KPMG

cutting through complexity

Automobile Insurance in the Era of Autonomous Vehicles

Chris Nyce

Joe Schneider

Nate Loughin

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Automobile Insurance in the Era of Autonomous Vehicles

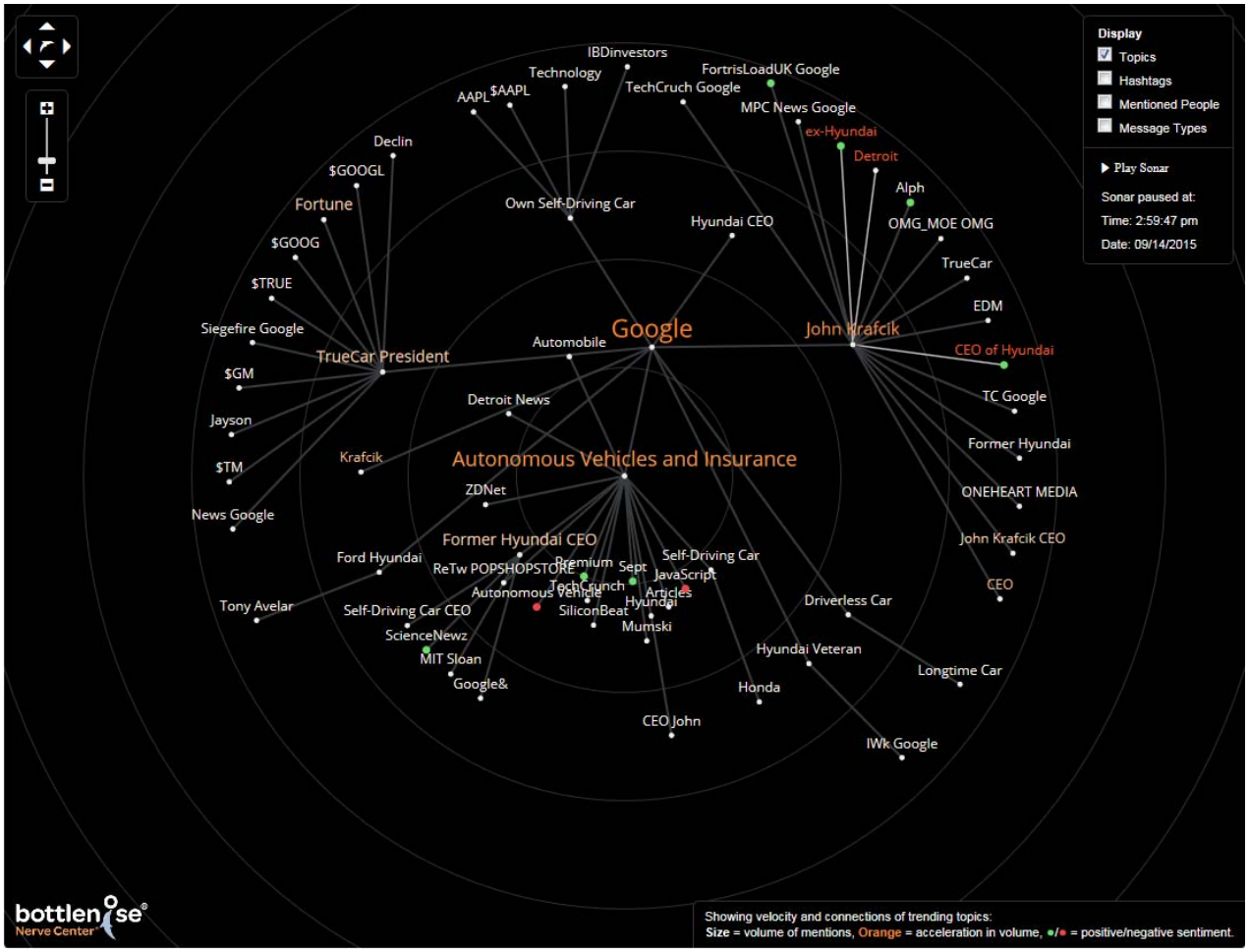
Presentation Overview

Autonomous Vehicles Ecosystem Update	**Notable happenings over the last year**
KPMG Autonomous Vehicles and Insurance Survey Results	**Feedback from carrier executives**
Consumer Acceptance	**How quickly will consumers adopt the technology?**
Regulatory Backdrop	**How regulators are reacting**
Implications for Insurers	**Potential impact on losses, premium and profitability**
Future State	**Potential leaders and changes in a new insurance landscape**
What Now?	**Preparing for the future**

Autonomous Vehicles Ecosystem Update

Autonomous Vehicles and Insurance Powered by Bottlenose

The conversation around autonomous vehicles and insurance continues to expand, with more and more players becoming involved



Source: Bottlenose as of September 14, 2015

Autonomous Vehicles Ecosystem Update

Rapid Autonomous Vehicle Advancement

Ford Research Center in Silicon Valley

Daimler Shows Off Concept Car

Tesla's Autopilot and Software Downloads and GM V2V Communication

Mcity Test Facility

Security and Safety: Jeep Hacking and Google Car Accidents

Source: Press releases and company websites

Four Phases of Transformation

No one has a crystal ball to predict the future pace of change. As we synthesized our analyses, we envision there to be four potential incremental changes to the transformation over the next 25 years, with the foundation laid for a "new normal" within a decade

"Training Wheels"

Now - 2017

Introduction to autonomous vehicles as manufacturers roll out some of the underlying technology. High-tech companies express interest in fast-tracking production of fully autonomous vehicles

"First Gear"

2017 - 2020

In 2017, partial driver substitution technology is introduced. A broader set of consumers experience this technology, witnessing firsthand its safety and soundness. This helps shift market perceptions. Potential mandate from NHTSA for V2V communications

"Acceleration"

2020 - 2025

Five years from now, fully autonomous all-speed vehicles become more common. V2V capabilities are likely to be embedded in all new vehicles and the increase in scale drives down costs, making the technology accessible to a larger segment of consumers

"Full Speed"

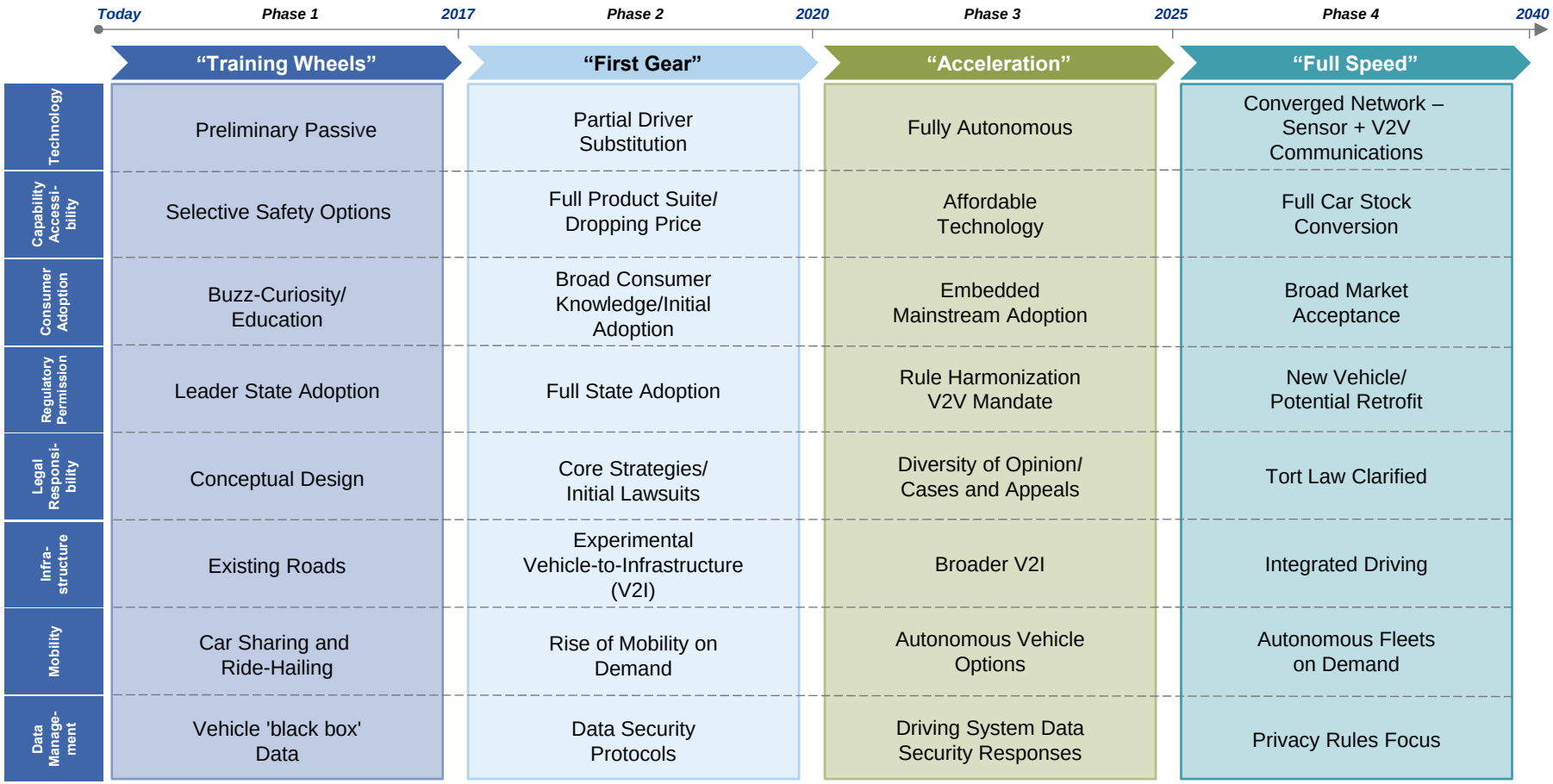
2025 - 2040

In 2025, a broad-based transformation begins. All new vehicles have autonomous capabilities and existing vehicles are potentially retrofitted. Over the next 15 years, integrated driving emerges, a web of information is flowing between vehicles, and infrastructure tightens. A "new normal" is realized by 2040

Autonomous Vehicles Ecosystem Update

Four Phases of Transformation

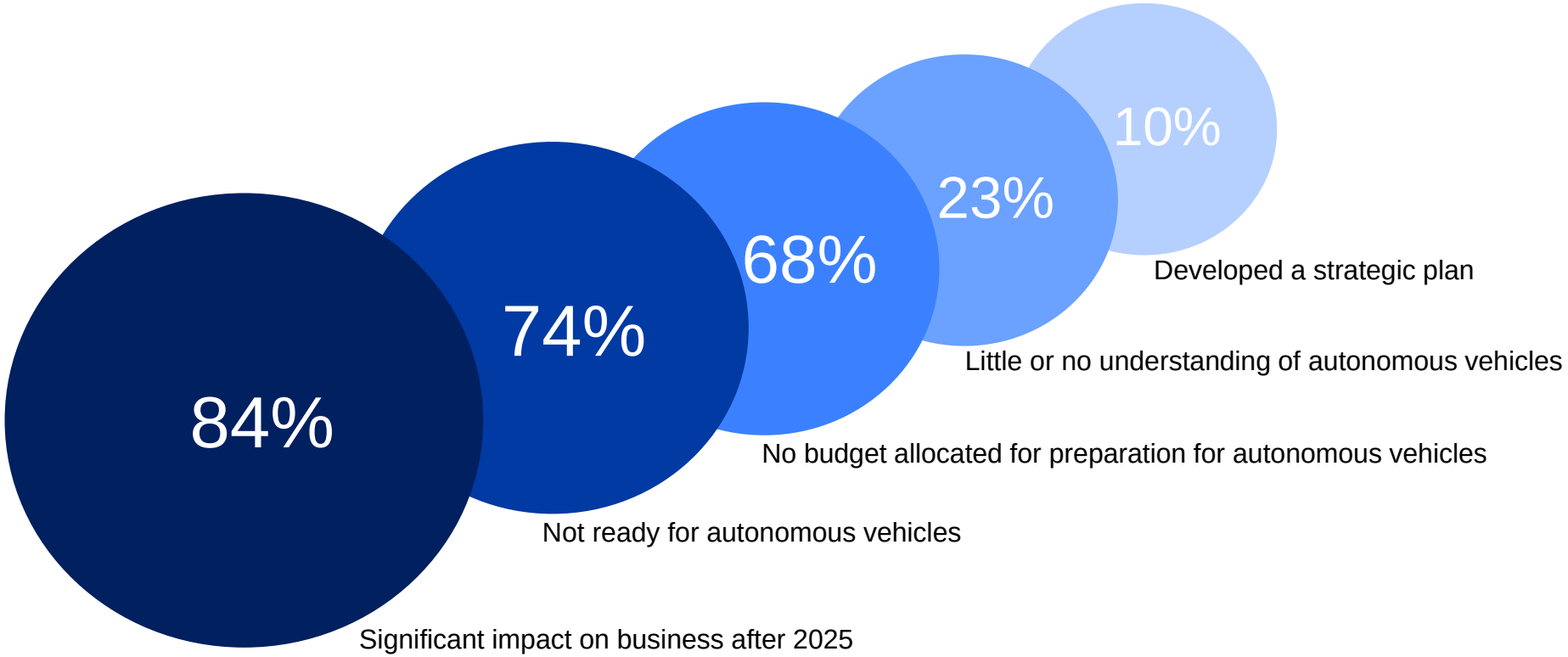
The interaction between the eight core elements will be an important dynamic, as advances in one area will likely act as a catalyst for rapid progress in the others. Ultimately, the alignment across all areas will be needed to realize wide scale change



KPMG Autonomous Vehicles and Insurance Survey Results

Executive Outlook on Autonomous Vehicles

Currently, there is significant skepticism among insurance leaders about the potential for autonomous vehicles to transform the industry - few insurers have taken action, most likely because many believe the change will happen far into the future, if at all

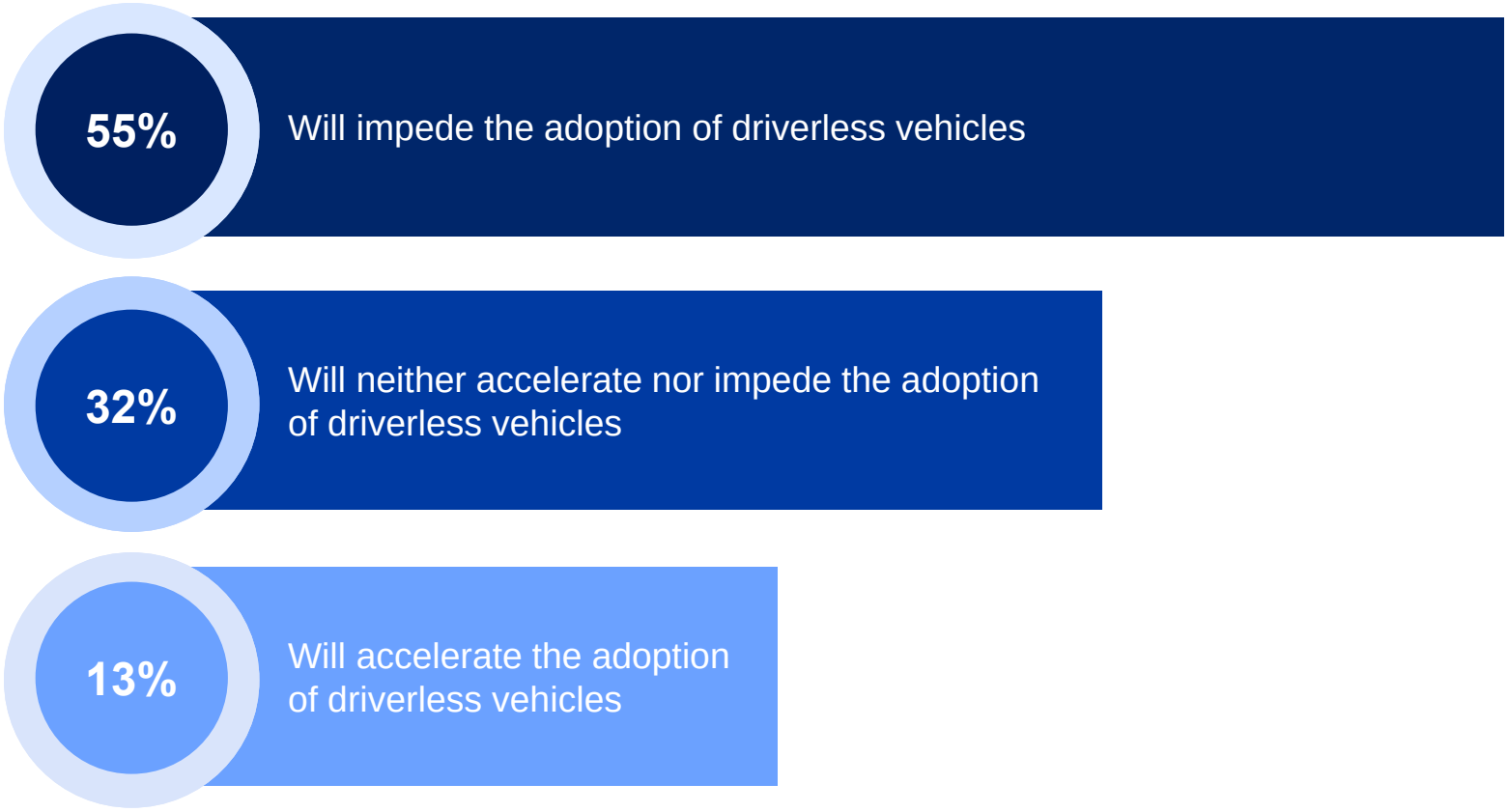


Source: KPMG LLP's 2015 Automobile Insurance in the Era of Autonomous Vehicles Survey Results

KPMG Autonomous Vehicles and Insurance Survey Results

Regulatory Impact on Adoption

More than half of the survey respondents expect regulators to impede the adoption of driverless vehicles



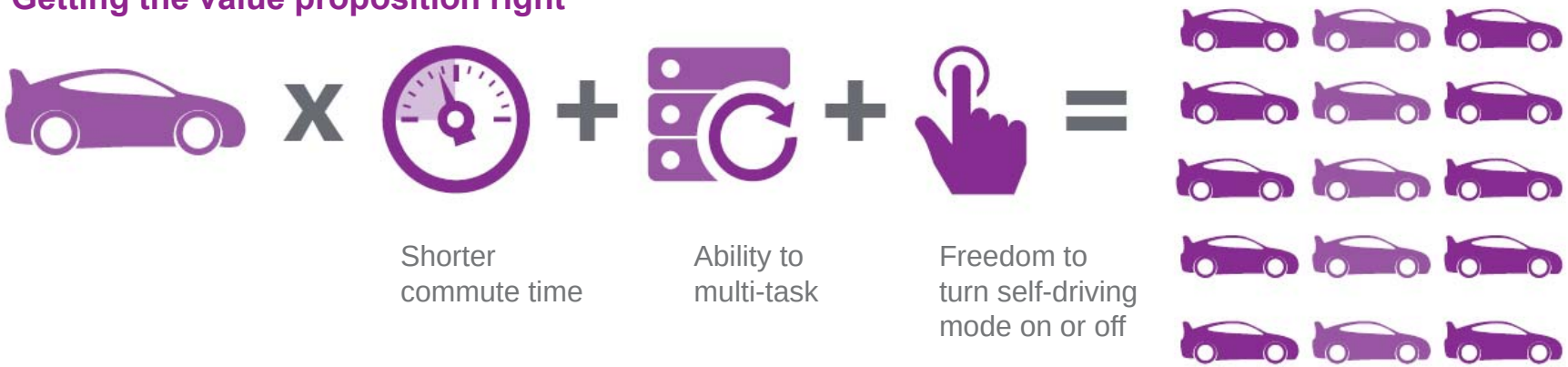
Source: KPMG LLP's 2015 Automobile Insurance in the Era of Autonomous Vehicles Survey Results

Consumer Adoption

The Value Proposition

Each driver has a unique value proposition, and autonomous vehicles offer broad appeal. Focusing on quality of life improvements will most likely result in consumer traction

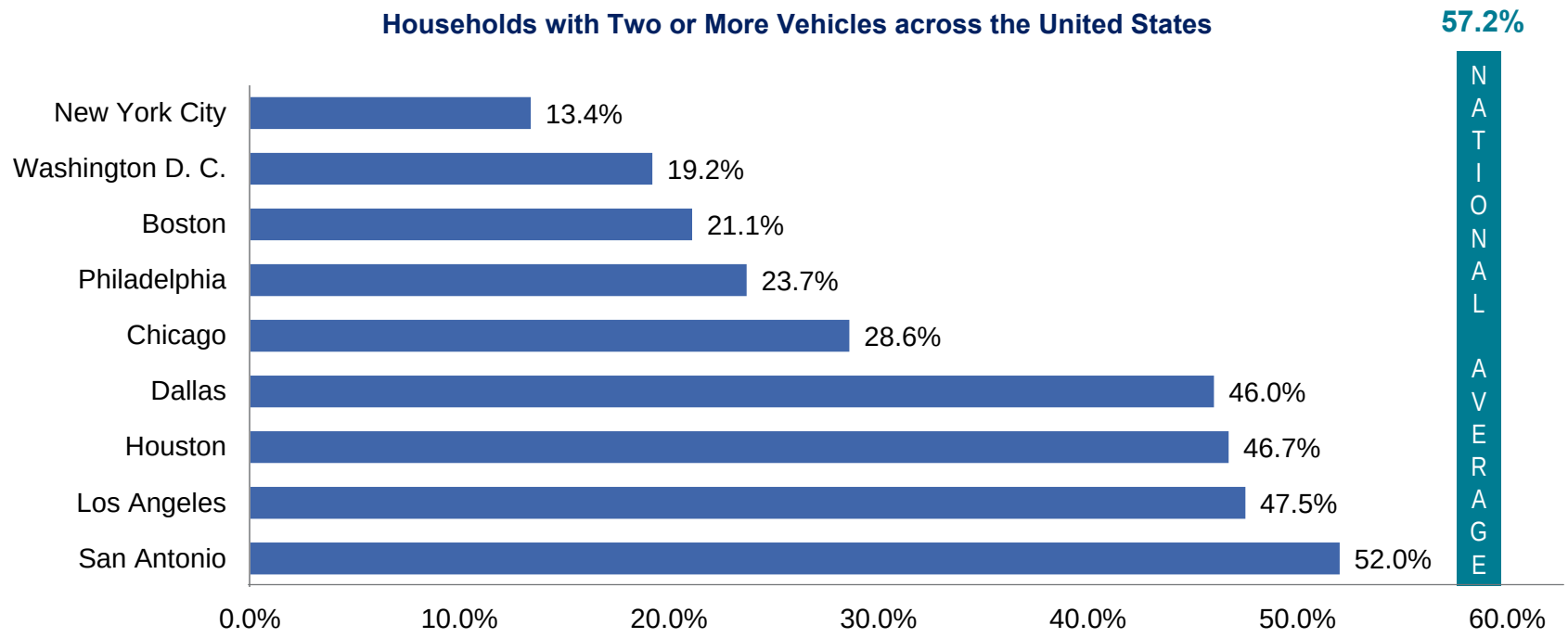
Getting the value proposition right



Consumer Adoption

Mobility Services

Car-sharing is now a standard option for urban drivers, due to convenience and cost advantages for the user. Mobility on demand – like Uber and Lyft – take the trend to the next level. Services like these may signal the end of the two car household and will also potentially impact urbanization



Source: U.S. Census Bureau, 2013 American Community Survey

Regulatory Backdrop

NHTSA Preliminary Findings

The National Highway Traffic Safety Administration (NHTSA) released last year a preliminary findings report on autonomous vehicles that – from our perspective – stopped just short of a full endorsement. The Administration also recently issued a formal notice for feedback about a potential mandate for all new vehicles sold to include V2V communication capabilities (perhaps by 2020-2022)

The opening comments of the NHTSA's report summarized their view of the promise of driving autonomy:

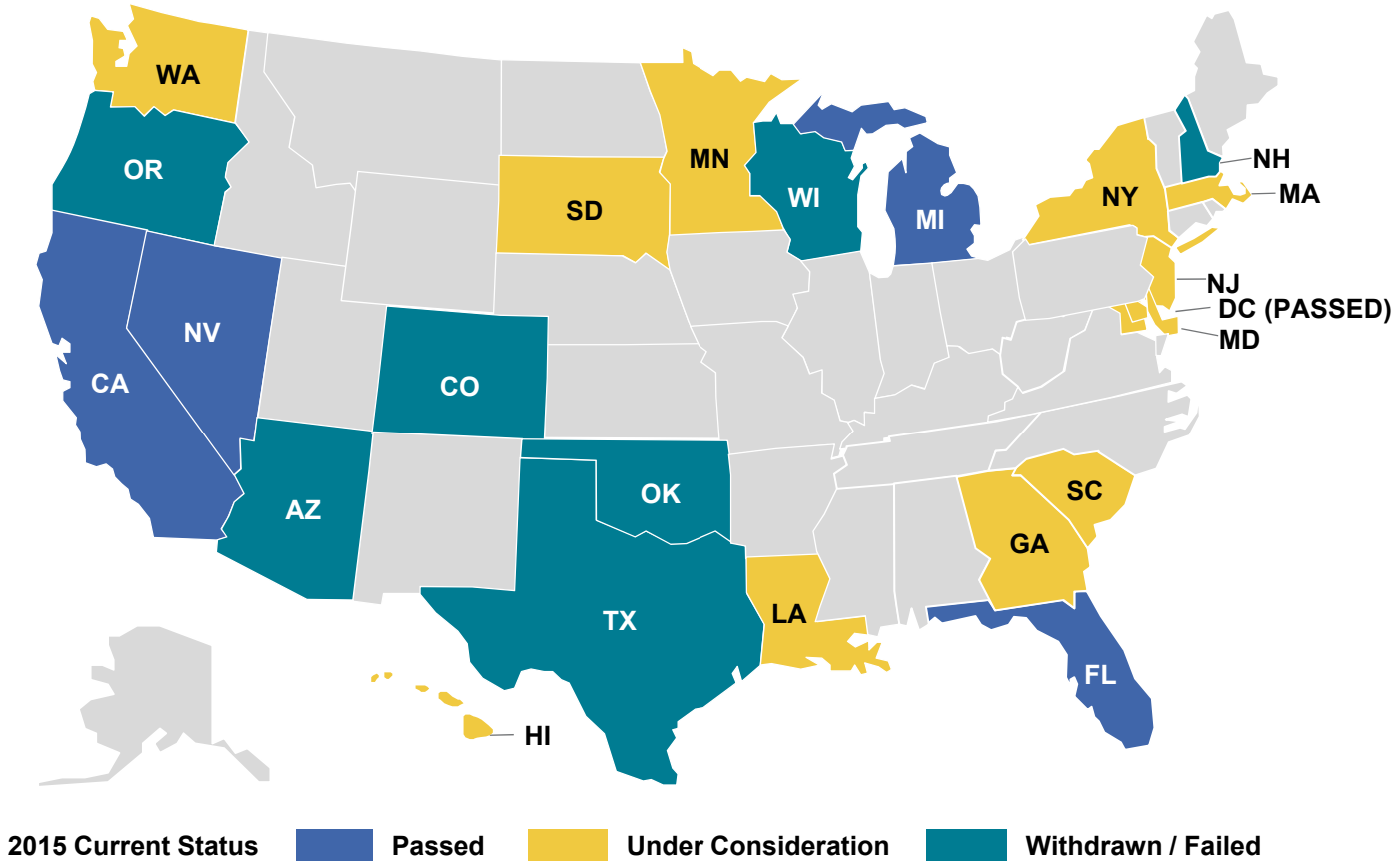
'…exciting vehicle innovations have created completely new possibilities for improving highway safety, increasing environmental benefits, expanding mobility, and creating new economic opportunities for jobs and investment. The United States is on the threshold of a period of dramatic change in the capabilities of, and expectations for, the vehicles we drive. In fact, many are inspired by the vision that the vehicles will do the driving for us.'

We agree.

Source: Preliminary Statement of Policy Concerning Automated Vehicles, NHTSA

State Legislation

As of earlier this year, sixteen states (including the District of Columbia) have passed or introduced bills related to self-driving vehicles. California, Michigan and Nevada are currently positioned to set the standards adopted by the others

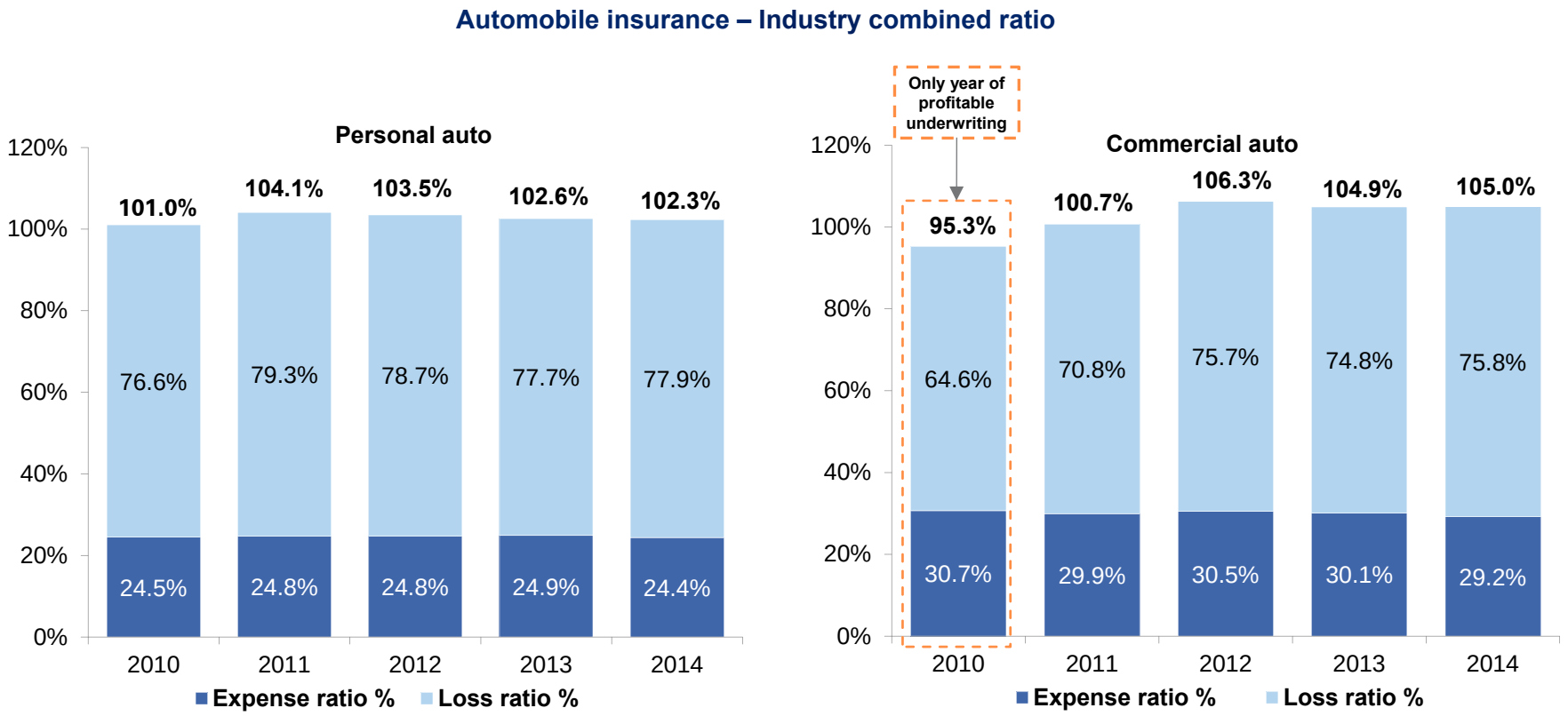


Source: Stanford University's Center for Internet and Society – Automated Driving: Legislative and Regulatory Action and Individual State Legislature Websites

Implications for Insurers

Industry (Lack of) Profitability

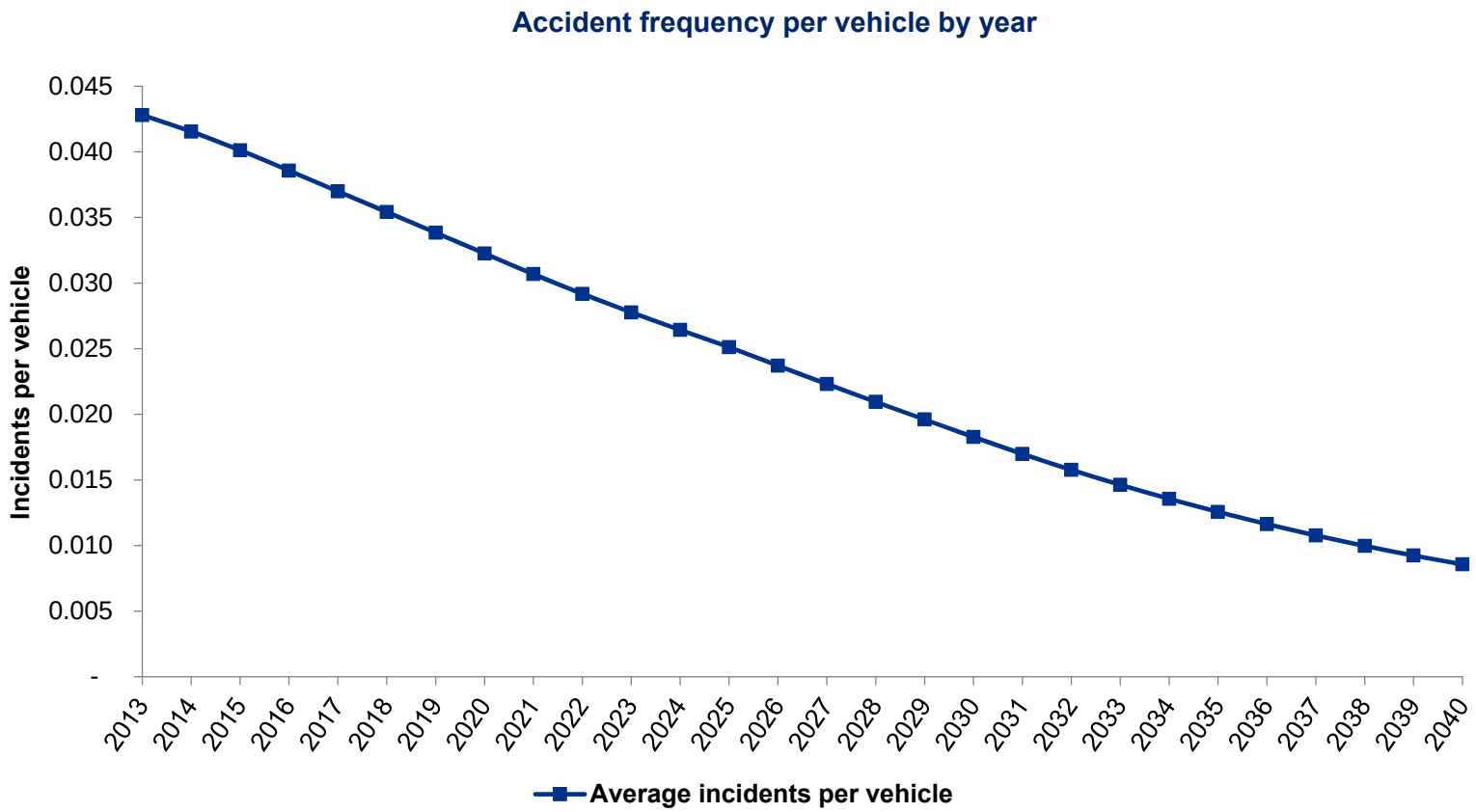
Based on underwriting profitability, the insurance industry is not well positioned for autonomous vehicle disruption – even in a "normal" market, there is no margin for error



Source: Gross combined ratios calculated by KPMG using statutory data from SNL Financial

Accident Frequency

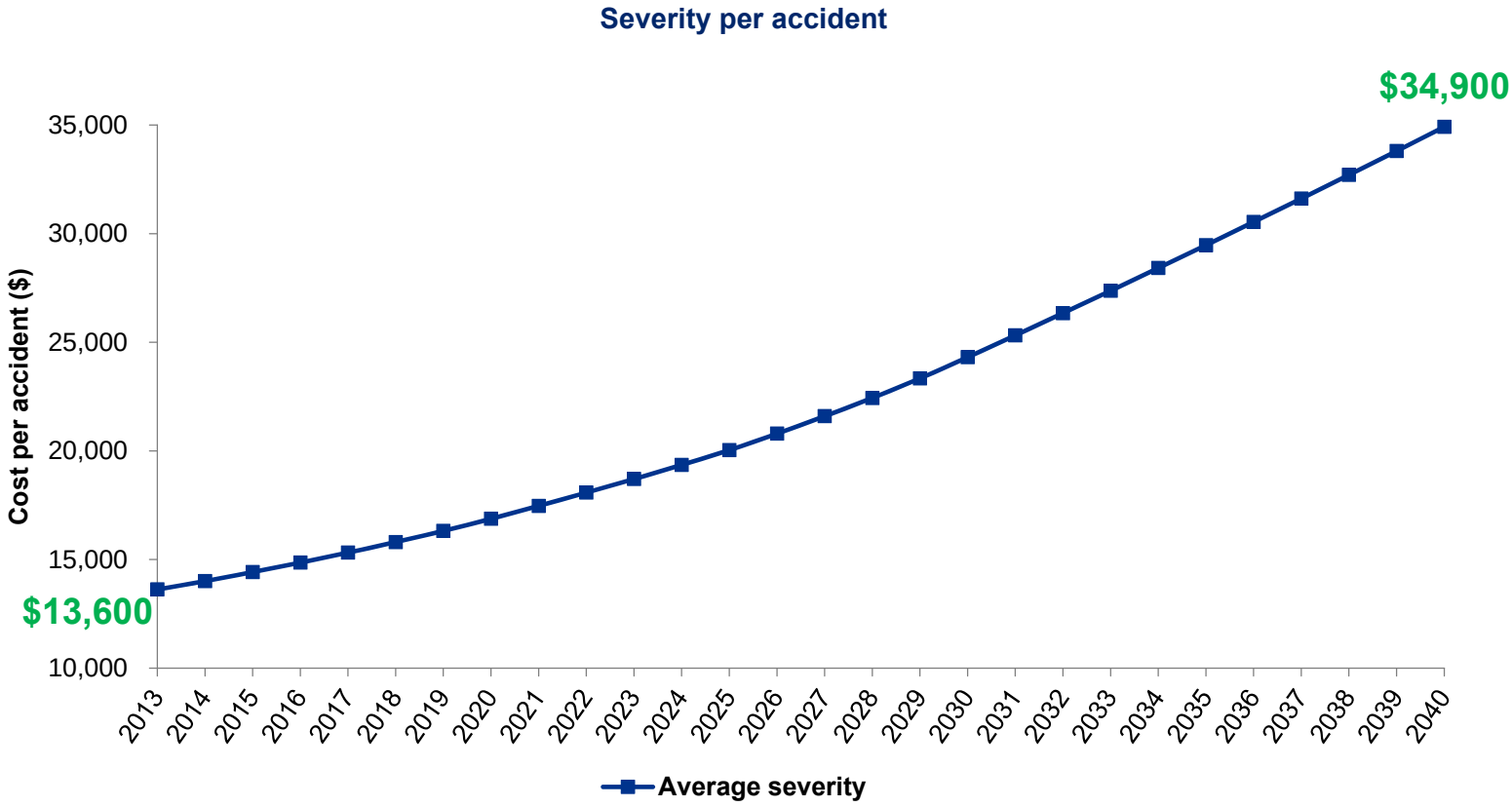
Given the new safety technology in autonomous vehicles, the KPMG Actuarial Team predicts a potential 80% reduction in accident frequency by 2040



Source: KPMG LLP actuarial analysis

Accident Severity

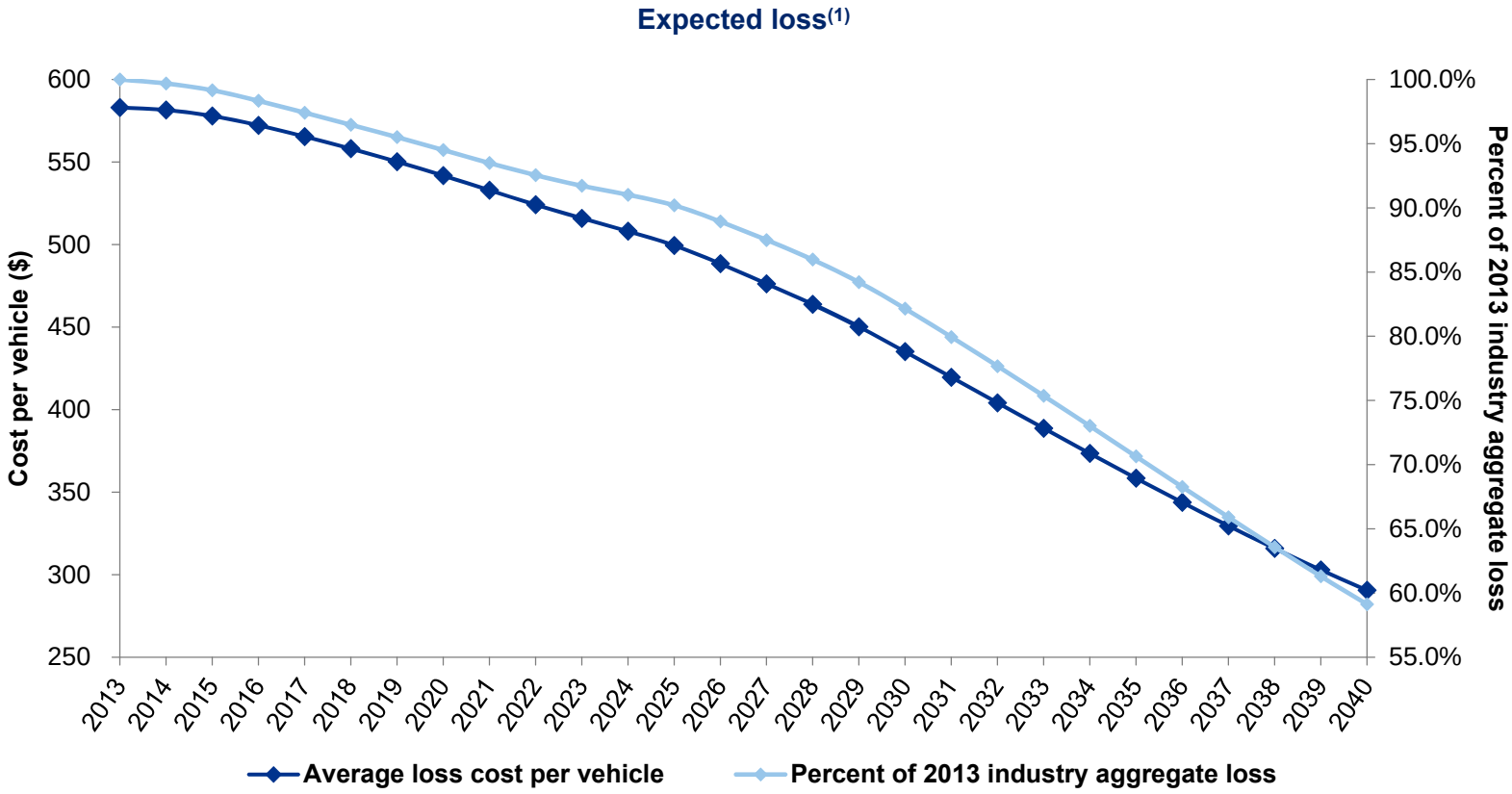
Expensive replacement parts – given that vehicles will be more like mobile supercomputers in the future – will potentially increase accident severity



Source: KPMG LLP actuarial analysis

Expected Loss

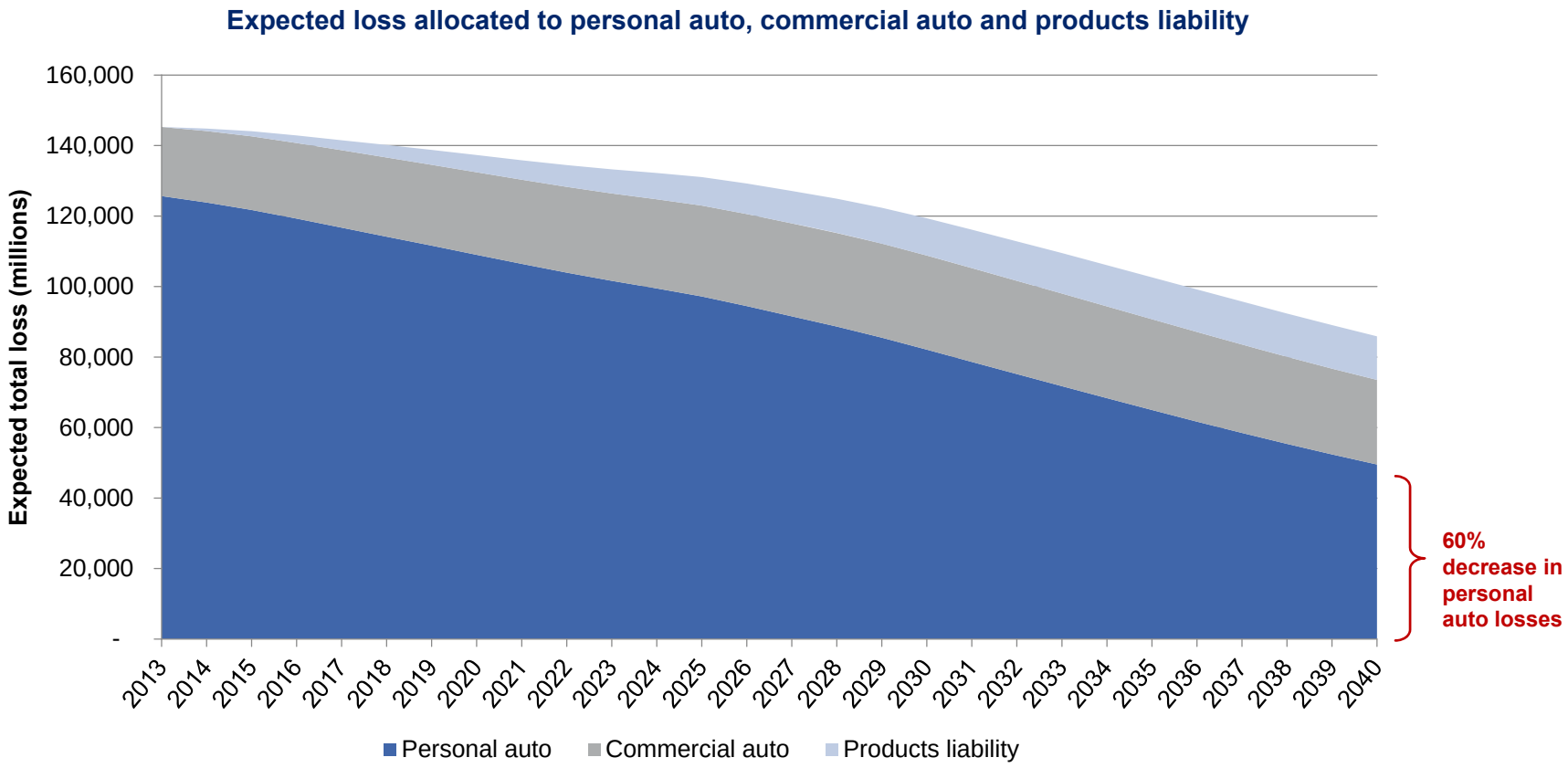
As a result of technology making vehicles safer, when the severity and frequency assumptions are combined, there could be a drop of roughly 50% in expected insured loss per vehicle



Note: (1) Based on total auto insurance market. Source: KPMG LLP actuarial analysis

Industry Loss Costs

Safer vehicles could result in total auto insurance industry losses decreasing by 40% by 2040 with commercial and product liability accounting for a larger portion of the loss pie

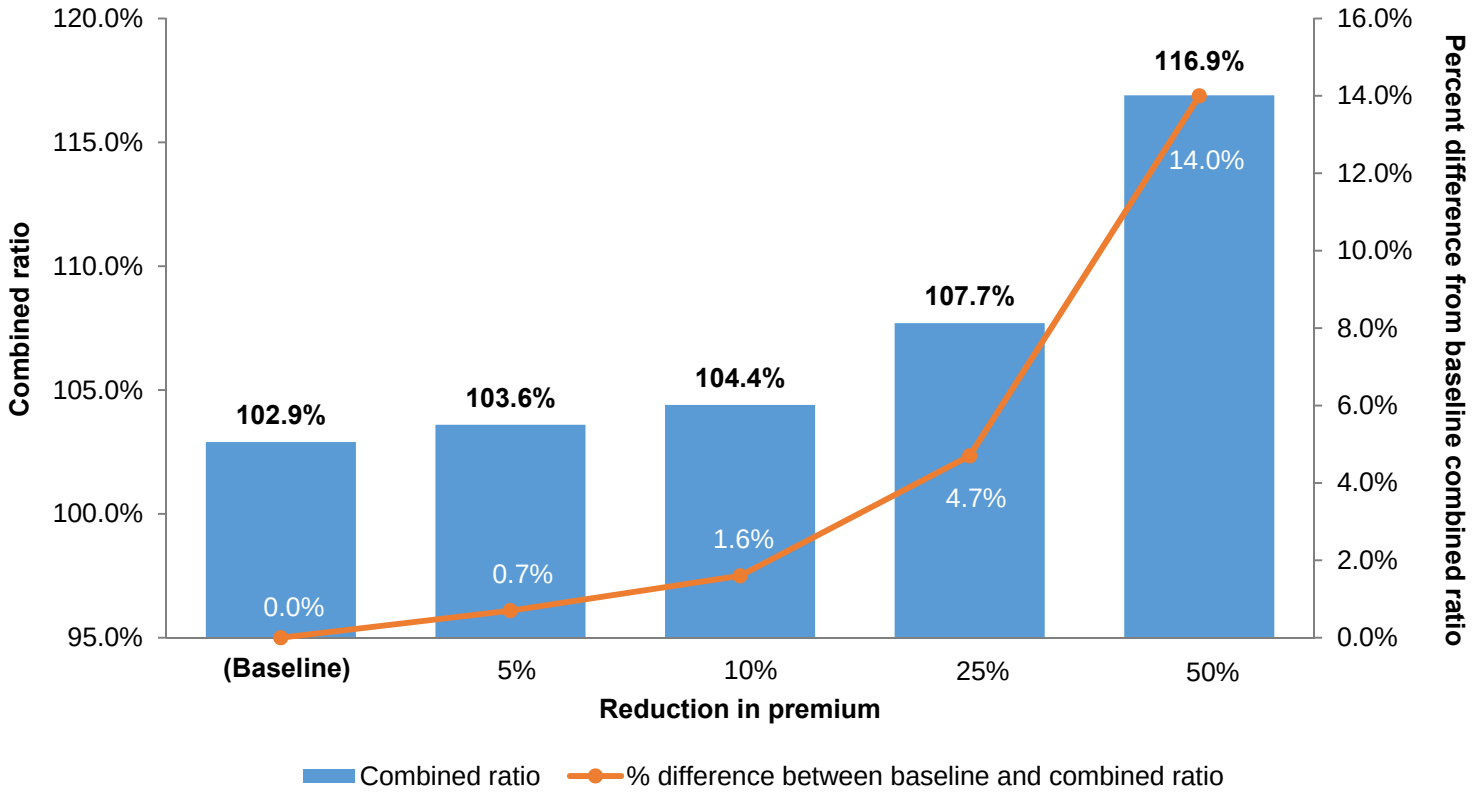


Source: KPMG LLP actuarial analysis

Premium and Underwriting Profitability Impact

Lower premium is expected to follow lower losses – insurers with inflexible cost structures may face extreme underwriting implications

Potential impact on combined ratio due to fall in premium[1,2]

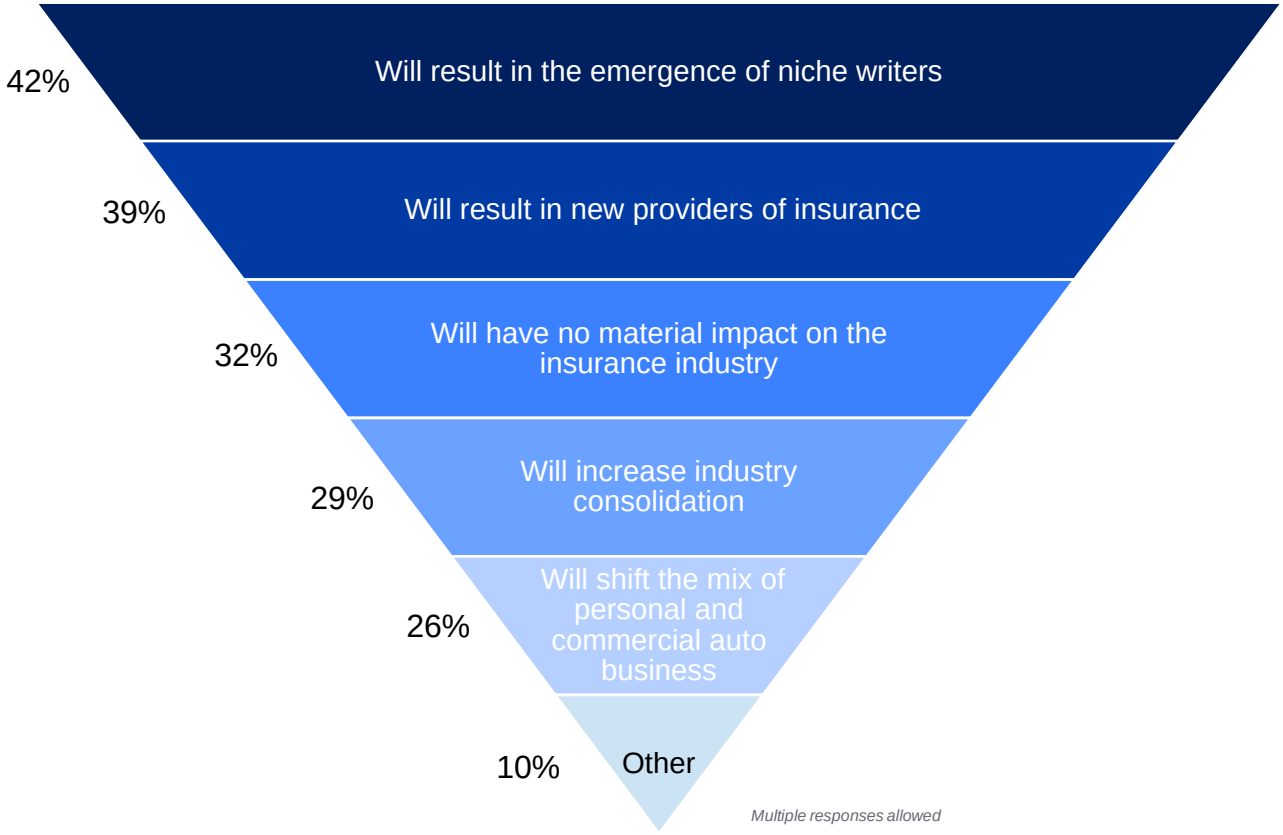


Note: (1) Illustrative example; and (2) In the reduction in premium scenarios, the difference between calculated combined ratios and the baseline ratio may not be exact due to rounding
Source: SNL Financial and KPMG LLP analysis

Future State

Autonomous Vehicles Impact on the Insurance Industry

Over the next 10 years, many respondents expect the emergence of niche writers and new providers of insurance to be a direct result of autonomous vehicles, while roughly one-third of executives believe this new technology will have no material impact on the industry



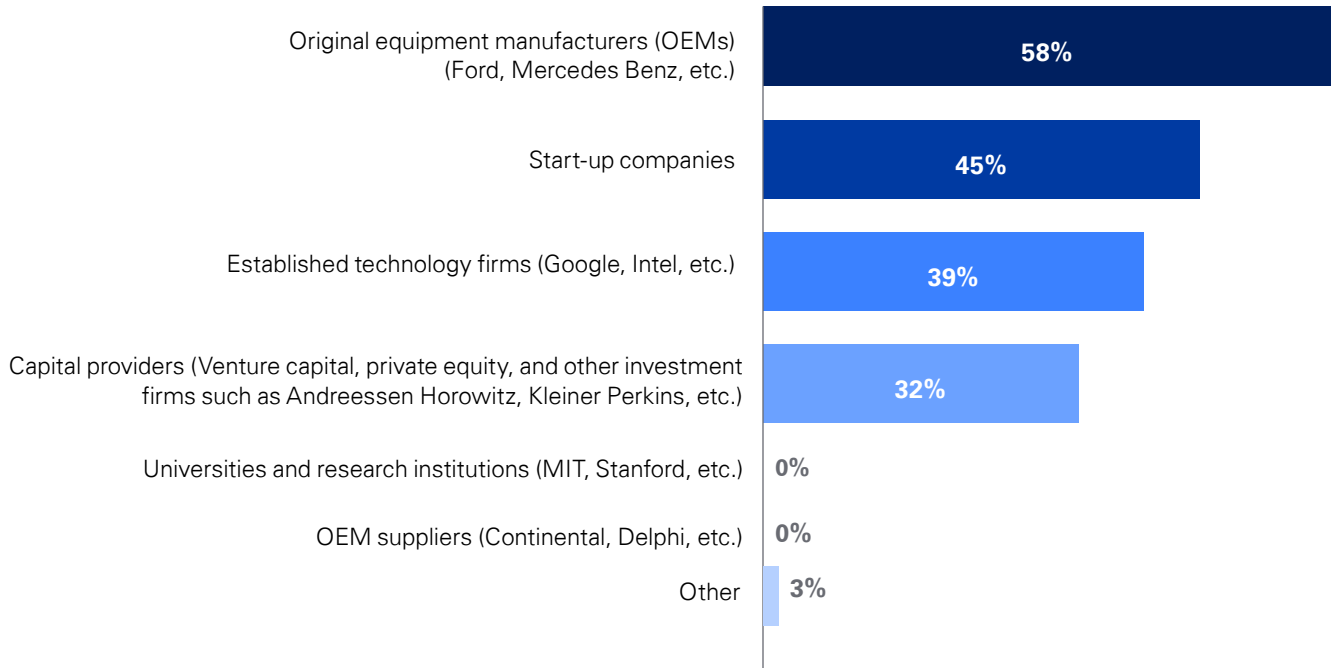
Multiple responses allowed

Source: KPMG LLP's 2015 Automobile Insurance in the Era of Autonomous Vehicles Survey Results

Future State

Leading the Insurance Charge on Autonomous Vehicles

Other than insurance companies, survey participants believe OEMs, start-ups and tech firms will most likely take part in providing insurance in this new autonomous era



Multiple responses allowed

Source: KPMG LLP's 2015 Automobile Insurance in the Era of Autonomous Vehicles Survey Results

Future State

Current Insurance Innovation

The implications for the insurance industry may be profound. Most market participants are not prepared for the change, while a few are positioning themselves to succeed in an evolving marketplace

ACUITY

- Founded in 1925 and headquartered in Sheboygan, Wisconsin
- Mutual P&C company with a focus on commercial property insurance
- Recently, submitted a series of rate filings, one of which addresses technological impact categories such as accident avoidance and driverless vehicle features

Metromile

- Founded outside of San Francisco in 2011
- Targets individuals driving less than ten thousand miles each year by providing usage-based insurance via an app and the "Metromile Tag" using bluetooth technology
- Has developed supplemental personal coverage for Uber drivers

Source: SNL, press releases and company websites

What Now?

Business Model Strategic Differentiation

The automobile insurance marketplace will potentially face unprecedented change, with traditional business models up-ended. The turmoil could bode trouble for many but may also provide opportunity for others that chart a course of differentiation

Eat or be eaten

With the size of industry predicted to contract, fewer places at the table are expected. We envision ‘scale whales’ and ‘mother mutuals’ to dominate through economies of scale advantages

Diversify

Move into other products that could potentially shield the company from challenges across the personal auto line of business

Innovate

With new areas of risk, additional areas to provide insurance protection are expected to emerge. Identify these areas and launch new products to the meet the needs, but recognize that competition will follow. Will there be a first mover advantage?

Partner and ally

Consider new business models where insurance could be embedded into the cost of a car or part of usage fees. These new models will potentially require partnering with others, but alliances may be few and fast to happen

Effecting change requires employee buy-in

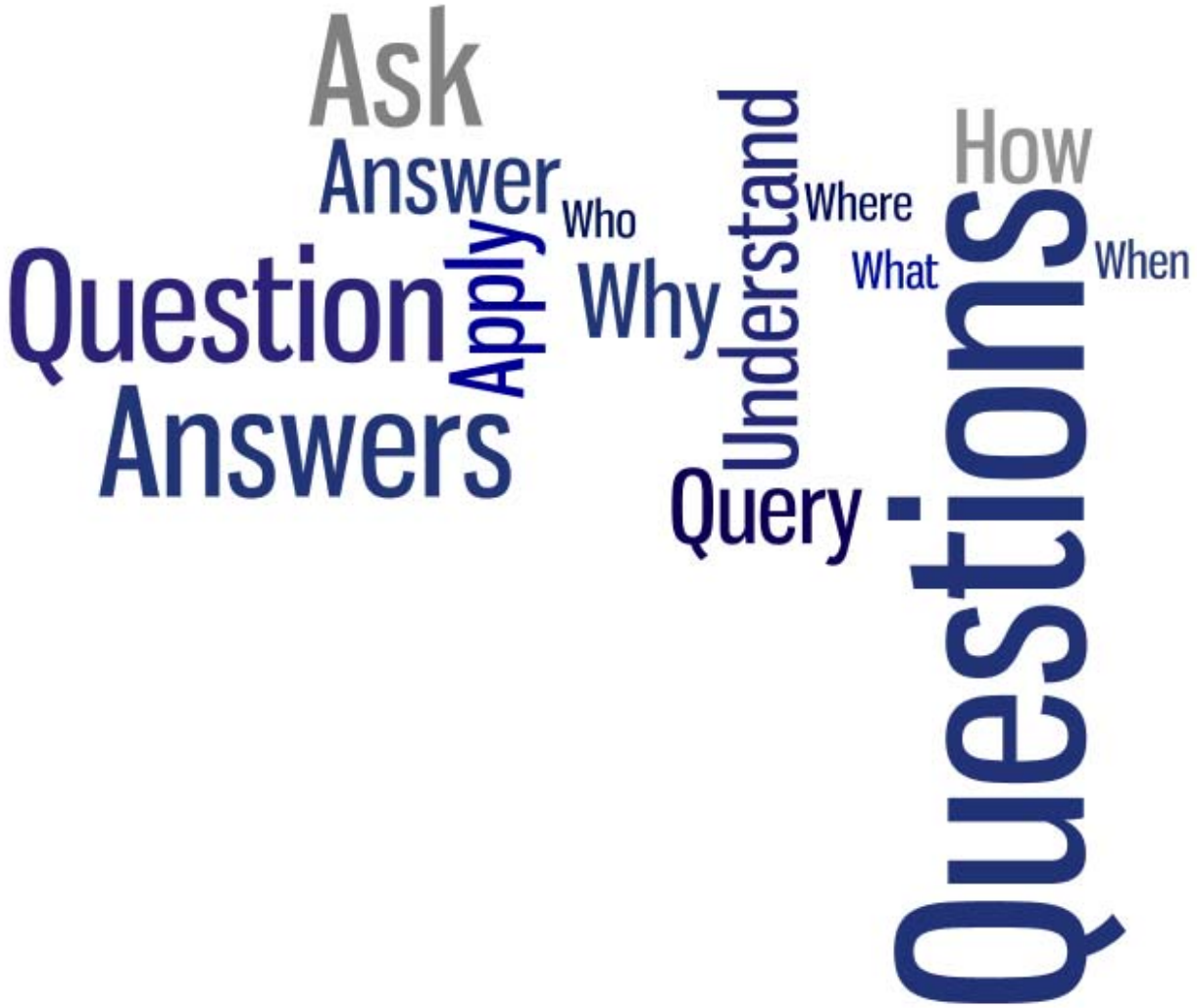
Convince Your Organization that the Autonomous Vehicle Transformation is Real!

Preparing for the Future (cont'd)

Carriers need to approach the change precipitated by autonomous vehicles from strategic and tactical perspectives

2. Understand Your Exposure
3. Evaluate Your Business Strategy
4. Identify and Monitor Leading Indicators
5. Prepare Your Operations
6. Understand Cost Structures
7. Align with Other Insurers and Form Partnerships

Questions?



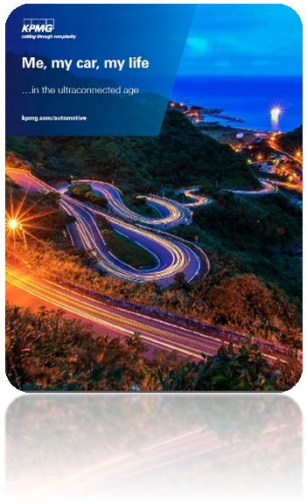
KPMG Related Reports

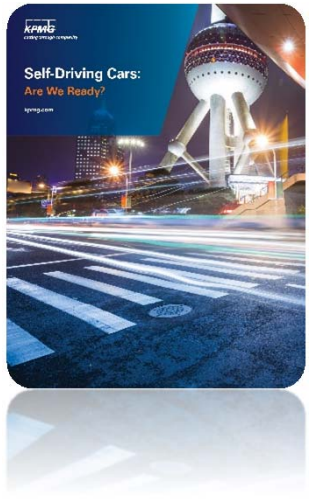
KPMG's Insurance practice

KPMG's survey on this topic, *Automobile Insurance in the Era of Autonomous Vehicles*, has been cited in a variety of domestic and international publications

KPMG's Automotive practice

In case you missed them, you can download from KPMG's website our previous papers related to the future of the automotive industry





KPMG Contacts

Name	**Chris Nyce**
Title	*Principal*
Office	+1 610 341 4803
Email	gnyce@kpmg.com

Name	**Joe Schneider**
Title	*Managing Director*
Office	+ 1 312 665 1006
Email	jeschneider@kpmg.com

Name	**Nate Loughin**
Title	*Senior Associate*
Office	+1 610 230 2068
Email	nloughin@kpmg.com