

Driving Under the Influence

The Insurance of Distracted Driving

CAS Annual - November 2019

Meeting Agenda

- : What is the problem?
- : Counter measures
- : Sources of distraction
- : Continuous evolution

DISTRACTED DRIVING

What is the problem?



A heated controversy between legislators and insurance companies—and radio manufacturers and car radio owners.

Radio-Craft magazine, June 1935



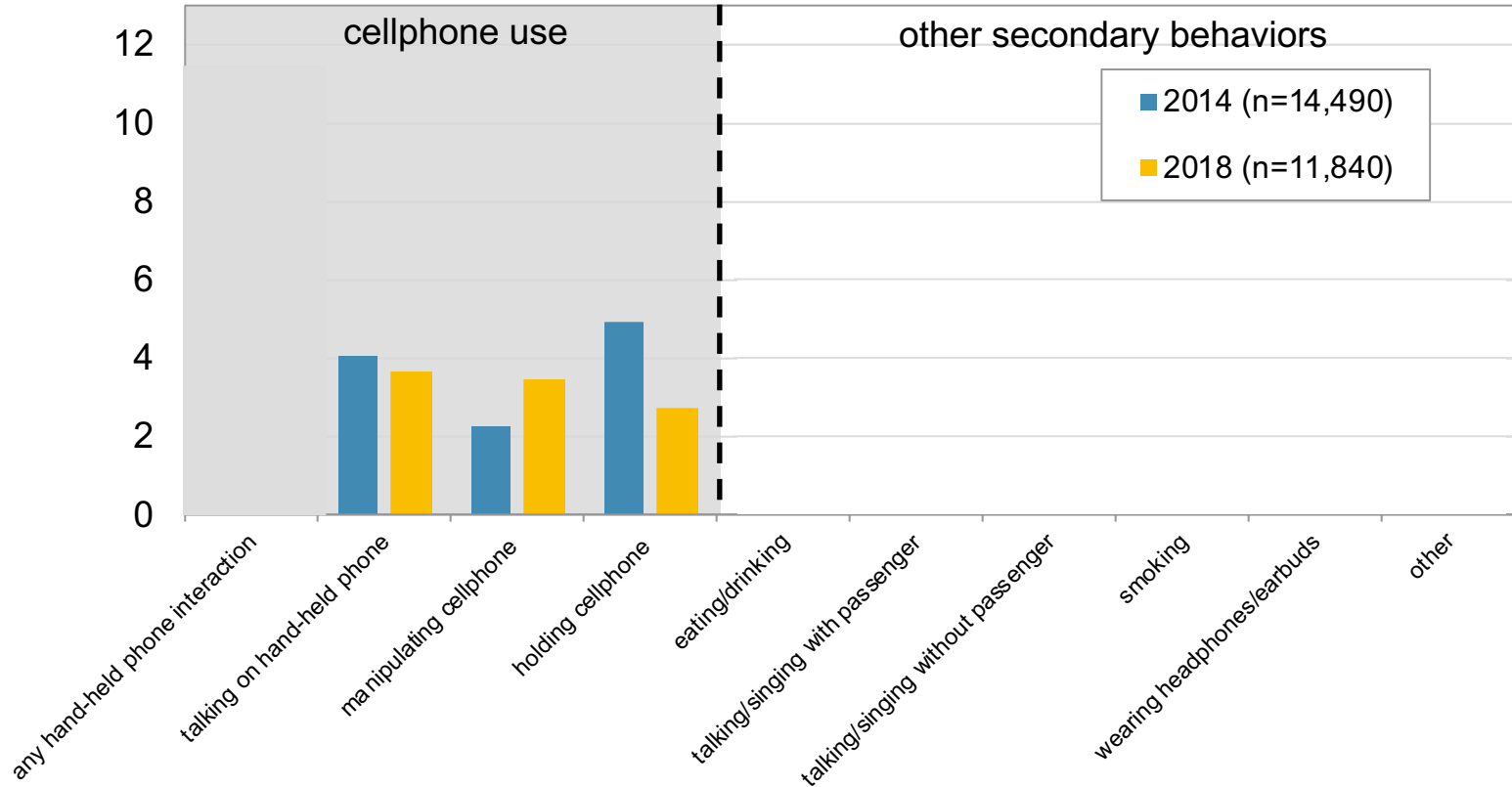
P. BYRNES.

"I was reading the anti-texting billboard."

The New Yorker, October 2016

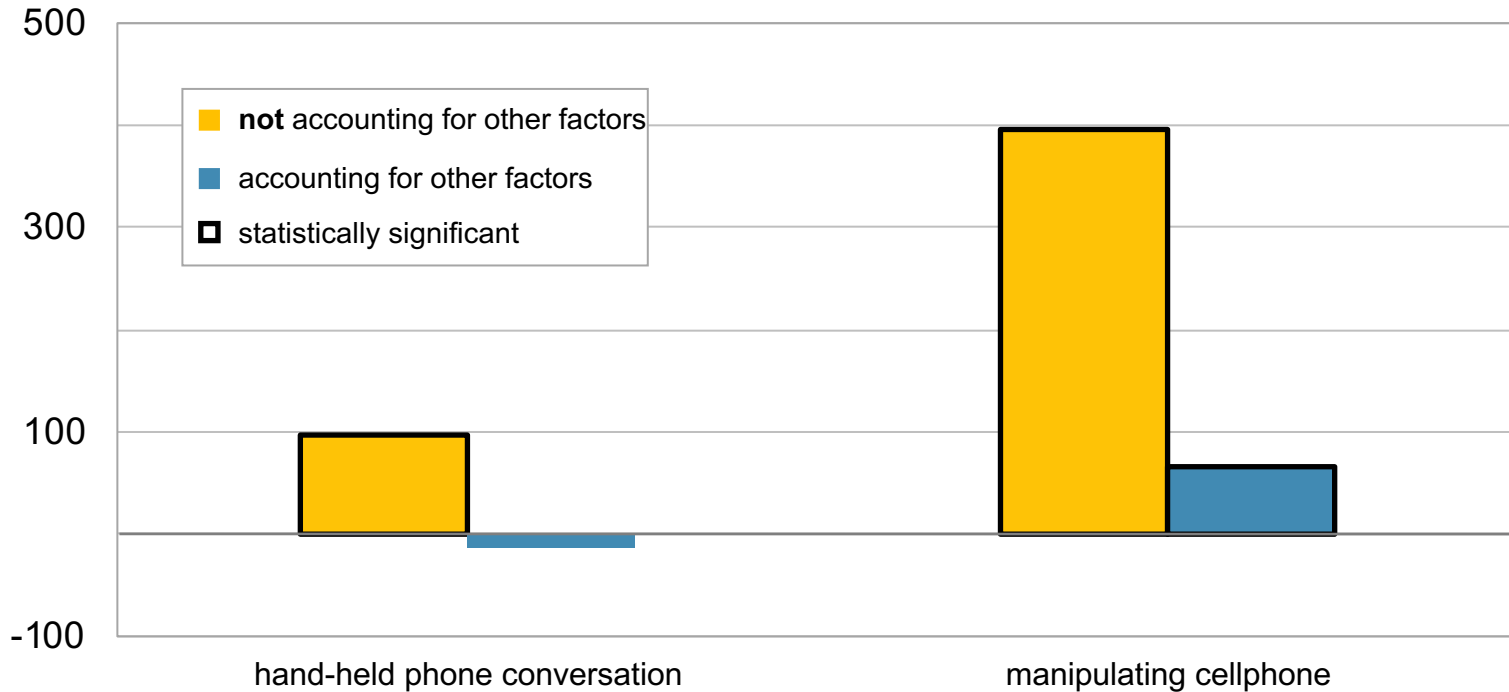
Overall phone use decreased between 2014 and 2018 and the way drivers were using a phone changed

Percent of vehicles observed during the daytime, by year



Percent change in minor or police-reportable crash risk associated with cellphone use in SHRP2 data

Risk decreased when considering other distractions, differences between drivers and driving conditions



Fatalities that could have been avoided in 2014 and 2018 if no drivers were manipulating phones

Applying crash risk estimates to observed behavior

	2014	2018
total fatalities	32,675	37,150
percent of total fatalities that could have been avoided	1.5%	2.2%

Impact to insurance industry

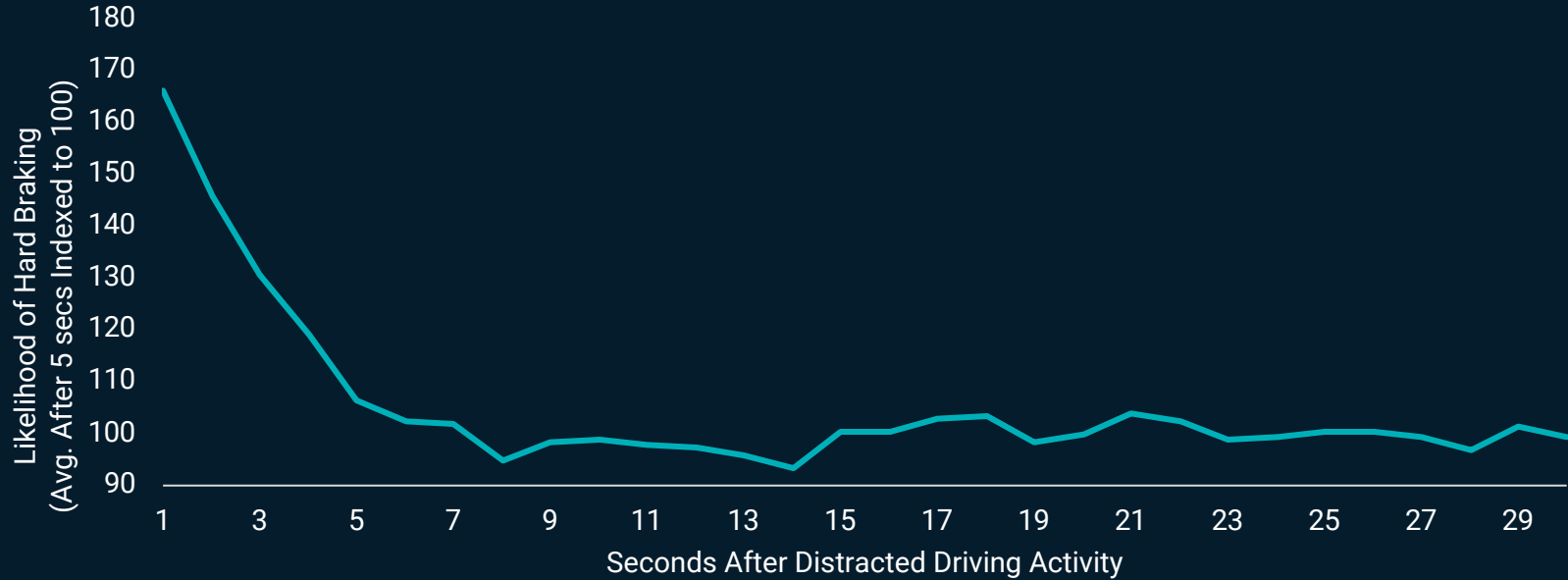
3x

increase in estimated auto
losses attributed to distracted
driving since 2011

\$9B

estimated annual cost to
insurers

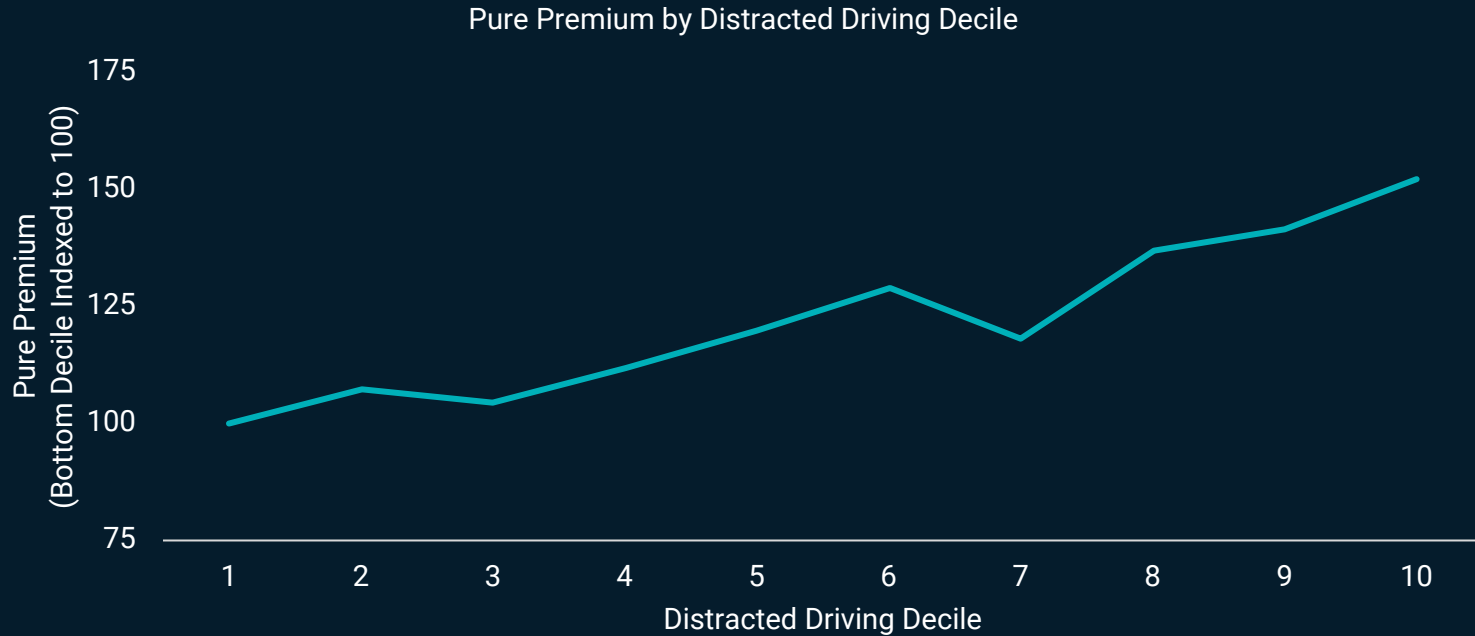
Sudden braking increases significantly after using phone



Source: Arity analysis

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The most distracted drivers have loss cost 1.5x higher



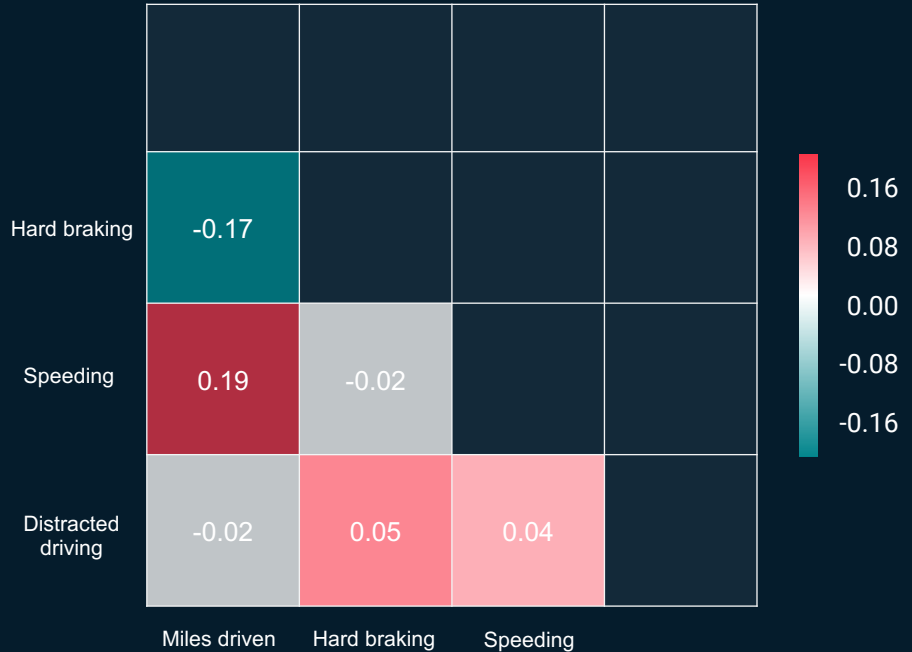
Source: Arity

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Distracted driving - a unique risk

only 18%

of variation in distracted driving can be explained by miles driven, braking, and speeding behavior



Consumer awareness

23%

reported being in an accident caused by distracted driving

61%

of young drivers engage in phone use like texting & watching videos

98%

report seeing others distracted

4%

have been issued a ticket

Source: Arity survey

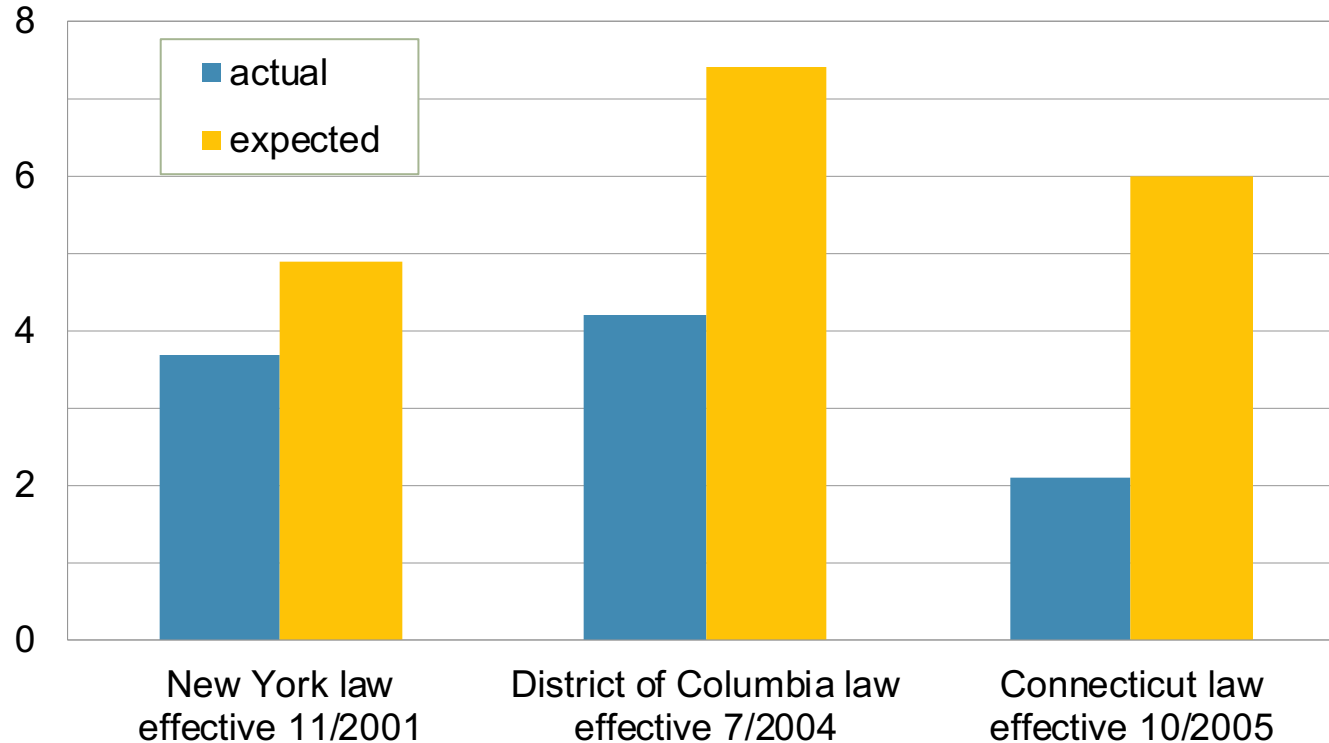
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DISTRACTED DRIVING

Counter measures

Actual hand-held phone use less than what would be expected without hand-held cell phone bans

Percent phone use, April 2009



Distribution of smartphone owners reporting use of hands-free vs. hand-held cellphones, IIHS 2018 national survey

Hand-held cellphone bans still affect behavior today, despite widespread hands-free phone use

	states with hand-held bans	states without hand-held bans
only talk hands-free	63%	50%
sometimes talk hands-free	9%	19%
only talk hand-held	6%	12%
never talk while driving	23%	18%

DISTRACTED DRIVING

Sources of distraction

Distraction behind the wheel takes many forms



In-dash controls



Stress



Sleep deprived



Texting

...but we are going to focus on mobile

96%

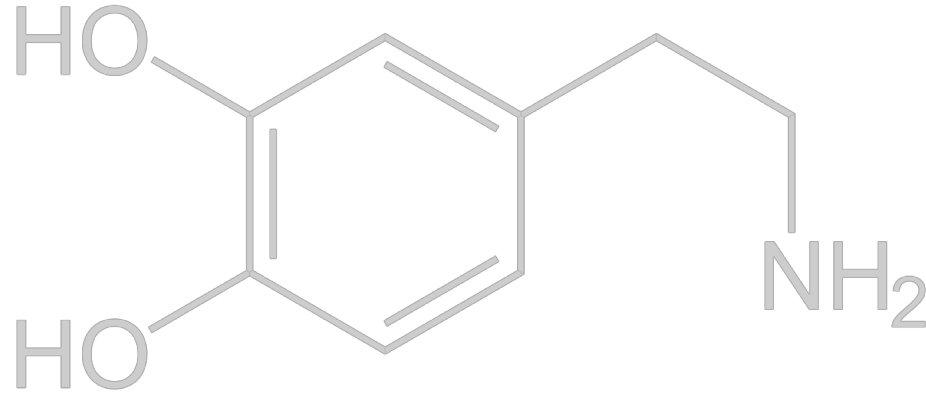
Estimated percent of people
who own a cellphone in the US

21

Of top 25 insurers have
mobile telematics programs

do·pa·mine

neurotransmitter that helps control the brain's reward center



look at
your phone



dopamine
increases



you feel
happy

dopamine
decreases




We're compulsively checking for the next 'big reward'



11:10 📶 🔋

arityofficial ⋮



138
posts

281
followers






27
following

Message

Arity
Information Technology Company


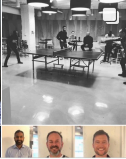

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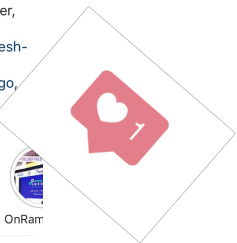
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Email Directions



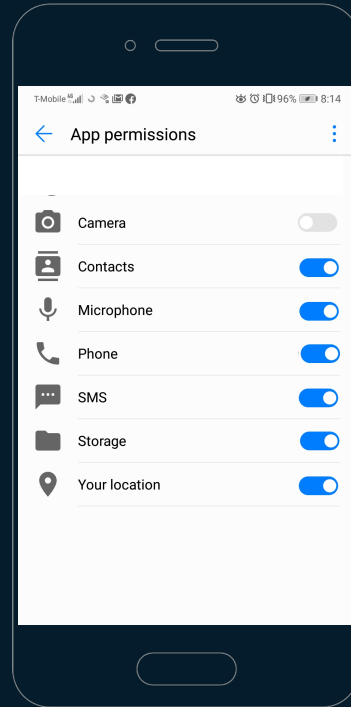


Leveraging the operating system information

- : Unlock/lock
- : Incoming/outgoing call
- : Incoming call connected
- : Bluetooth connected
- : Headphone connected
- : Incoming and outgoing messages
- : Docking

Being a guest on your customer's phone

- : Motion & fitness (iOS)
- : Bluetooth (iOS)
- : Phone (Android)
- : SMS (Android)
- : Microphone



NATURALISTIC DISTRACTED DRIVING

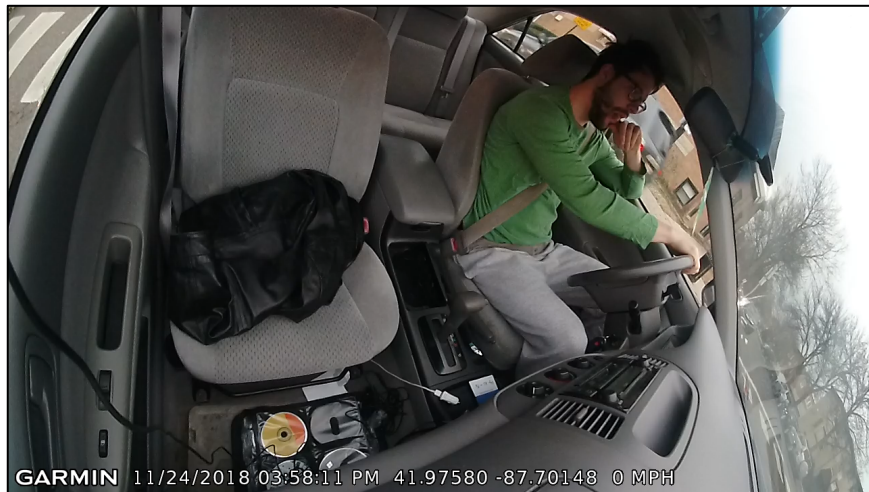
Capture distracted driving data
in a naturalistic setting

Leverage video data as a reliable
source of truth



What We See Vs. What the Neural Network Sees

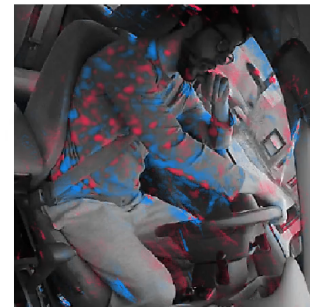
What We See



What The Algorithm Sees

An algorithm is used to isolate the region of interest.

The red and blue colors show regions that excite the neural network the most



** The distracted driving depicted in these videos is entirely contradictory to the intent of this presentation. Please don't do it.



Tristan Harris

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TimeWellSpent.io // Ex-Google Design Ethicist // CEO of Aapture (acquired by Google) // Philosopher // Entrepreneur // Friend // Human.

May 18, 2016 · 16 min read

How Technology is Hijacking Your Mind— from a Magician and Google Design Ethicist

Thrive Global Journal, 2016



Independent, 2017

Empowering Design; (Ending the Attention Economy, Talk #1)

3 years ago | [More](#)

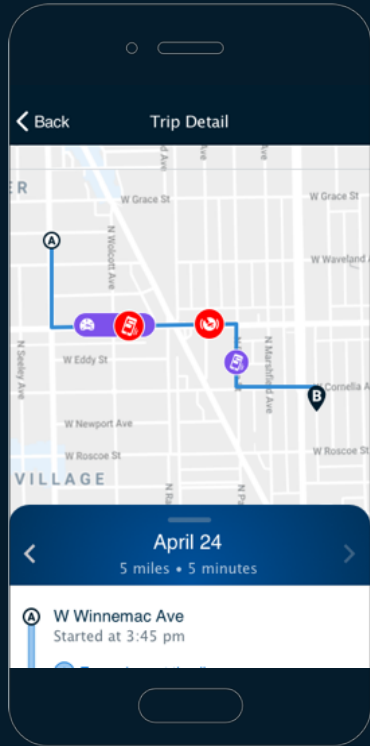


Joe Edelman [PLUS](#)

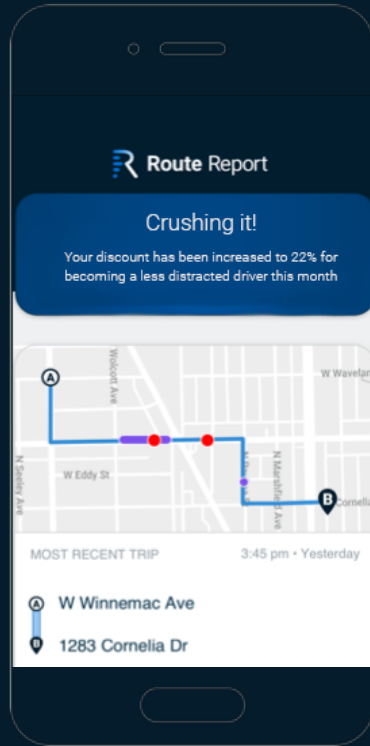
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Vimeo, 2015

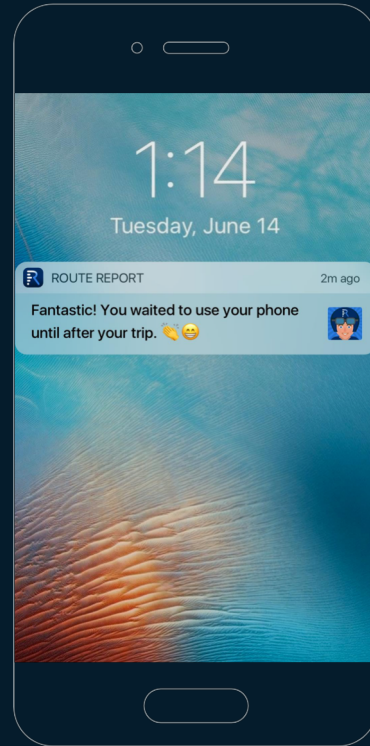
Make it available



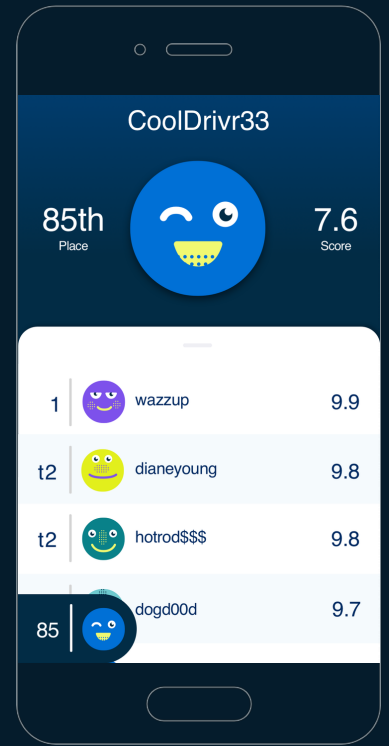
Make it personal



Make it a habit



Make it competitive



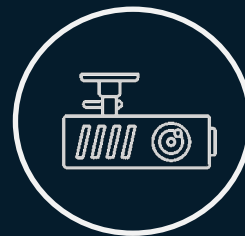
Beyond mobile



Irregular driving



Retina tracking

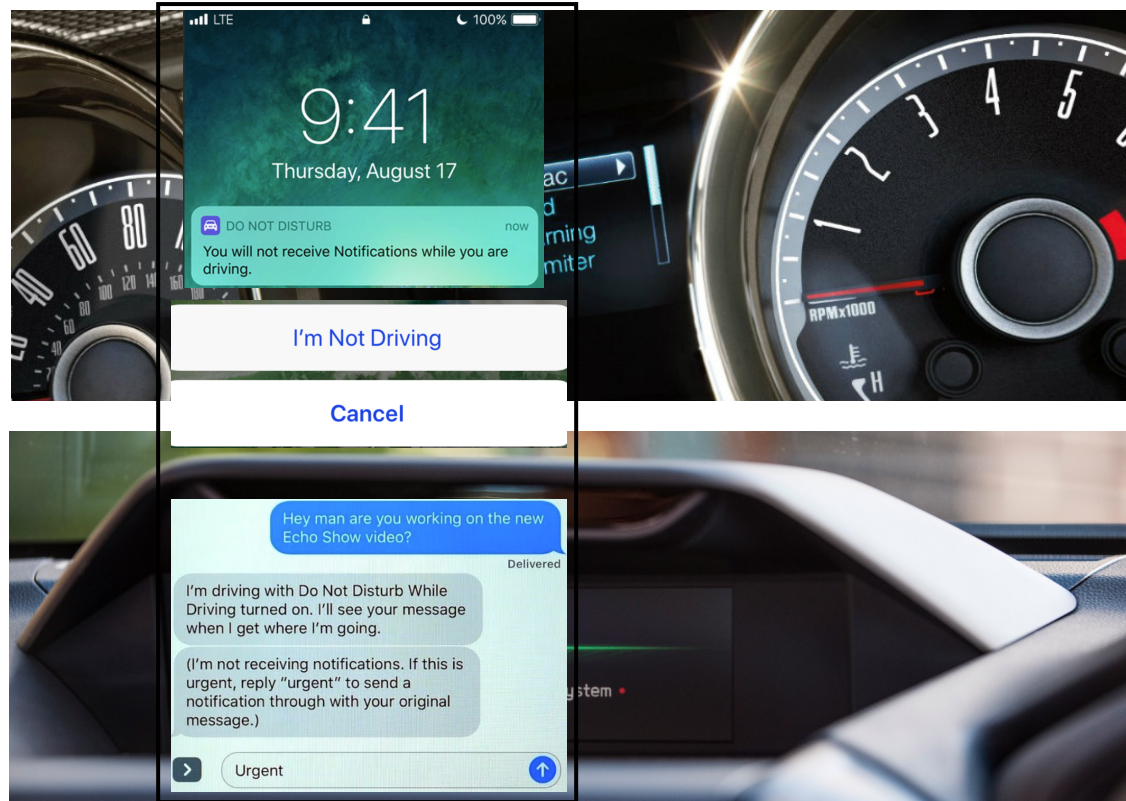


Dash cams

Technology solutions



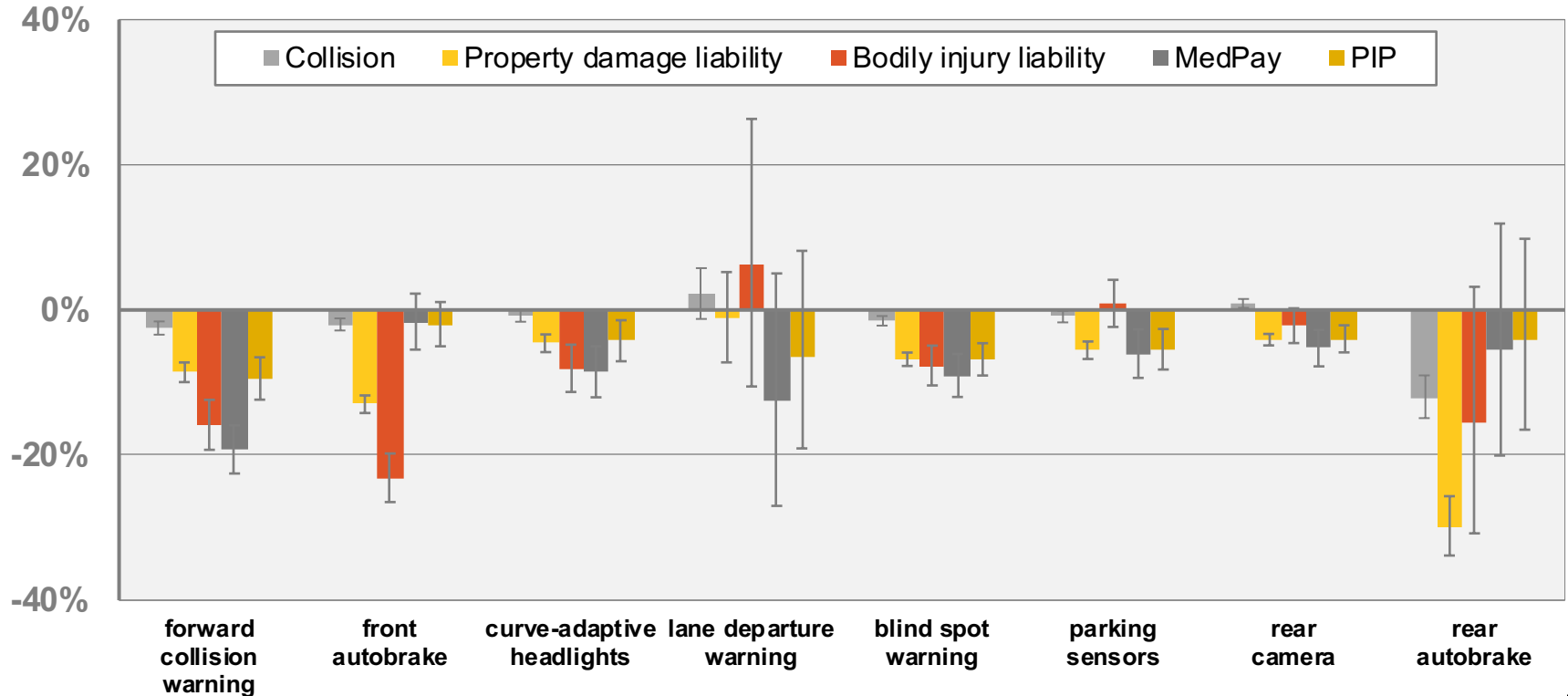
Mobile and vehicle technology can shape behavior





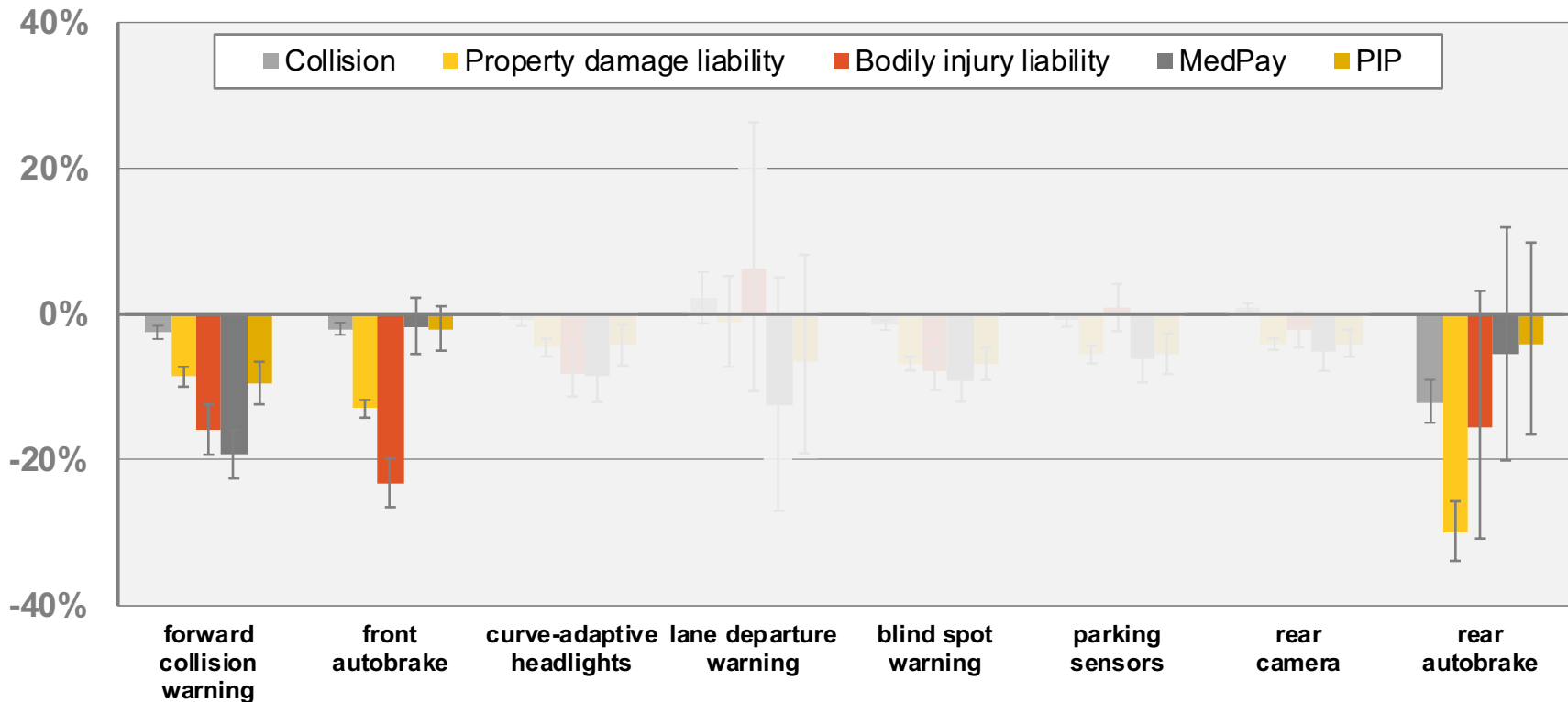
Effect of crash avoidance systems on claim frequency

Results pooled across automakers



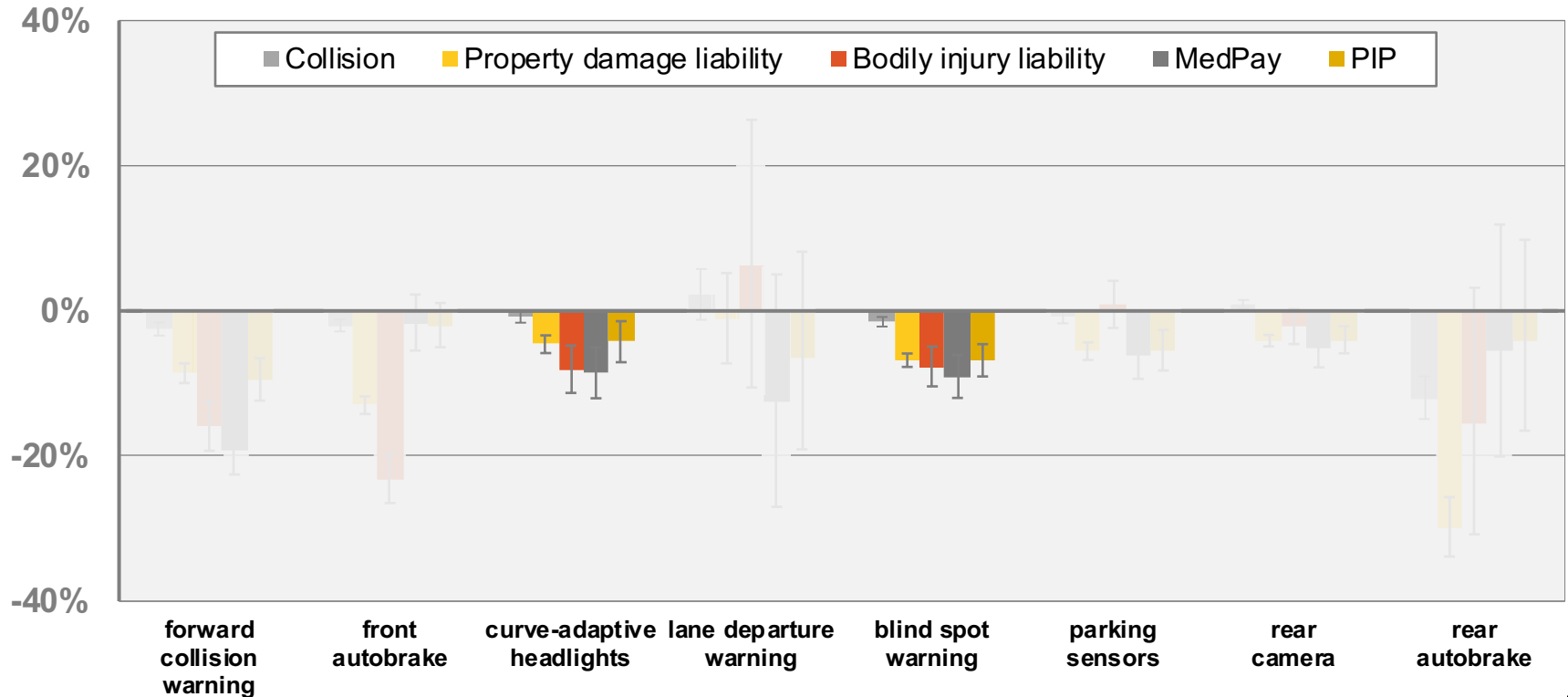
Effect of crash avoidance systems on claim frequency

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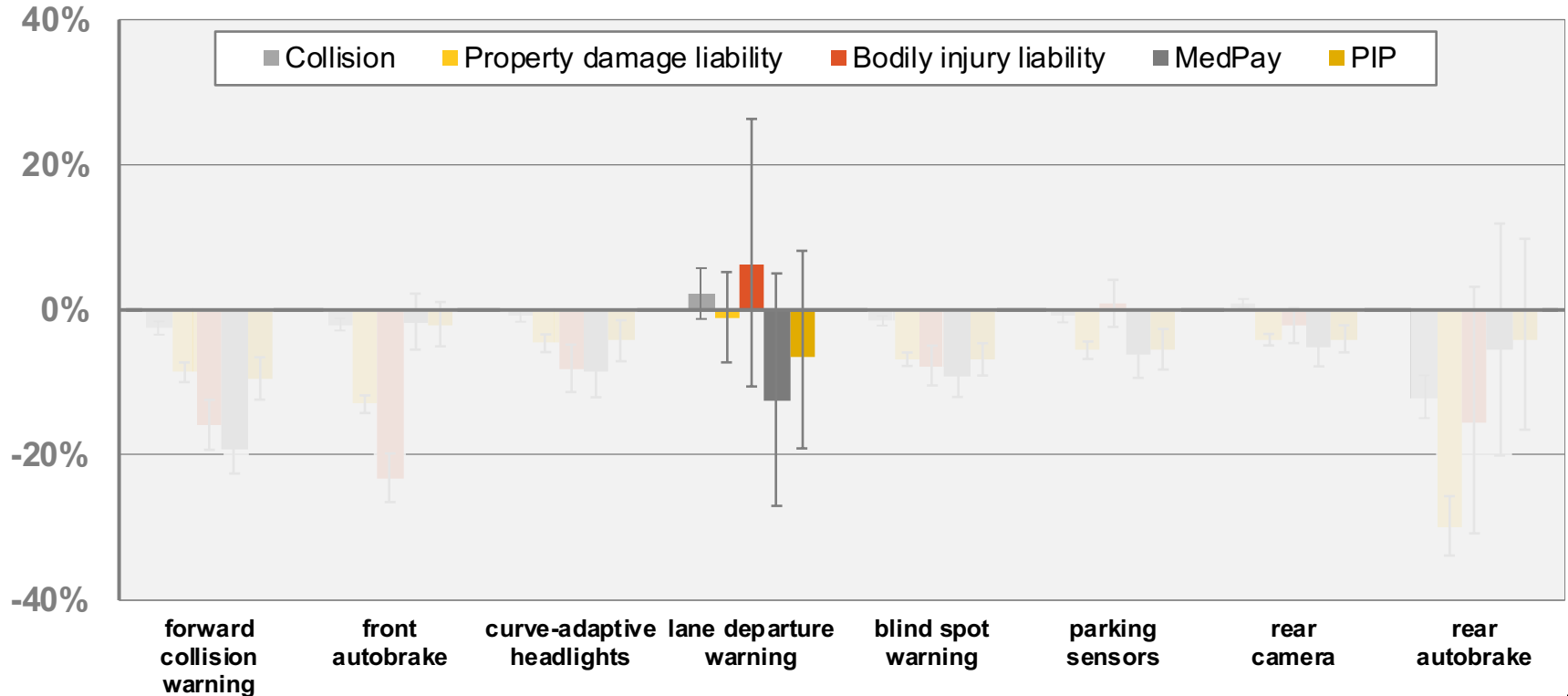
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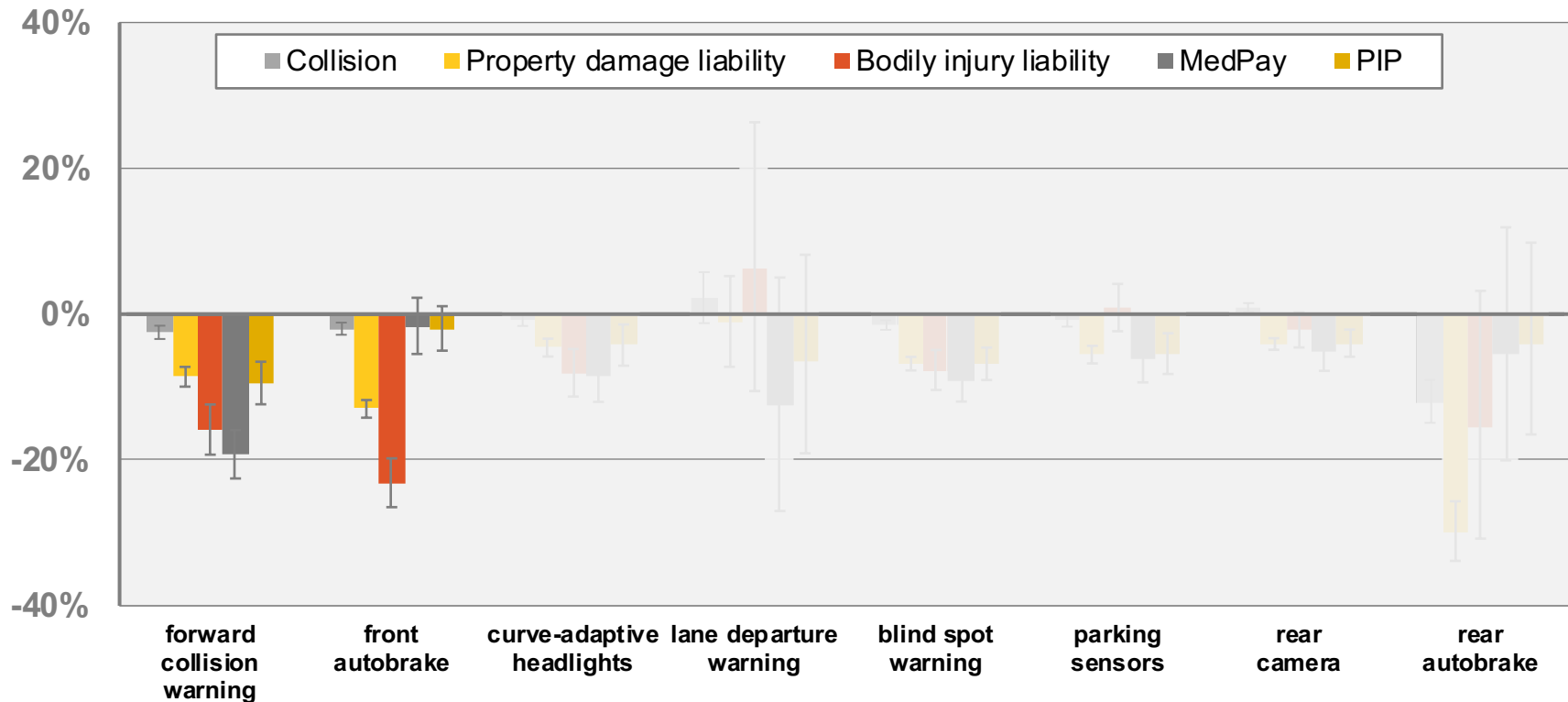
Effect of crash avoidance systems on claim frequency

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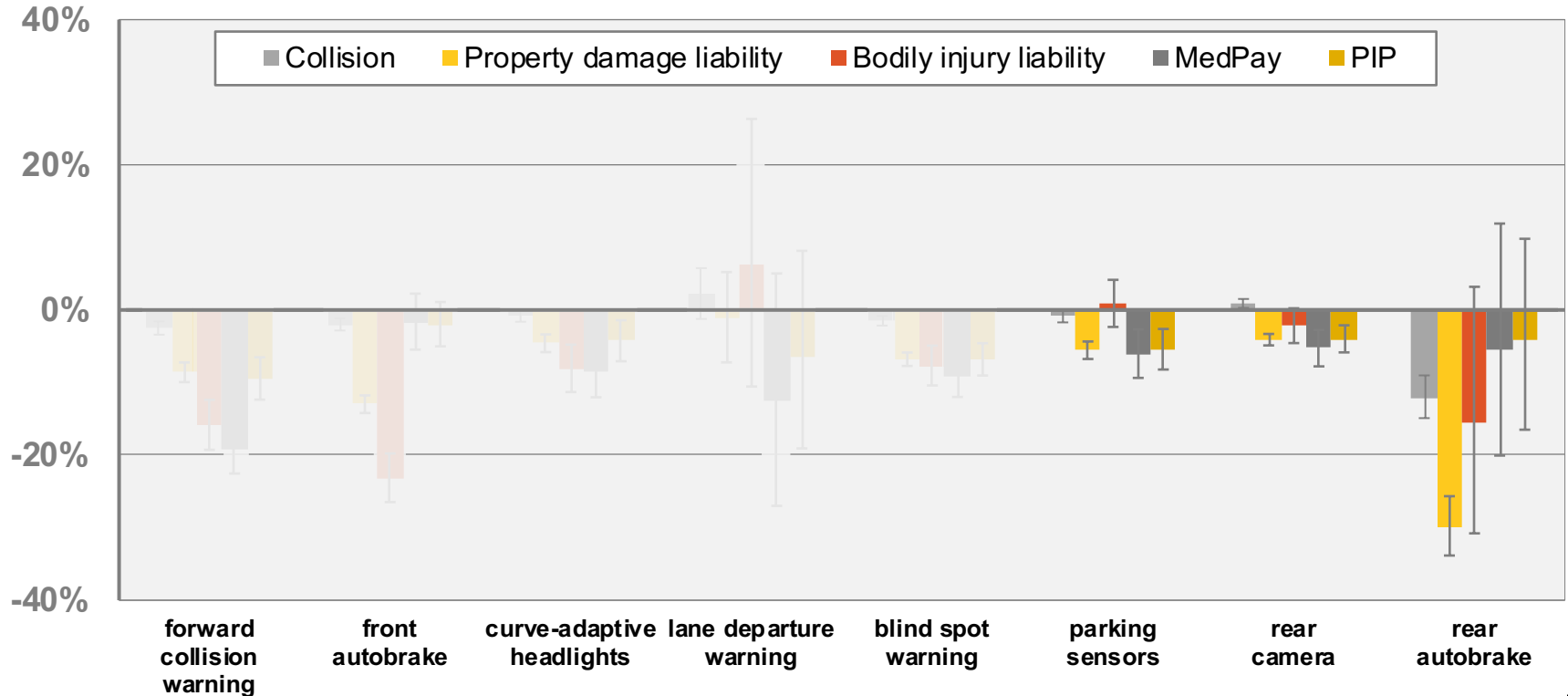
Effect of crash avoidance systems on claim frequency

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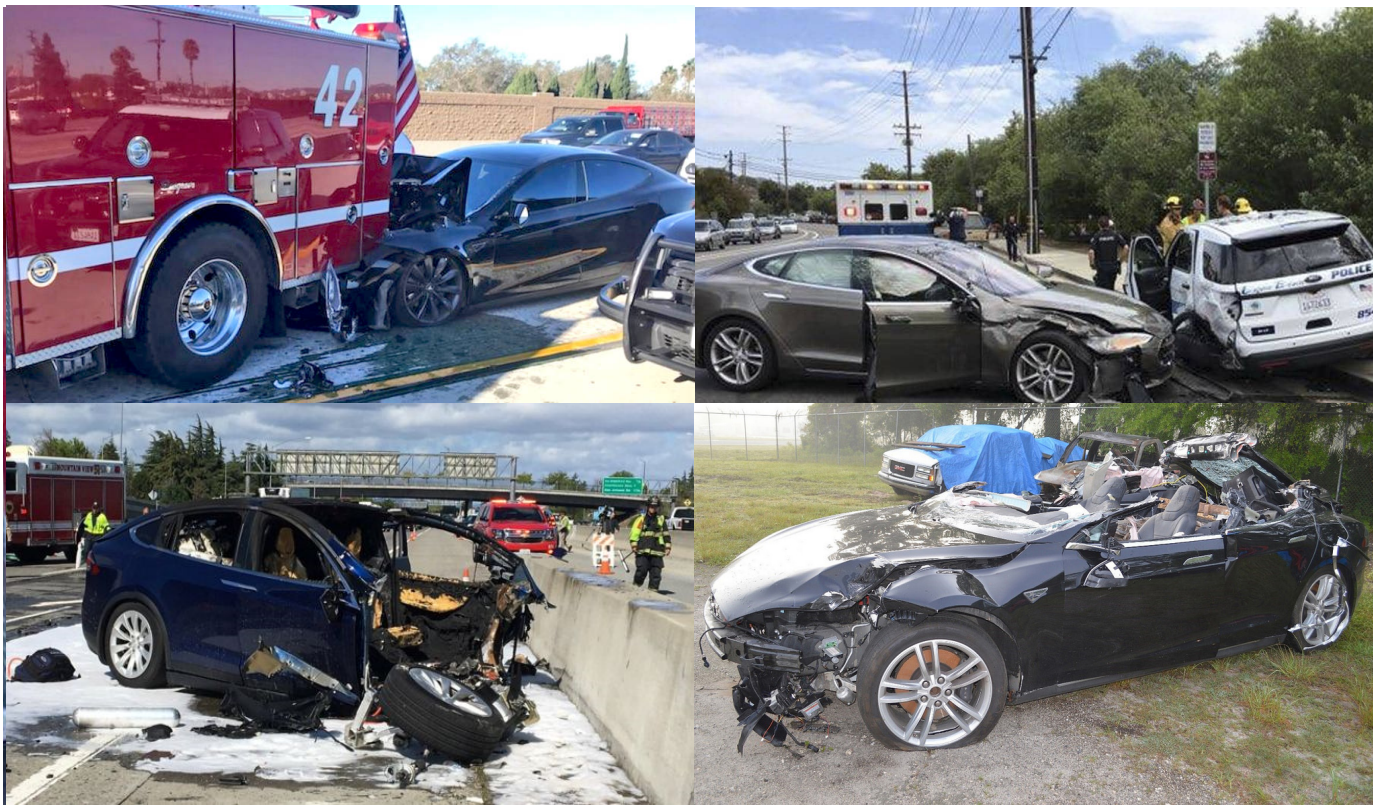


Effect of crash avoidance systems on claim frequency

Results pooled across automakers



Human-automation interaction



DISTRACTED DRIVING

Continuous evolution

- : Distracted driving is having a material impact on human behavior and insurance losses
- : Start with mobile and get ready for other influences
- : Stay committed

Thank you.

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