

Improving Fleet Safety with Driver Risk Management Solutions

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Introduction

Over the past 27 years I've worked with safety professionals and fleet operators, assisting them with improving driver behavior and reducing risk behind the wheel.

During much of that time driver training has been a primary tool to address the issue of safe driving. Despite an immense commitment to safety training, many fleet operators report their frustrations over results that have improved only slightly or have flat-lined. Training only goes so far. It teaches skills and sets expectations for what should occur behind the wheel. Training, by itself, rarely modifies behavior because it lacks a mechanism to observe and verify positive changes have taken place.

A few years ago it became obvious that new technological developments would enable in-cab video and subsequent analysis of the video to play a critical role in monitoring and dramatically improving driver behavior.

The Driving Problem

Dr. Margaret Chan, Director-General of the World Health Organization (WHO) recently remarked that "road traffic crashes are not 'accidents'" and urged society to challenge the notion that "they are unavoidable." Chan's comments coincided with the publication of a WHO report that revealed traffic injuries are the leading cause of death in people ages ten to twenty-four around the world—surpassing HIV/AIDS, respiratory infections, self-inflicted injuries, violence, tuberculosis, fires and war. The annual cost of road injuries and fatalities is \$518 billion. And that's only in the United States and the European Region.¹

According to the World Health Organization (WHO), road traffic crashes kill 1.2 million people a year – or 3,242 people each and every day. In addition, road traffic crashes injure or disable between 20 million and 50 million people a year. And, road traffic crashes rank as the eleventh leading cause of death and account for 2.1 percent of all deaths globally.² The numbers are staggering and the physical, financial and emotional toll on victims and their families are incalculable.

The numbers are only slightly better at the local level. United States Secretary of Transportation Mary E. Peters recently announced a nationwide drop in the number of road deaths. The two percent decline, the largest in fifteen years, has resulted in the lowest highway fatality rate on record of 1.42 deaths per 100 million vehicle miles traveled (42,642), compared to 1.45 deaths per 100 million vehicle miles traveled (43,510) the year before. During the same period, passenger car injuries dropped 6 percent from 2.7 million in 2005 to 2.54 million in 2006, and large truck injuries fell 15 percent.

Most significantly, fatalities of occupants of passenger vehicles—cars, SUVs, vans and pickups—continued a steady decline to 30,521, the lowest annual total since 1993. So we're getting better, right? Wrong.

As Secretary Peters said, “Even one death is too many.”³

The statistics are encouraging, but the fact remains that 42,642 Americans died in traffic crashes in 2006 alone. Now consider that 58,148 troops were killed during the course of the entire Vietnam War. Realize further that nearly 120 human lives—mothers and fathers, brothers and sisters, sons and daughters—are cut short every single day as a result of traffic “accidents,” and you quickly realize there is not yet reason to celebrate.

Despite Secretary Peters' announcement and the overall decline in highway fatalities, the U.S. is still behind other countries in road safety and remains one of the world's most dangerous places to drive. The Organization for Economic Cooperation and Development and the International Transport Forum have ranked the U.S. number forty-two—behind Australia, France, Germany, Japan and the United Kingdom—of the forty-eight countries it measured in terms of fatalities per capita.

A False Sense of Security

In the U.S., Congress has proposed legislation—from graduated license laws and reduced speed limits to new vehicle safety sticker requirements and harsher penalties for drunken driving—to curb traffic fatalities. Manufacturers have also taken a lead in responding to this national catastrophe by introducing new safety technology and “smart” cars that warn drivers when a traffic signal is about to turn red, that protect operators from drifting into adjacent lanes and sound alarms when drivers appear to be falling asleep at the wheel. Older technologies, including antilock brakes, seat belts and air bags, also have increased the safety of vehicles. Yet, despite these efforts, collisions and fatalities still occur at alarming rates.

Why? Innovation does not take the place of solid judgment and skill behind the wheel. A research paper, titled “An Exploration of the Offset Hypothesis Using Disaggregate Data: The Case of Airbags and Antilock Brakes,” published in the *Journal of Risk and Uncertainty* (Volume

32, Issue 2) suggests drivers adapt to innovations that improve safety by becoming *less* vigilant about safety—not *more* vigilant—and confirms the role driver behavior plays in vehicle crashes. Although it may be hard to believe, safer cars support the behavioral concept of false positive reinforcement:

The idea is that an individual can drive recklessly, or even just a bit less responsibly, because the automobile is extra safe. Also because the driver has taken extra risks before and not endured the consequence of having had his or her luck run out resulting in an accident, he or she has a false sense of positive reinforcement.

The feeling is, “I have followed closely many times before and it has never resulted in an accident; therefore, I obviously can do it safely where others of lesser skill or agility may need those extra two seconds of following distance.”

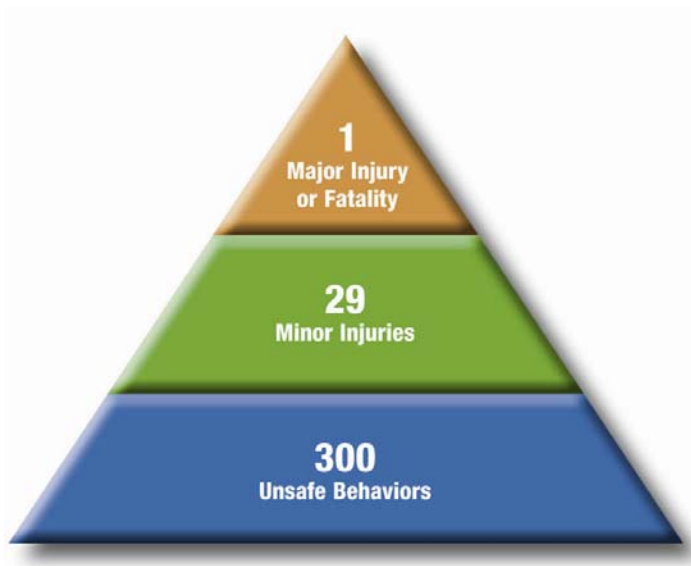
It’s not that safer vehicles cause people to take risks. Safer vehicles or not, the risks are there. I see them every day. In fact, more than 12 million audio and video recordings of actual risky driving behaviors across virtually every industry prove it. Every collision, or consequence, seen in these videos has been preceded by a risky driving behavior. These are not accidents. And we don’t have to accept them. More importantly, we can change them.

It All Starts With Risk Identification

In the 1930s, H.W. Heinrich, an executive with Travelers Insurance Company, studied over 75,000 injuries in the workplace in an effort to better understand cause. His conclusion was that most accidents would be preventable if only the acquired behavior of individuals could be changed. His Domino Theory of Accident Causation states that an accident is only one of a series of factors, each of which depends on a previous factor in the following manner:

1. Accident causes an injury.
2. Individual’s negligent act or omission, or a faulty machine, causes an accident.
3. Personal shortcomings cause negligent acts or omissions.
4. Heredity and environment cause personal shortcomings.

Through his research, Heinrich determined that for every 300 unsafe acts, there are twenty-nine minor injuries and one serious injury. As it relates to driving, this means that most collisions are not the result of a one-time mistake, but rather, they are the ultimate consequence of repeating risky driving behaviors.



The key to reducing the incidents at the top of the pyramid is to reduce the number of unsafe acts at the bottom of the pyramid. By identifying unsafe acts, you can address and correct them before they lead to traffic collisions. Those safety results not only save lives, but improve the bottom line, too.

The availability of video capture of risky driving and the subsequent analysis and supervisor-driver follow-up are the tools and processes that enable the identification and correction of risky driving *before* it leads to another traffic collision. Properly implemented this approach will:

- Improve the way people drive.
- Reduce the frequency and also the severity of all those unsafe driving behaviors.
- Reduce fleet claims costs
- Objectively report the truth as to what actually happened when an accident or fatality unfortunately occurred.

This technology is currently deployed in over 110,000 vehicles across more than 1,500 commercial and government fleet customers in the United States, Europe and South Africa. Many fleets using the approach report it has reduced vehicle damages, insurance and personal injury costs by 50 percent.

The Event Recorder - How it Works

Although it is the program and processes that will drive a successful driver risk management program, the event recorder is a key tool that enables the collection of the data. Without it, there can be no program.

The video event recorder is a palm sized device mounted in the vehicle. It's constantly recording but not saving any data unless the vehicle experiences unusual force. Any significant movement (such as a hard brake, sudden swerve, hard impact) activates the recorder. Since the recorder is

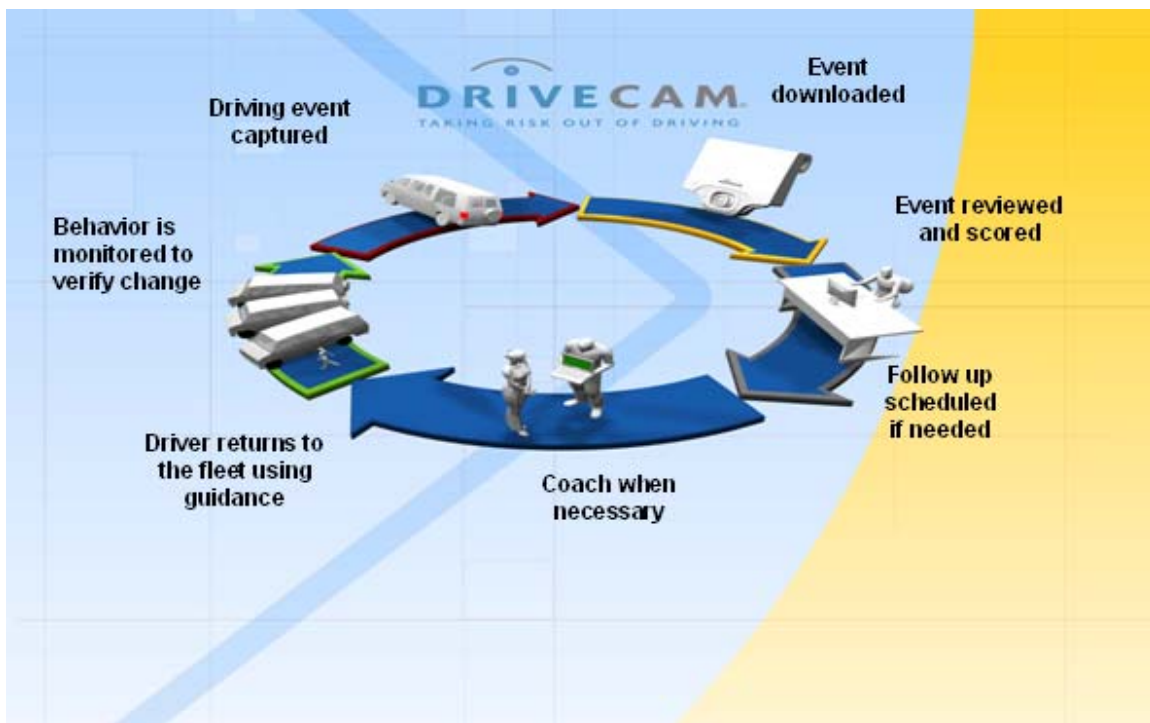
always recording, it immediately saves the critical seconds before and after the incident and sends the audio-video recording via cell to a data center for analysis and later viewing over the web.

The Program is the Key – How the Program Works

The technology is only effective when used as part of a full circle program. The process involved in this approach is simple, logical and effective. Here are the key steps to applying the program:

1. Unsafe driving triggers the event recorder to record and saves the event. The video shows both what's happening in front of the vehicle as well as an inside view that shows the driver, passenger plus whatever viewing is possible through side and rear windows.
2. At a specified time the video data is sent via cell network to a central server.
3. Experts then view these video driving events and score them based on what risk existed. Events that meet a specified level of concern are tagged as requiring "coaching".
4. Coaches are typically first line supervisors. Coaches log into a database to see if they have any video events that require driver coaching. Coaching consists of meeting with the driver to view the video and discuss what needs to change going forward.
5. Once the coaching session is complete, the event is marked as "resolved" in the database.
6. The driver returns to the field. If the coaching effort was successful the driver will not trigger additional events displaying the concerning behavior. Additional follow-up with the driver occurs if further events are triggered and they reveal the behavior has not been corrected.

The following is an illustration of the process:



Coaching and Consequences – The Key to the Program

Key to the effectiveness of the video technology is coaching and consequences. Whether the driver is a person simply driving to work or the grocery store, a teenager heading to school or a party, or a long- or short-haul truck driver delivering products we need, the process is the same...coaching and consequences.

Coaching as it relates to this fleet safety approach constitutes a brief meeting and needs to be part of an overall process. Improving driver safety and risky driver behavior is an ongoing, continual process.

In addition to coaching, drivers need to have immediate and certain consequences every time he or she exhibits a risky behavior. You need the ability to capture or observe the actual behavior and then tie positive consequences to safe and desired behavior, along with negative consequences to unsafe or risky behavior.

Positive consequences can take many forms, such as recognition and rewards. In some instances, a simple acknowledgment that a driver did the right thing, someone noticed and they cared is enough. In other words, like the Hawthorne Effect, someone was watching, someone was measuring, someone cared and it mattered. These consequences should occur as close to the actual behavior as possible.

Like the positive consequences, the negative consequences must be administered in the same way. They must be as immediate as possible and certain. Every time the driver chooses to disobey the law or behave in an unsafe manner, he must know that it will be observed, it will be measured, and there will be a consequence. In most cases this is a gentle reminder or coaching from a supervisor, peer or anyone who cares. More severe consequences may occur if the incident is extreme or the behavior hasn't changed despite prior efforts.

Ultimately, you need a way to monitor the driver without riding beside him or her each and every day. This is where an exception-based video event recorder will help you improve your driver's driving skills, reduce his risk of driving irresponsibly, lower your number of incidents and claims, while also increasing your bottom line.

Results

Rear-end crashes, side-swipes and intersections mishaps are very common incidents that lead to high claims costs and injuries. Most of these unfortunate incidents happen for a handful of reasons such as:

- Following too closely
- Traveling at unsafe speeds
- Distracted behind the wheel
- Seeing problems too late

In almost every case, these risky behaviors were already present prior to the crash...they just hadn't been isolated and corrected. The integration of video technology can have a dramatic impact on reducing the severity and cost of vehicle crashes.

Challenges

It is only natural for some employees to have concerns when the DriveCam program is newly implemented at their work site. Most of these concerns are due to:

- Misconception. Employees may have a misunderstanding as to how the program works and how it will be applied by management.
- Misinformation. False rumors can travel quickly without proper communication about the program.
- Lack of experience. The program is new for most employees. They simply don't have any past experience to draw from to help form their opinions.

Fortunately, most concerns can be easily diminished by effectively educating employees about the program *before* implementation.

Some key messages to communicate include:

- Recordings are exception based. It's only triggered when something abrupt happens with the vehicle.
- Management cannot remotely trigger an event or look in live.
- The data is in a secure environment and only available for viewing by those with the appropriate access.
- The program does not create new policies. It is simply a tool to verify there is compliance with existing policies.
- The video is often a tool to exonerate a driver if he is involved in a crash

¹ WHO European Region is defined as: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, Uzbekistan

² *World Report on Road Traffic Injury Prevention*, World Health Organization, 2004

³ DOT 72-07, issued July 23, 2007, "Declining Traffic Deaths Lead to Lowest Highway Fatality Rate Ever Recorded, U.S. Transportation Secretary Mary E. Peters Announces."

Putting it to the Test

DS Waters (DSW) is the leader in home and office water delivery with a focus on three- and five-gallon and one-half liter single-serve bottled water products. The company bottles water at more than 25 manufacturing facilities, employs 4,800 people in more than 30 states and manages a fleet of 3,000 vehicles and drivers.

The Company was formed as a joint venture in 2003. As is typical in many acquisitions/mergers, a clash of cultures occurred and our safety performance suffered. Fleet safety was no exception. This resulted in higher collision rates and skyrocketing insurance costs.

Looking to turn things around and improve our performance, DSW embarked on a number of strategies. We created a new motor vehicle policy. We tightened our hiring and retention standards. We also started a comprehensive training program that includes several hours of classroom training followed by at least one hour of behind the wheel training.

After putting some basic safety programs in place, we asked ourselves a fundamental question: What can we do to ensure that our drivers are behaving safely? It's not enough to just hire someone with a clean motor vehicle record and provide them with a quality training experience. We were determined to achieve a high level of safety performance and we needed a way to systematically identify, analyze and correct at-risk behavior.

So we turned to a Driver Risk Management Program (DRM).

Dudley Moore once said "the best car safety device is a rear view mirror with a cop in it." The late actor was being humorous of course. But his statement underscores an important principle in applied behavioral psychology: A connection between perceived consequences (reinforcement and punishment in particular) and its influence on emitted behavior. In this case, an individual being followed by a police officer would most certainly be on their best behavior rather than risk getting "punished," i.e. getting pulled over.

DRM makes it possible for our drivers to experience the electronic equivalent of a cop in the mirror. But instead of punishing our employees, we saw an opportunity to use DRM as a powerful tool to assist us in reinforcing critical defensive driving skills and in correcting substandard behavior. Unlike other devices on the market, the video event recorder and DRM program we chose captures actual risky driving behaviors such as hard braking, tailgating and distracted driving when the video event recorder is triggered by erratic driving (as opposed to simply when an accident occurs) and includes event review and coaching.

Other companies were getting 30-90 percent reductions in accidents so we knew it had potential. But would it work for us? There was only one sure way to find out.

After securing executive approval, we decided to pilot the program at our Belmont, Mass., and Oceanside, Calif., sites. We figured this would give us an opportunity to test the program under real world conditions at two of our most challenging sites. The pilot phase began in Spring 2006 and the solution quickly was deployed across 62 test vehicles.

The results of our pilot program were astounding:

- The Belmont site experienced 13 vehicle crashes in 2006 versus 43 in 2005
- The Oceanside site had two accidents in 2006 versus 14 accidents in 2005; both accidents were judged to be non-preventable
- Belmont liability losses (auto claims only, not including property damage or administrative costs) dropped to \$13,200 in 2006 versus \$82,100 in 2005.
- Oceanside auto liability losses totaled \$0 in 2006 versus \$16,705 in 2005.

Justifying the costs...

Annual accident costs:	\$3,000 per vehicle
Video Event recorder costs:	\$1,000 per vehicle

We figured that if we could reduce our accident rate by 50 percent, the expected savings would be \$1,500 per year (50% of \$3000). The expected net gain would be the difference between the expected savings and the cost of the video event recorder: \$1500 - \$1000 = \$500.

$$\text{Simple ROI} = \frac{\text{Expected Net Gain}}{\text{Investment Cost}} = \frac{\$500}{\$1000} = 50\%$$

The success of the pilot along with the ROI above helped “sell” the program to our executive team but we still had to navigate through some challenges before rolling out the program.

Prior to rolling out the program, we engaged in a comprehensive communication effort. In addition to facilitating meetings and conference calls with drivers and supervisors, we distributed brochures highlighting the Video Event Recorder solution and promoted the programs in our internal newsletter.

Our communication efforts were focused on helping drivers understand the solution and allay any concerns they might have as to its purpose. We talked about how the program works, how it would be used and how it would benefit drivers. Our objective was simple: Improve safe driving performance by reducing and/or eliminating behaviors known to cause losses. We stressed that this program would not be used to punish drivers!

At first, some drivers were a little apprehensive about the program and the idea of being caught “on camera.” But now, our drivers are accustomed to the units and have changed their driving habits for the better. Since recordings only occur when triggered by irregular motion, the driver is able to avoid erratic events by operating the vehicle in a safe, controlled manner.

Our drivers also appreciate the protection the video event recorder provides against claims by other motorists. If an accident occurs, the recorder provides critical video footage of the event and protects the driver (and the Company) against false statements by others. Collisions in the past have often resulted in a loss because they ended up as a “he said, she said” situation. But now, we

have already used footage to exonerate our employees in several crashes. Those employees have become some of the strongest advocates for the program.

We were very upfront with the employees in that there would be ongoing coaching and counseling sessions as a result of this program. But we stressed that this would be done in a preventative fashion rather than waiting until a crash occurred. I would much rather discuss an opportunity to improve a driving habit instead of discussing an incident.

Good employee communication is necessary but not sufficient for success. You have to arm your front line supervisors with effective leadership skills and be committed to execution. In my experience, the best supervisors for this program are those who 1) Have a solid understanding of defensive driving techniques and 2) Are motivated to coach employees for improved performance.

The easy part of a DRM program is making the purchase and installing event recorders in your fleet vehicles. The challenging part is doing something with the data that it provides and making the behavioral changes necessary to reduce unsafe driving habits.

Whenever the program begins at a location, our supervisors start receiving event clips showing unsafe driving habits and opportunities for each driver. The amount of coaching can seem overwhelming at first. Some supervisors will receive several clips per day, per driver. And it takes time to sit down with each driver and coach them on safe driving. But that is what it takes to get the desired behavioral changes necessary to prevent accidents.

The good news is that the attention given to coaching pays off quickly: Event frequency gets reduced dramatically in the first 30 – 60 days of the program. Now that our overall driving performance has improved, it is not unusual for drivers to go days at a time without ever setting off the camera.

Driver Risk Management is one of many tools we employ as part of our overall fleet safety effort. It is a valuable tool, indeed. But it's just one tool. And DRM (or any other program for that matter) is not a substitute for an effective safety management system.

Mishap Study at DS Waters

In 2008, DS Waters performed an internal mishap analysis with our route trucks. After differentiating between trucks with/without event recorders, we found that the mishap rate for trucks with event recorders was 18% vs.40% for trucks without event recorders. We found similar disparities with liability costs.

For the study, we looked at every single vehicle mishap including incidents involving a collision, property damage or liability. If the truck was associated with an event recorder (or *should* have had an event recorder in it), then it was considered a "truck with event recorder". We did not try to take into account whether or not the event recorder was actually working at the time.

Route Truck Mishaps

	<u>Mishaps</u>	<u># Trucks</u>	<u>Mishap Rate</u>
Trucks with event recorders	210	1148	18%
Trucks without event recorders	308	764	40%