM). See Menninger, *supra* note 6, § 10.

²⁴ *Id.*

²⁵ See *supra* notes 13–24 and accompanying text.

²⁶ See Menninger, *supra* note 6, § 10.

²⁷ See *id.* Why the near-deployment data is erased at this point is unclear. Presumably, this is done because of constraints on the size of memory installed along with the EDR, which are artificial as mentioned previously. See *supra* note 18 and accompanying discussion. Alternatively the short-life could be an effort by automobile manufacturers to preserve some privacy for its customers because after 250 car-starts it is unlikely that there was any sort of serious accident so any real legal or research purpose for that data does not exist.

²⁸ See Mueller, *supra* note 7, at 160.

²⁹ See *id.* at 160; see also Menninger, *supra* note 6, § 10.

³⁰ See Menninger, *supra* note 6, § 10.

³¹ The device and software are called “Cash Data Retrieval” and are manufactured by Vetronix Corporation with no restrictions on their sale to interested parties. See *id.*

it difficult to know what EDRs in automobiles will be like in the future, but it is possible to predict the range of possibilities by analyzing several factors, including: (1) what current technology is available for EDRs, but not yet widely-used; (2) what after-market data-recorders are available for those who wish to monitor drivers of their own vehicles; (3) what other transportation and automobile technologies exist that raise similar privacy concerns; and (4) what are the foreseeable technological advances in EDR technology.

There are some improvements in EDRs that could be made using existing technology. The simplest improvement would be to expand the length of time that EDRs record data. Memory is increasingly inexpensive, so it would cost little to add enough memory so that EDRs can record, for example, thirty minutes of data surrounding a deployment or a near-deployment incident.³² Manufacturers could also presumably expand the kind of data EDRs collect. Instead of recording data only when airbags deploy, for example, a car's EDR might record information when the driver reaches excessive speeds, i.e., a speed that would be illegal in all fifty states. Certainly, such data would be useful to automobile manufacturers and law enforcement in determining whether reckless driving or a manufacturing defect caused an accident, and they could also be crucial in a products liability suit. Such information would arguably be important for safety purposes as well because it would provide contextual data about the characteristics of drivers involved in certain types of accidents.

Short of modifying existing EDR technology, there are features that manufacturers could add to EDRs without the need for new technological developments. Since airplane data recorders already record voice data, perhaps the most obvious change to existing automobile data recorders would be the incorporation of voice recorders. Of course, it is not clear that voice recorders would be as useful in cars as they are in airplanes. Although an airplane may crash so quickly that there is nothing to gain from voice recording, airplane crashes can also occur over a longer period in which the pilot and the co-pilot discuss how to avert the crisis.³³ For example, if an airplane crashes during an attempted landing in a storm, voice data can provide valuable information about the decisions the pilot and the copilot made. It is difficult to imagine an automobile crash in which voice data would be as valuable. Beyond expletives or exclamations of fear moments before the car crashes, what else would a voice data recorder pick up from the driver or any passengers? While an airplane pilot might consult with a co-pilot about the proper course of action while piloting such a complex machine, experience suggests that

³² See Mueller, *supra* note 7, at 165.

³³ See Menninger, *supra* note 6, § 4 (explaining the value of a large volume of voice data for airplane crash scene investigators).

car drivers have neither the time nor the need to consult with their passenger about when to brake, when to turn, etc. The only real value to voice data would be their ability to tell manufacturers and the NHTSA how long it took the driver to react or whether the driver was distracted in any way. Video data recordings of the driver and the passengers might be slightly more useful for the same limited application, but their value in the driving, rather than the aviation, setting seems similarly limited considering how quickly car accidents occur.³⁴ Despite the resulting data's seemingly limited value, car manufacturers may nonetheless add voice and video recorders to the EDR apparatuses installed in America's automobiles due to the prevalence of such recorders in third-party, after-market installed EDRs. The added features in these devices make it easy to predict the range of possibilities for standard EDRs in the future and present the greatest concern for privacy advocates.

The car rental industry employs some of the most aggressive use of new, more advanced EDR technology with an estimated 25% of rental cars equipped with tracking technology.³⁵ While the extent of advanced EDR technology use varies among rental car companies, some small, independent rental car businesses stretch available EDR technology to its outer limits. For example, one small San Francisco car rental company used GPS to determine whether a renter had gone outside the permissible geographic area and fined the renter accordingly.³⁶ Other companies charge additional fees if installed electronic surveillance technology systems determine that renters have driven at excessive speeds.³⁷ Large rental car companies, on the other hand, claim to limit the use of advanced EDR technology in tandem with GPS technology to the retrieval of stolen or lost vehicles.³⁸ The use of more advanced EDR technology in rental cars demonstrates the feasibility of incorporating GPS tracking with EDRs by car manufacturers and the potential for abuse this combination might generate.

However, in some respects GPS tracking already incorporates the EDR technology installed in many cars sold today. Many already know—from widely run radio and television commercials—about Gen-

³⁴ Video data likely will be used, however, in the airline industry. The National Transportation Safety Board (NTSB) has recommended that the FAA require that airlines equip all aircraft with *video* recorders of the cockpit in order to obtain better information on the cause of airplane crashes. *See id.* § 19.

³⁵ Jody M. Hausman, *Chapter 317: Is Big Brother Along for the Ride*, 36 MCGEORGE L. REV. 806, 806 (2005).

³⁶ *See id.*

³⁷ *See id.* at 806–07. Hausman describes a case in which a car rental company fined customers for reaching speeds over 79 miles per hour for two or more minutes. *Id.*

³⁸ *See id.* at 807. As an example, Avis and Budget both claim to use such devices only to retrieve a stolen car, although they admit that many of their independent franchisees do use such devices more broadly. *Id.*

eral Motors' OnStar service.³⁹ The dramatic image of a badly injured passenger saved by OnStar operators communicating through the car and calling an ambulance often causes viewers to lose track of what is what is actually causing the OnStar operator to act. Just as airbag deployment triggers the EDR to retain data about the car during, before, and after the accident, an airbag deployment travels through OnStar's cellular networks and notifies OnStar staff that there has been an accident.⁴⁰ Whether OnStar is part of the EDR system or just uses similar information to function, it certainly implicates similar privacy concerns and shows that EDRs could incorporate GPS tracking and voice recording with little added cost or innovation. OnStar does, however, take pains to inform customers about how it uses OnStar data.⁴¹ OnStar's Privacy Principles state that the information it will collect from its users includes the car's location, user preferences, and general usage patterns.⁴² It further states that third parties may illegally tap into such sensitive information and that OnStar will give this information to third parties if legally required to do so or because of safety concerns.⁴³

The most advanced third-party EDR system available to car owners who want to monitor use of their vehicles is the "MacBox Telematic."⁴⁴ In addition to recording typical EDR data, the MacBox device records "the vehicle's exact geographic location using GPS, video of the crash, before, during, and after, and audio recordings of the voices of the occupants."⁴⁵ It is mainly intended for professional drivers such as tractor-trailer and taxi-drivers,⁴⁶ but it nonetheless demonstrates the level of technology available to automobile manufactures. Notably, this system automatically uploads crash data over cellular networks (much like OnStar, which notifies its operators in order to alert safety personnel⁴⁷) to an accessible database.⁴⁸ The system then alerts government agencies and the owner of the vehicle that there has been a crash.⁴⁹

³⁹ See Dorothy J. Glancy, *Privacy on the Open Road*, 30 OHIO N.U. L. REV. 295, 309 (2004).

⁴⁰ See Mueller, *supra* note 7, at 162; see also Glancy, *supra* note 39, at 309–10. In addition to safety features, OnStar provides a variety of other services, including assisting customers with navigation, unlocking cars when customers have locked their keys inside, providing diagnostic information, and even helping to find restaurants and other entertainment options. See *id.* at 310.

⁴¹ See *id.* at 310.

⁴² *Id.*

⁴³ See *id.*

⁴⁴ See Mueller, *supra* note 7, at 157.

⁴⁵ *Id.* at 157–58.

⁴⁶ See *id.* at 158.

⁴⁷ See *id.*

⁴⁸ See *id.*

⁴⁹ See *id.*

II. EDR REGULATIONS: INSURANCE COMPANIES, COURTS, LEGISLATURES, AND THE NHTSA

A. INSURANCE COMPANIES AND EDRs

Insurance companies have already begun to incorporate advanced, after-market EDR systems into alternative automobile insurance plans in exchange for reduced rates.⁵⁰ Progressive Insurance, for example, offers discounts to customers who install a “TripSense” computer that records trip duration, miles traveled, the number of aggressive acceleration or braking events, and amount of time spent at a given speed.⁵¹

The bargain that Progressive offers—which will likely become more common in the future—is in an important sense a tougher bargain than the one General Motors offers to its OnStar customers. In the case of OnStar, customers receive the safety, entertainment and other benefits of the service in exchange for potential loss of privacy. Insurance customers receiving lower rates in exchange for the release of advanced EDR data face a far starker choice. They face not a potential, but an inevitable loss of privacy in the bargain for lower rates.⁵² Policy makers considering the possible regulation of EDR technology must weigh freedom of contract concerns against the importance of protecting consumers from surrendering their privacy rights to market-making insurance companies.

B. NHTSA AND REFORM

The NHTSA currently collects EDR data, but uses the data in a simple, straightforward way that does not raise the heckles of too many privacy advocates.⁵³ To further its purpose of improving the safety of American roadways, the NHTSA collects data from as many traffic accidents as it can. These data come in part from EDRs.⁵⁴ The current NHTSA framework for collecting EDR data does not concern privacy advocates because the NHTSA does not collect EDR data without the permission of a vehicle’s owner, nor does it mark any data it collects with identifiable personal information.⁵⁵ Strict regulations for federal

⁵⁰ See *id.* at 159. A few states have already banned this type of insurance plan. See, e.g., ARK. CODE ANN. § 27-37-103 (2005).

⁵¹ See Mueller, *supra* note 7, at 159.

⁵² See *id.*

⁵³ See *id.* at 147.

⁵⁴ See *id.* (citing U.S. DEP’T OF TRANSP., NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., EVENT DATA RECORDERS: SUMMARY OF FINDINGS BY THE NHTSA EDR WORKING GROUP: FINAL REPORT 21 (2001), available at http://dmses.dot.gov/docimages/pdf70/138037_web.pdf [hereinafter NHTSA REPORT]).

⁵⁵ See *id.* at 147–48 (citing Event Data Recorders, 69 Fed. Reg. 32,932 (June 14, 2004) (to be codified at 49 C.F.R. pt. 563)).

agencies ensure that the NHTSA does not directly violate the driver's—or at least the vehicle-owner's—privacy.⁵⁶

While the current limited collection of EDR data and the restraints on such data collection do not, at least superficially, implicate any large privacy concerns, the efforts of the NHTSA to improve and increase its collection of EDR data and the use of EDRs generally do potentially infringe upon the privacy of drivers. The concern about new NHTSA regulations comes from two changes the NHTSA may make in its next set of regulations for EDR data collection. First, the NHTSA may abandon its view that vehicle owners own EDR data, and second, it may increase its efforts to standardize EDRs and the methods of collecting data from them.⁵⁷

In its existing regulation framework, the NHTSA assumes that the vehicle's owner owns the data from the EDR and therefore it needs the owner's permission in order to obtain the data.⁵⁸ In its proposed regulations, the NHTSA does not itself challenge this idea.⁵⁹ However, comments from interested parties indicate that there are stakeholders who may push—perhaps successfully—for the NHTSA to alter this stance on data ownership in order to meet other interests and policy goals.⁶⁰ In the NHTSA's report, the Federal Highway Administration (FHA) expressed concerns that the NHTSA's old position—that the vehicle's owner owns the EDR data—severely limits the volume of available EDR data.⁶¹ It argues that a way around this problem would be to have the manufacturer keep some vestigial ownership of the EDR data, allowing federal agencies like the NHTSA easier access to useful EDR data.⁶²

That the NHTSA or other related federal agencies might tear down the wall protecting EDR data ownership through legal machinations is not the only privacy concern created by recent proposals. NHTSA's proposed regulations would standardize EDRs with regard to both data crea-

⁵⁶ See *id.* at 148 (noting that the Privacy Act of 1974, 5 U.S.C. § 552a (2000), prevents the NHTSA from disclosing any personally identifiable information without written consent and that the Freedom of Information Act, 5 U.S.C. § 552 (2000), restrains the NHTSA as well because it prohibits the disclosure of files which would constitute “a clearly unwarranted invasion of personal privacy”).

⁵⁷ See *id.* at 160–62.

⁵⁸ See *id.* at 160.

⁵⁹ See NHTSA REPORT, *supra* note 54, at 53. *But see* Mueller, *supra* note 7, at 160–62 (arguing that this report represents a departure from NHTSA's previous position on this issue).

⁶⁰ See NHTSA REPORT, *supra* note 54, at 53–56.

⁶¹ See *id.* at 53–54.

⁶² See *id.* at 54. The FHA believes this could be legally accomplished through, for example, contractual provisions giving manufacturers continued rights of access to the data, through state motor vehicle licensing law, or through other forms of federal regulation giving public authorities access to the data. *Id.*

tion and the methods of collecting this data.⁶³ While there is no indication that NHTSA will require manufacturers to install EDRs in their cars in the near future, by 2008 NHTSA will require manufacturers who do install them to make the data accessible with just “one single tool.”⁶⁴ Such standardization would provide the NHTSA and others concerned with improving automobile safety with more and better quality data. At the same time, however, it would make it easier for other parties—who are far less disinterested—to obtain a vehicle owner’s EDR data.⁶⁵

C. CURRENT, LIMITED LEGISLATIVE OVERSIGHT

Few legislatures have attempted to regulate EDR data collection and usage.⁶⁶ There is no federal legislation regarding EDRs.⁶⁷ The vast majority of states have similarly declined to pass legislation formally regulating the use of EDR data. The legislation that a handful of states have passed is mainly limited to regulating who can obtain EDR data, what automobile manufacturers must disclose about the EDRs that are installed in the cars they sell, and how such disclosure must be carried out.⁶⁸ The limited nature of state legislation may be explained at least in part by the inherently national nature of the automobile industry, which may make it difficult for legislation at the state level to be effective. Comprehensive federal legislation may be a better and more effective way to address this issue.

D. COURTS AND EDRS

There has been limited use of EDR data in legal proceedings, either civil or criminal.⁶⁹ Nonetheless, examining the cases that do exist

⁶³ See Mueller, *supra* note 7, at 161 (citing Event Data Recorders, 69 Fed. Reg. 39,932, 32,942–43 (proposed June 14, 2004) (to be codified at 49 C.F.R. pt. 563)).

⁶⁴ See *id.* at 161–62.

⁶⁵ See *id.* at 162.

⁶⁶ See *id.* at 142.

⁶⁷ See *id.* at 142, 160–61 (citing Event Data Recorders, 69 Fed. Reg. at 39,932).

⁶⁸ Research revealed nine states that have passed and published EDR regulations: Arkansas, see ARK. CODE ANN. § 27-37-103 (2005) (requiring detailed written disclosure to car owners regarding the EDRs in their vehicles and prohibiting insurance companies from accessing the data); California, see CAL. VEH. CODE § 9951 (West. Supp. 2006); Colorado, see COLO. REV. STAT. ANN. § 12-6-402 (West 2006) (requiring disclosure by manufacturers to car purchasers and also stating that EDR data is owned by the vehicle owner and cannot be accessed by anyone else without owner consent except in certain exceptional situations); Maine, see ME. REV. STAT. ANN. tit. 29, § 1972 (2005); New Hampshire, see N.H. REV. STAT. ANN. §§ 357-G:1 (2006), New York, N.Y. VEH. & TRAF. L. § 416-b (McKinney 2005), North Dakota, see N.D. CENT. CODE. § 51-07-28 (2005); Texas, see TEX. TRANSP. CODE ANN. § 547.615 (Vernon Supp. 2006); and Virginia, see VA. CODE. ANN. § 46.2-1088.6 (West 2006).

⁶⁹ Research uncovered only a handful of opinions where EDR data played any role.

reveals clear patterns in the ways in which courts and litigants have used EDR data. The few appellate courts that have addressed this issue have upheld trial court decisions allowing EDR data.⁷⁰

In all of the examined cases, either the government or an automobile manufacturer used EDR data to further its case against the driver.⁷¹ This may be because EDRs are, as is often claimed, so accurate that those who know EDRs well—law enforcement and auto manufacturers—will abandon or settle any case if the EDR data indicate that the other side is in the right. Alternatively, it may be that drivers and their lawyers are less aware of EDR technology or less capable of using EDR data to their advantage than are the government and automobile manufacturers. For example, plaintiffs might have difficulty retaining experts who can explain how EDRs work and how to interpret their data.

This latter possibility is the less troubling of the two. Over time, it should be less difficult to find experts to challenge EDR data (assuming that it can be challenged) because the number of experts on the subject will increase and some will leave their original employers to work as experts for the other side. Furthermore, if the NHTSA succeeds in its goal of making EDR data more standardized and more accessible,⁷² then it will be far easier for the layperson to discover EDR data that support a case. Thus, while there are privacy concerns associated with standardizing EDRs according to the NHTSA's proposals, there are countervailing arguments in favor of standardization.⁷³ Though more standardized and easily accessible EDR data would make it easier to invade a driver's privacy, the more accessible data would also help to democratize the power that this information provides.

With so few examples available of the use of EDR evidence, it is difficult to know with certainty the value of such evidence in past cases and to predict its value in the future. Available cases do, however, provide good examples of how courts and litigants use EDR data in the trial setting. Two cases in particular show the wide range of effects on a case when EDR data provides some answer.

In *Bachman v. General Motors*,⁷⁴ the plaintiff was severely injured when she lost control of her 1996 Chevrolet Cavalier and crashed into an

⁷⁰ See, e.g., *Bachman v. Gen. Motors Corp.*, 776 N.E.2d 262, 283 (Ill. App. Ct. 2002) (finding that the trial court was correct when it allowed the defense to present EDR evidence indicating that the airbag could not have caused the accident in question); *People v. Hopkins*, No. 2004-0338, 2004 WL 3093274, at *1, *14 (N.Y. County Ct. Aug. 30, 2004) (admitting EDR evidence that showed the defendant was driving over 100 miles per hour in a 30 mile per hour zone when the accident that led to the murder charges against him occurred).

⁷¹ See, e.g., *id.*

⁷² See *supra* pp. 209–11.

⁷³ See *supra* pp. 210–12.

⁷⁴ 776 N.E.2d 262.

oncoming step van.⁷⁵ The plaintiff claimed that she was driving between 35-45 miles per hour on a winding road with a 30-mile per hour speed limit when her airbag unexpectedly deployed, causing her to lose control of the steering wheel, hit her head, and lose consciousness.⁷⁶ She remembered nothing else from the accident.⁷⁷ She sued General Motors and various other defendants, alleging that an improper airbag deployment caused the accident and the resulting injuries.⁷⁸

In a jury trial, two witnesses who saw the accident, one of whom was the other driver, testified that Bachman looked like she was driving well over the speed limit and too fast for the bumpy and curvy road where the accident took place.⁷⁹ Both also testified that they did not notice anything that would indicate that the airbag deployed before the accident.⁸⁰ On the other hand, after the accident, General Motors recalled the 1996 Chevrolet Cavalier because the airbag deployed improperly at times (i.e., at low speeds or when a very small force hit the floor pan of the car).⁸¹ Two other witnesses testified about the condition of the section of road in question, one stating that it was “wavy and ripply” and that it caused his car to vibrate when he drove over it,⁸² the other stating that “it gave her the feeling that she wanted to lose control.”⁸³

The evidence without EDR data was thus not conclusive in either direction. However, the EDR data showed that the airbag deployed once and did so after recording change in velocity above the threshold required to trigger deployment.⁸⁴ In contrast, an engineer employed by one of the defendants further testified, in inadvertent-deployment cases the change was typically well below the deployment threshold.⁸⁵ The jury returned a verdict for the defendants.⁸⁶ Though one cannot conclusively determine that the EDR evidence and related expert testimony made the difference in this case, an objective view of the evidence indicates that it probably had a large effect on the outcome. Accurate EDR data can thus help the fact-finder and society as a whole get closer to the truth in a given case and avoid the so-called “battle of the experts” problem.

⁷⁵ *Id.* at 271.

⁷⁶ *Id.* at 274.

⁷⁷ *Id.*

⁷⁸ *Id.* at 270.

⁷⁹ *Id.* at 274–75.

⁸⁰ *Id.*

⁸¹ *Id.* at 276.

⁸² *Id.* at 275.

⁸³ *Id.*

⁸⁴ *Id.* at 279.

⁸⁵ *Id.*

⁸⁶ *Id.* at 270.

Of course, if EDR evidence is the “smoking gun” in product liability suits against automobile manufacturers, one might ask why we should bother with any other evidence—perhaps, a trial judge should grant summary judgment to the defendant on EDR data alone. In fact, this has happened in at least one case already. In *Batiste v. General Motors Corp.*,⁸⁷ George Batiste sued General Motors, claiming that the sole and proximate cause of his injuries was the failure of the airbags on his Oldsmobile Cutlass to inflate properly when he spun-out and crashed into a concrete divider on an interstate highway.⁸⁸ He argued that because he was going 50 to 55 miles per hour before he lost control of his vehicle, and because the owner’s manual stated that in normal conditions a crash into a wall at about nine to fifteen miles per hour should have been enough to trigger deployment, the airbag sensor should have deployed the airbag.⁸⁹ An auto-mechanic and a General Motors engineer, both of whom analyzed the downloaded EDR data, swore in affidavits that the EDR did not record sufficient change in longitudinal velocity for airbag deployment, nor did it record any malfunction in the system to suggest that the airbags should have deployed but did not.⁹⁰ Based on these affidavits and Batiste’s failure to bring forward any experts of his own to challenge these conclusions, the trial court granted summary judgment in favor of General Motors, a decision that the appeals court subsequently affirmed.⁹¹

The *Batiste* case raises an interesting question concerning the use of EDR evidence: should EDR by itself determine the outcome of any case? Granting summary judgment based on EDR data alone does save scarce judicial resources. Moreover, it reduces the legal costs for manufacturers, a savings that, because of the pressures of competition, they will presumably pass to the buying public. The flipside of this legal parsimony is that there is a possibility that if the EDR data are not telling the whole story of the accident, courts will dismiss valid claims against car manufacturers or valid defenses for criminal defendants. In *Batiste*, it could have been that the EDR functioned perfectly, and the airbag sensor properly did not trigger the airbags to deploy. However, an airbag sensor is only as good as the programmed parameters that govern its deployment. Perhaps for safety reasons the airbag sensor should have been programmed to deploy under the conditions that existed at the time of this accident, and it was not so programmed. The more the legal system

⁸⁷ *Batiste v. Gen. Motors Corp.*, 802 So.2d 686 (La. Ct. App. 2001).

⁸⁸ *Id.* at 687.

⁸⁹ *See id.* at 687–88.

⁹⁰ *Id.* at 688.

⁹¹ *See id.* at 687, 690.

believes and relies on EDR data, the less likely any evidence or argument—however valid—can overcome its persuasive power.

III. DECIDING WHAT IS MOST IMPORTANT

In order to determine the best way to regulate EDR usage, it is necessary to balance the negative and positive consequences. Accordingly, we must first determine what are the most and least beneficial aspects of EDR data.

Safety, privacy, truth, justice, and efficiency are all laudable reasons to support any kind of reform or regulation. Unfortunately, in the case of EDRs, there is no one answer that could possibly maximize all of these important policy goals. For example, if one cared only about privacy and never about safety or more accurate legal outcomes, one would support banning the installation or use of all event data recorders. If one only cared about safety, then one would have the most elaborate EDR imaginable, perhaps like the MacBox Telematic device,⁹² moreover the government would automatically receive all such information in order to determine better ways to make the roads safer. The key then is to determine where one goal can be maximized with the least expense to other goals in order to reach the most efficient outcome, keeping in mind that some goals may be considered more important than others.

As mentioned above, there are certain key tensions among the various policy goals associated with EDR usage and the application of EDR data. The original reason for having EDRs was safety, as evidenced by the fact that they appeared alongside the airbag.⁹³ Moreover, the NHTSA's main interest in obtaining more EDR data is to improve the safety of car travel.⁹⁴ The price of safer roads is thus the risk that private EDR data will be used by insurance companies, the legal system, or other bodies with interests antagonistic to drivers' privacy concerns.

Another benefit of EDRs might come in the form of more accurate and efficient trial outcomes.⁹⁵ But currently these evidentiary benefits may actually tip the legal system further in the favor of the automobile manufacturers and law enforcement bodies who are more experienced and more knowledgeable about how EDRs work and the data they produce. Therefore, too much reliance on the EDR to tell the complete story of an accident might actually diminish its benefits. There is a real tension between truth, efficiency, and fairness that cuts in a variety of different ways.

⁹² See *supra* text accompanying notes 41–45.

⁹³ See Menninger, *supra* note 6, §10.

⁹⁴ See *supra* Part II.B.

⁹⁵ See *supra* Part II.D.

IV. FINDING THE RIGHT BALANCE: EVENT DATA RECORDER REGULATION PROPOSALS

A. NOTIFICATION

One author, Patrick Mueller, has already proposed a comprehensive model legislation that attempts to address the large privacy concerns that increased EDR usage implicates.⁹⁶ His first concern is lack of notice—he rightly believes that automobile manufacturers do not adequately notify their customers about the existence of EDRs when they buy a car.⁹⁷ Currently, auto manufacturers bury any mention of the EDR in the back of the vehicle owner's manual.⁹⁸ Moreover, while there are no surveys that measure how much car drivers know about EDRs, at least some industry groups accept that most consumers are ignorant about their existence.⁹⁹ Considering how powerful EDR evidence can be in criminal and civil proceedings, it is unfortunate, and even unfair, that car drivers do not know more about EDRs. Certainly, if the general public does not know about the privacy interests they are trading away, it is difficult to argue that all of the relevant stakeholders are getting their full say about how we, as a society, should proceed in this important area of regulation.

In order to address the notification issue, Patrick Mueller proposes imposing four significant regulations on the auto industry: (1) car manufacturers must clearly explain how EDRs work and what they record and place this information in the front of the owners' manual; (2) car dealers must inform purchasers that there is an EDR installed in their new vehicle; (3) car dealers must then, a few weeks later, remind their customers about EDRs located in their cars; and (4) the NHSTA must publish easy to understand guides about EDRs and what they specifically record.¹⁰⁰ Mueller's proposal here seems excessive¹⁰¹ for a number of reasons. First, as courts, the NHSTA, and others increasingly use EDR information, privacy advocates and the media will inform members of the public about the implications of EDRs and what exactly they record. If the public finds the privacy intrusion to be too great, it will use the political process to curtail the intrusion. Second, auto manufacturers and federal regulators already inundate car drivers with a huge number of warnings, some mired in legalese. The public's time and attention are scarce, and warning clutter is therefore a real concern. If the government and the

⁹⁶ See Mueller, *supra* note 7, at 167–90.

⁹⁷ See *id.* at 175–76.

⁹⁸ See *id.* at 175.

⁹⁹ See *id.* at 175–76 (citing Michael Ha, *Consumer Groups Try to Push Big Brother Insurer Out of Passenger Seat*, NAT'L UNDERWRITER, Apr. 21, 2003 at 14, 16; Cindy Skrzycki, *Data Recorders in Cars Might Open Pandora's Black Box*, WASH. POST, July 27, 2004, at E1.).

¹⁰⁰ See *id.* at 177–78.

¹⁰¹ See, e.g., *New-Car Black Box Rule*, KANSAS CITY STAR, Aug. 23, 2006, at C.

auto industry are to provide extra warnings about anything, they should warn about important safety issues related to driving a car. Overloading America's car drivers with too many extraneous and less important concerns might start to crowd out their awareness of other more crucial safety information.

Finally, the notification issue is not as crucial an issue as Mueller paints it to be because presumably the media and popular culture will, over time, bring EDR technology into the consciousness of the public. When this happens, notification will be superfluous; those who care enough to pay attention to the bombardment of notification documents that Mueller proposes will already know that the EDRs exist. However, considering the push from the NHSTA to increase collection and standardization of EDRs and the implications of such a move in both the criminal and civil contexts, not only whether, but when consumers lose this veil of ignorance is exceedingly important.

Therefore, one legislative solution would be to force the NHSTA and automobile manufacturers to delay increasing EDR installation, technology, and accessibility until the public is more fully informed. A quick way to increase public awareness is to have the NHSTA create and run an ad campaign that explains what EDRs are and what they record. This would in turn give the public a chance to have its voice heard before inertia leads to a policy debate in which the public cannot fully participate.

B. CONSENT

The current lack of consent to EDR data collection also troubles Mueller,¹⁰² who argues that authorities might use EDR evidence against a driver in a civil or criminal proceeding without the driver first having agreed to incur this legal risk.¹⁰³ To address this issue, Mueller proposes that cars equipped with EDRs come with a switch that allows the driver to affirmatively turn EDR data recording on or off.¹⁰⁴ Furthermore, Mueller argues that cars should come from the factory with the EDR switches turned off in the hopes that this will force the NHSTA and the automobile manufactures to educate more drivers about the public safety benefits of providing such data.¹⁰⁵

Mueller's proposal amounts to nothing or risks rendering EDRs effectively useless. This proposal would amount to nothing if insurance companies threaten to charge much higher rates for car drivers who refuse to turn on their EDRs since such a refusal would most likely corre-

¹⁰² See Mueller, *supra* note 7, at 178-80.

¹⁰³ See *id.*

¹⁰⁴ See *id.* at 180.

¹⁰⁵ See *id.*

late to those who also drive more recklessly. The proposal could thus severely damage the statistical credibility of EDR data, making both technological and political progress in the field of automotive safety more difficult. If the default is that the EDR is off, drivers will have to affirmatively decide to turn on the EDR recording, almost certainly reducing the data points the NHSTA and others interested in improving automobile safety can use. Further, the data obtained would skew towards certain kinds of drivers. Moreover, if changes in automobile design or changes to traffic laws coming from EDR data collection are not based on the full spectrum of drivers, they will be less effective.

Finally, it is unclear why consent should be an issue in the first place. Should a driver also have to consent to an accident reconstruction based on the state of his own car? The EDRs that manufacturers currently install in cars record very limited information and only in the few moments before and after an accident.¹⁰⁶ Perhaps then Mueller objects less to the limited data that EDRs currently record and more to the possibility that EDRs could, in the future, record more intimate details that one wishes to keep private. However, he fails to make this clear. The better solution to this concern—whether exactly shared by Mueller or not—is to limit what EDRs record and who can use this information.

C. WHAT SHOULD EDRs RECORD AND WHO SHOULD HAVE ACCESS TO THEM

Mueller explains in detail other concerns regarding EDR usage and what legislative and regulative changes he believes will best address these concerns.¹⁰⁷ Despite assurances from relevant experts that EDR data are accurate,¹⁰⁸ Mueller worries about the quality of EDR data.¹⁰⁹ In addition, Mueller expresses concern that the government, and even other third parties, may use EDR data too extensively.¹¹⁰ He attempts to address this issue in two ways.¹¹¹ First, he proposes to destroy EDR data when the data no longer serves any safety or evidentiary function.¹¹² Second, he argues that outside of collecting anonymous EDR data for safety purposes, we should not allow third parties access to EDR data without a court order.¹¹³

Technological assurances about data quality may not be enough to assuage those concerned that people might lose civil lawsuits or be con-

¹⁰⁶ See *supra* Part I.B.

¹⁰⁷ See Mueller, *supra* note 7, at 180–90.

¹⁰⁸ See *supra* text accompanying notes 69–90.

¹⁰⁹ See Mueller, *supra* note 7, at 180–83.

¹¹⁰ See *id.* at 184–86.

¹¹¹ See *id.* at 185–86.

¹¹² See *id.* at 185.

¹¹³ See *id.* at 186–87.

victed on faulty EDR data. While there is little dispute in the courts about the admissibility of EDR data, it is troubling that a party might lose on summary judgment or be convicted based solely on EDR data since this information is better understood by the automobile manufacturers who designed EDRs and the law enforcement officials who routinely collect such data than it is by laypeople.¹¹⁴ Courts and legislatures should refrain from allowing EDR data to settle the matter without more evidence in the criminal context or when the other litigant has reasonable evidence that may refute the EDR findings, at least until EDR technology is more widely understood. The risks to life, liberty, and property posed by sole reliance on potentially faulty EDR data should trump the interest in judicial efficiency.

Still, the truth that EDR evidence can help unmask is important enough to push for its use in trials as much as is reasonably possible. In a civil context, it is understandable to limit the recovery of EDR data for evidentiary purposes to only when litigants can obtain a court order for the aforementioned reasons. Nevertheless, in a criminal case, law enforcement should be allowed to access EDR data upon simply a showing of probable cause and not only after obtaining a search warrant or some other court order. Otherwise, there is a large risk that EDR evidence will be lost because of either damage or owner tampering. Therefore, comprehensive legislation regulating EDR information access should only allow a third party to obtain the EDR through a court order or—when the third party is law enforcement—upon a showing of probable cause.

The final question is what we should allow EDRs to collect. EDRs should only collect data with the highest ratios of potential safety benefits relative to invasions of privacy. Therefore, legislatures and regulatory bodies should limit EDR recording to no more than ten minutes before and after an accident and only allow objective information provided by the vehicles sensors to be recorded. It is hard to imagine how voice recordings, video recordings and further records of a driver's behavior do little more than intrude on a driver's constitutional right to privacy.

CONCLUSION

The goals of safer roads, privacy protection, and more efficient and more accurate trial outcomes inevitably conflict when planning EDR regulation. The legislative scheme with the best balance of these policy goals would do the following: (1) delay more expansive EDR implementation until the public is more fully aware about the existence of EDRs; (2) ensure that EDRs be installed in all vehicles; (3) prevent insurance

¹¹⁴ See *supra* Part II.D.

companies and other third parties from using EDR regulation against their clients without a court order or, in the case of law enforcement, without probable cause for retrieving EDR data; (4) encourage courts to use EDR data, but discourage them from relying on EDR data alone; and (5) limit EDR recordings to objective information no more than ten minutes before and after an accident. Such a scheme could improve automobile safety by contributing to research, as well as increase the accuracy and efficiency of civil and criminal proceedings, while still protecting individual privacy.