



**lifesaver**  
The simpler, smarter fleet safety solution

# The Science Behind Cell Phone Addiction

The problem of driver distraction is too serious to expect that drivers simply ignore their phones while driving. Years of instant gratification, intentionally built into the operating systems of mobile phones and apps, have ingrained behaviors that are challenging, if not impossible to unwind. Breaking those patterns to respond to phone notifications is a challenging issue. Therefore, traditional methods to improve driver behavior are not as effective in stopping mobile device distraction. If your goal is to eliminate the temptation to respond to every phone notification while driving, you need to restrict the driver's ability to interact with their cell phone while driving. Bottom line.

Understanding the nature of cell phone addiction is the starting point for fixing the problem.



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# | Introduction to Cell Phone Addiction



We are quite literally **addicted to our cell phones**. This is especially dangerous, and potentially deadly, when operating a motor vehicle. Not surprisingly, cell phone distraction is one of the leading causes of fleet accidents. Analysis of continuously-on driver safety apps shows that **34% of accidents** report the driver interacting with their phone in the 60 seconds leading up to the accident. This is the greatest risk associated with unmanaged cell phone use.

This addiction is not the product of normal evolution or bad luck. It is an intentionally designed component of cell phones and phone apps that deliver a high degree of gratification to the user derived from interacting with their phones.

We cannot expect the problem to go away by just coaching and warning drivers not to use their phones. Stronger remediation is required. If not addressed in an optimal fashion, cell phone distraction will inevitably be the cause of an increasing percentage of fleet accidents.

# Underreporting of phone distraction as the leading cause of crashes

The addiction to our phone's is directly implicated in a high percentage of vehicle accidents. The problem is greatly underestimated since seldom will a driver admit that they were distracted by their phone during an accident. From a legal perspective, drivers will not willingly expose themselves to possible legal consequences and litigation by even acknowledging that they were distracted by phone use at the time of an accident.

Most official and government reporting is based on after-the-fact accident reports. Official statistics therefore drastically underestimate the use of cell phones while driving. A basic idea of fleet safety technology is that you can't fix what you can't measure. We clearly haven't measured the impact of cell phone distraction accurately in the past.

One of the issues impeding implementation of technology to fix this issue is underestimating the magnitude of the problem. However, with the help of data from recent telematics studies and insurance claims patterns, insurers and fleets are starting to recognize that fixing the phone distraction problem will move the needle most significantly in reducing commercial auto claims and improving fleet insurability.

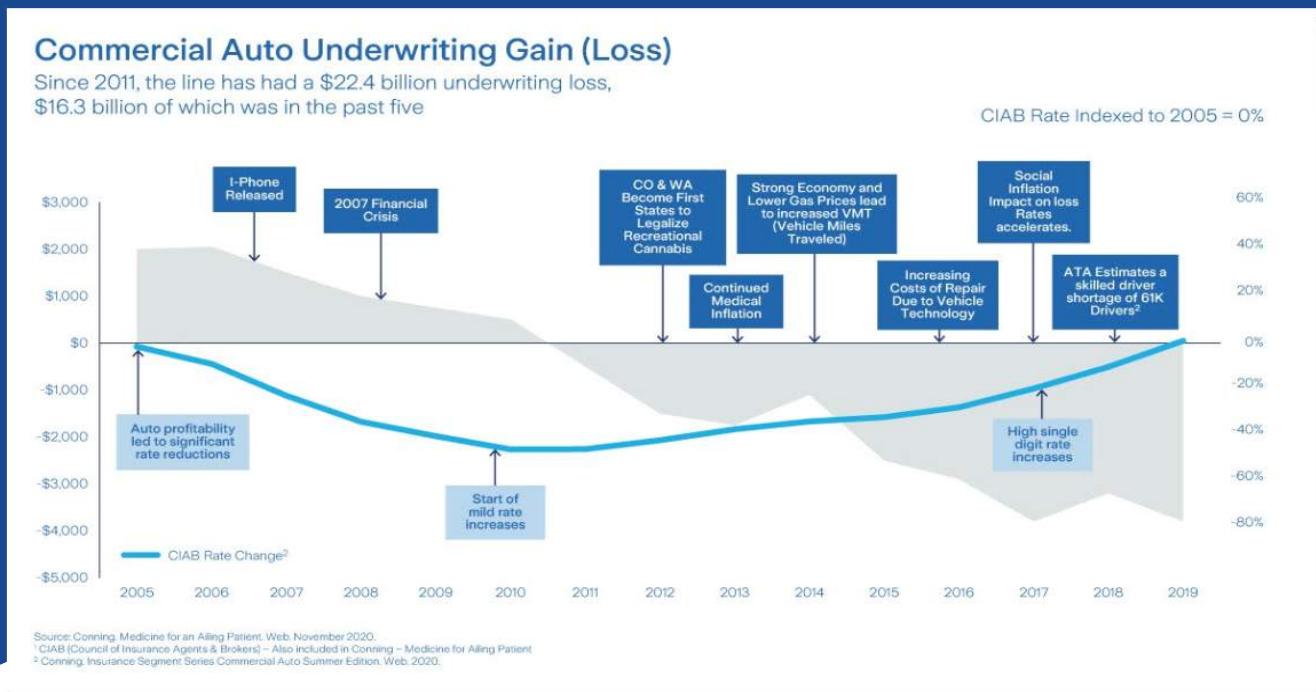


For example, a recent [study](#) by Zendrive contends that 57% of accidents involve cell phone use. Similarly, in another recent report, Cambridge Mobile says that [34% of all accidents](#) report phone interaction within one minute of an accident happening. No other driver behavior comes close to this level of risk.

Insurers report that the #1 cause of auto claims are rear-end collisions. Given that rear-end collisions are caused by taking your eyes off the road, what is causing people to take their eyes off the road during every time they get on the road? It's not eating or spilling coffee or changing the radio station or looking at the back seat to check on your kid. It's the phone.

# A more accurate view of the cell phone distraction problem

A more reliable figure would be gained from looking at the results of using phone apps to report phone use while driving. Phone apps can continuously measure not just vehicle motion and momentum changes, but also movement of the phone within the vehicle and the handling and manipulation of the phone itself. Conclusions from phone app data are based on millions of drivers across billions of miles and the reconstruction of tens of thousands of accidents. Studies that continuously evaluate phone movement and screen interaction found that dangerous phone usage was far greater (100x) than previously thought.



Source: Conning, Medicine for an Ailing Patient, Web, November 2020

## The impact of crash frequency and severity on commercial auto profitability

Commercial fleets are suffering from rapidly escalating insurance costs and insurers struggle to achieve profitability because of ever-increasing accidents. The cell phone distraction problem is a relatively new phenomenon. While there have been great strides in fleet safety approaches and technology, the problem of phone distraction is not getting better.

# Looking at the Science

Cell phones are a relatively new phenomenon that has grown dramatically, accelerated by the release of the iPhone (2007). By conservative estimates, 2 out of every 3 people in the world currently use a cell phone—with the highest rate being in the US. Not only has cell phone use increased, but ever-advancing functionality has led to increased time-on-phone per person.

Phone-use distracted driving is driven by the technologists who intentionally develop apps to deliver a feeling of satisfaction and social connectedness. These apps are also designed to keep us engaged to maximize revenue. Our need for instant gratification is based on science—namely that these feel good interactions drive the release of dopamine, “the feel-good drug”.

Cell phone interaction stimulates the release of dopamine, the “feel good” drug. Because so many people use their phones to derive social interaction,

they become accustomed to constantly checking them for that hit of dopamine that's released when they connect with others and receive app notifications.

Let's take a quick step back and address dopamine. Dopamine is a chemical produced by our brains that plays a starring role in motivating behavior. It gets released when we take a bite of delicious food, when we have sex, after we exercise, and, importantly, when we have successful social interactions. In an evolutionary context, it rewards us for beneficial behaviors and motivates us to repeat them.

Smartphones have provided us with a virtually unlimited supply of social stimuli, positive and negative. Every notification, whether it's a text message, a “like” on Instagram, a subtle buzz, a push notification on TikTok, or a Facebook notification, has the potential to be a positive social stimulus and dopamine hit.

## Exploiting the addiction for business gain

### 2007 gathering of scientists/business exploitation

It didn't take long for scientists to figure out how to apply game theory (why are slot machines so fun?) to an understanding of behavioral motivation. It became clear that interacting with our phones had the potential to deliver a sense of immediate gratification. The gratification of interacting with phones and apps could clearly be channeled to motivate behavior of constant interaction with the phone.

But critics say that companies like Facebook have taken advantage of these psychological principles to capture human attention. Especially in advertising-supported businesses where more time spent on the app equals more profit. This allows

designers to optimize for values that don't always align with their users' well-being.

Because most social media platforms are free, they're reliant on revenue from advertisers to make a profit. This system works for everyone involved at first glance, but it has created an arms race for users' attention. Ultimately, the winners of this arms race will be those who best use their product to exploit the features of the brain's reward systems. If you pay attention, you might find yourself checking your phone at the slightest feeling of boredom, purely out of habit. Programmers work very hard behind the screens to keep you doing exactly that.

## What we've learned about phone addiction

B.J. Fogg, who runs the **Persuasive Technology Lab** at Stanford, focuses on how to harness technology and human psychology to influence people's behavior. Fogg's behavioral model answers one of product designer's enduring questions: how do you keep users coming back? As a former VP at Facebook puts it, "The short-term, dopamine-driven feedback loops that we have created are destroying how society works." In the end, smartphones and the social media apps they support are turning us into bona fide addicts.

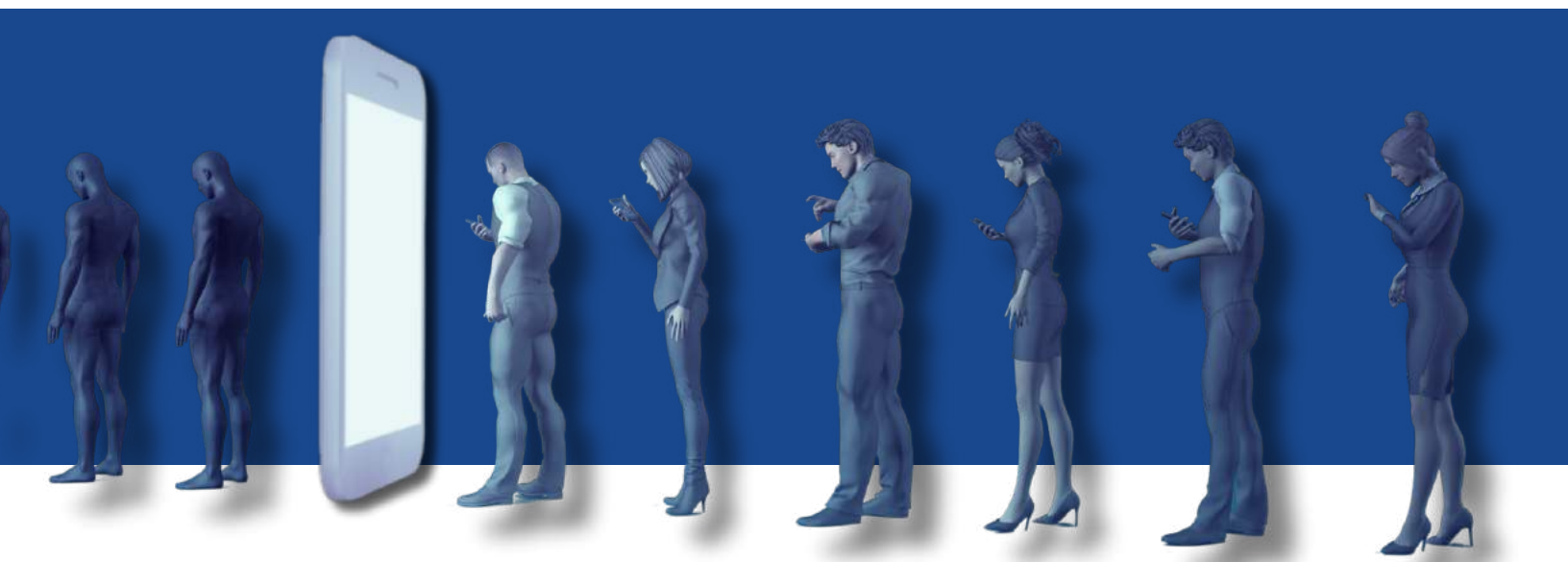
"The short-term, dopamine-driven feedback loops that we have created are destroying how society works."

-Former VP at Facebook

While it's easy to dismiss claims like these as hyperbole, platforms like Facebook, Snapchat, and Instagram leverage the very same neural circuitry used by **slot machines** and cocaine to keep us using their products as much as possible. Although not as intense as a hit of cocaine, positive social stimuli will similarly result in a release of dopamine, reinforcing whatever behavior preceded it.

Tristan Harris, one of the most vocal whistleblowers of tech's manipulative design practices (and a graduate of Fogg's lab), has grappled with this idea. In 2012, while working at Google, he created a **144-slide presentation** called "A Call to Minimize Distraction & Respect Users' Attention." The deck, which outlined ways in which small design elements like push notifications can become massive distractions at scale, went viral within the company. Over 5,000 Googlers viewed the presentation, which Harris parlayed into a job as Google's first "design ethicist." Harris, who recently co-founded the Center for Humane Technology, has become one of the most outspoken critics of how devices are intentionally made to hook users at the cost of their time and comfort. Some of his **alternative designs** illustrate what a different app ecosystem could look like — where health and time are prioritized over constant engagement.

Cognitive neuroscientists **have shown** that rewarding social stimuli—laughing faces, positive recognition by our peers, messages from loved ones—activate the same dopaminergic reward pathways. Smartphones have provided us with a virtually unlimited supply of social stimuli, both positive and negative. Every notification, whether it's a text message, a "Like" on social media, or a notification alert, has the potential to be a positive social stimulus and dopamine influx.



# What happens when our phone beeps?

In the late 1800s, Russian psychologist Ivan Pavlov originally set off to study canine digestion. But one day, he noticed something peculiar while feeding his dogs. If he played a sound — like a metronome or buzzer — before mealtimes, eventually his dogs started to associate the sound to mean that food was coming. The dogs actually started drooling when they heard the sound, even if no food was around. Hearing the buzzer had become pleasurable.

That's exactly what's happening with smartphones. Whenever our phone beeps we react like Pavlov's dog—we anticipate an emotional reward. Having responded to these stimuli thousands of times has taught us that a good feeling of gratification will be the end result. This is because our brains crave the gratification of dopamine. After thousands of such experiences, we have become programmed to know that interacting with our phones will make us feel better.



## Where does LifeSaver Mobile fit into this picture?

The LifeSaver Mobile solution restricts unauthorized mobile device usage so the temptation to multitask is no longer available. This means that the mitigation of risk must involve something more than simply identifying it — especially when the technology is available to effectively manage cell phone usage while driving. Effective cell phone compliance means that the fleet driver does not look at the phone, does not handle or touch it, and does not concentrate on it.

Having reviewed the deep rooted science behind cell phone addiction, it makes sense that most humans have a tough time ignoring the constant notifications of the cell phone. This becomes potentially disastrous while operating a multi-ton motor vehicle. Legislation, driver training and even deterrence through cameras can help, but the most effective approach is to remove the temptation altogether.



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