

Testimony of
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Committee on Financial Services
Subcommittee on Housing and Insurance

“The Impact of Autonomous Vehicles on the
Future of Insurance”

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Introduction

Good afternoon and thank you for the opportunity to participate in today's hearing. I am David Carlson, a Senior Vice President at Marsh, where I lead our US Manufacturing and Automotive Industry Practice.

Marsh is the world's largest insurance broker and part of Marsh & McLennan Companies, which is headquartered in the United States and operates through four market-leading brands — Guy Carpenter, Mercer, Oliver Wyman, and Marsh. Together, the 65,000 employees of Marsh & McLennan provide advice and solutions to clients in 130 countries across an array of industries in the areas of risk, strategy, and human capital. Since 1871, our companies have worked at the forefront of emerging technologies and the risks that accompany them. In particular, Marsh and Oliver Wyman have developed specialties in both identifying and mitigating key risks related to autonomous vehicles as well as advising executives across the broader automotive industry.

Marsh's US Manufacturing and Automotive Practice is comprised of a global network of more than 500 dedicated manufacturing and automotive insurance and risk management professionals located in more than 100 countries. We serve approximately 12,000 manufacturing and automotive clients globally, including nearly 1,000 based in the US. Our clients include two-thirds of the top 50 US logistics firms and the top 100 US for-hire carriers.

Marsh's focus on today's topic led to the creation of our Sharing Economy and Autonomous Mobility Center of Excellence. This group has developed insurance solutions for several clients that are testing autonomous vehicles, including:

- Auto manufacturers.
- Technology companies.
- Autonomous software developers.
- Component suppliers (including microchips and LiDAR).
- On-demand platforms.
- Trucking companies.

Our sister company, Oliver Wyman, supports leading auto manufacturers and suppliers worldwide in developing and operationalizing business strategies and models. These consultants help auto companies generate more value for their customers, innovate and optimize their products and operations, and develop their brands. They support suppliers with strategic problem-solving, innovation, development, and cost-cutting programs. Oliver Wyman's broad experience allows Marsh & McLennan to also support wholesalers, car importers, and service providers, as well as private equity companies and investment banks in the auto industry.

In today's testimony, I will share initial observations on mobility transformation and focus on the impact autonomous vehicles may have on risk management and the insurance industry.

Autonomous Vehicles and the Future of the Automotive Industry

The automotive industry is experiencing a level of change and innovation not seen since the introduction of the passenger car. While this sector has traditionally been dominated by original equipment manufacturers (OEMs) and their suppliers, today it welcomes a host of new players that are transforming the world's relationship with vehicles. Transportation network companies, such as Uber and Lyft, and sharing economy companies, including Zipcar and Getaround, are leading a transition away from individual ownership and driving toward new ways of moving around communities and accessing vehicles without the obligations of ownership.

Overall, the industry is healthy. Automotive manufacturing growth remains strong, with light duty truck and sport utility vehicles fueling industry performance. Expansion of regional manufacturing growth has been significant, with China in particular exhibiting a compound annual growth rate of 15% since 2003. The development and manufacture of vehicles, their component parts, and their software and service platforms are all becoming increasingly complex.

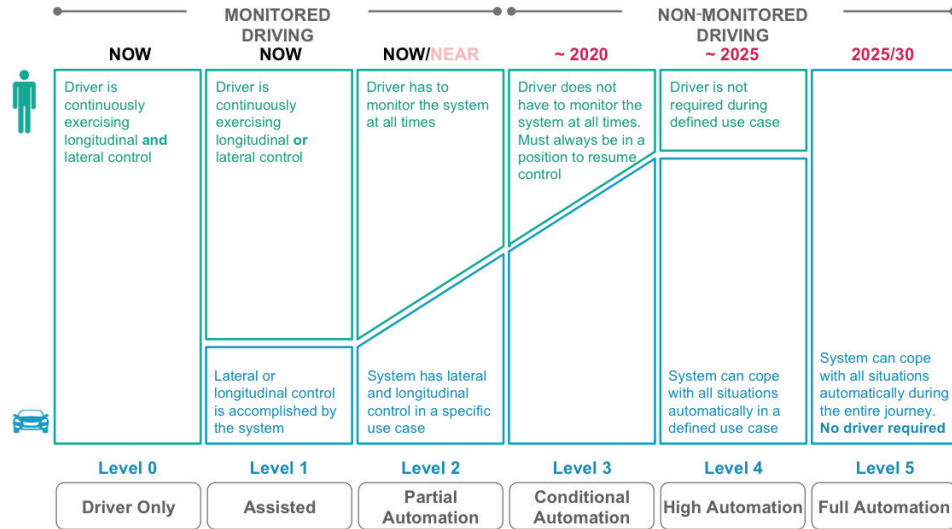
In our view, seven trends, enabled and accelerated by digitization, artificial intelligence, and machine learning, will dominate the automotive industry for the next decade:

1. Human-machine interfaces — new and digitized control concepts for driver/car interaction.
2. Changing customer structures — partial replacement of individual vehicle buyers with large fleet or group buying, driven by mobility-on-demand services.
3. New distribution channels — pay for use and ride-sharing.
4. Digital industry — increasing digitization of processes through predictive and adaptive data capability,
5. E-mobility — increasing electrification of powertrains, resulting in decreasing penetration of internal combustion engines.
6. Autonomous vehicles — progression of today's partially automated driving into fully driverless vehicles.
7. Connected vehicles — additional safety and services through increasing connectedness.

These trends are leading to a seismic shift for the automotive industry, the way consumers use its products, and the way they both use insurance to manage risk. Marsh advises a majority of the companies working to transform the automotive industry. As a result, we have an unrivaled view into the implications that autonomous vehicles, transportation network companies, and sharing economy companies have for the insurance sector. We bring deep industry knowledge and risk management insights to bear on these innovations and emerging risks. We are driving change in the insurance sector to create innovative insurance solutions that will help to fuel the automotive industry and unlock the next generation of consumer benefits. Figure 1 below demonstrates the evolution of the automation process.

Figure 1

 **Autonomous vehicles – The evolution has already begun**
 Autonomous driving is still in early stages but is expected to reach full automation levels between 2025 and 2030



Source: NHTSA, SAE, Oliver Wyman analysis

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The Impact on Risk Management and the Insurance Industry

Autonomous vehicle technologies are creating enormous shifts in the automotive industry and insurance sector alike. Questions about liability, risk assessment, losses, and many other issues are being asked in boardrooms, courtrooms, and committee rooms like this one.

Today, auto liability generally focuses on three factors: the driver, the vehicle, and road conditions. According to the National Motor Vehicle Crash Causation Survey, 94% of auto claims are due to driver error, 2% are due to malfunctioning equipment, 2% are due to environmental conditions, and the remaining 2% are unidentified. Insurance solutions in this world are straightforward — they involve understanding the driver and the vehicle and modeling the propensity for loss. While we often imagine the autonomous personal vehicle when discussing this topic, the impact of fleets of autonomous vehicles on our roads, rails, waterways, and skies has the potential to radically alter responsibility and liability in ways that will greatly impact the business of insurance.

As autonomous vehicles become a majority of new vehicles in the next two decades (see Figure 2), the 94% of auto claims due to driver error seems sure to fall. This decline will lead to lower costs for drivers and carriers and has the potential to save many of the estimated 37,000 lives lost each year in traffic accidents according to the National Highway Traffic Safety Administration. The trend raises questions about how the insurance sector will incorporate driverless technologies and help consumers benefit from them. While autonomous vehicle technologies are new, the development of solutions that embrace innovations and manage emerging risks is second nature to the insurance sector.

Figure 2

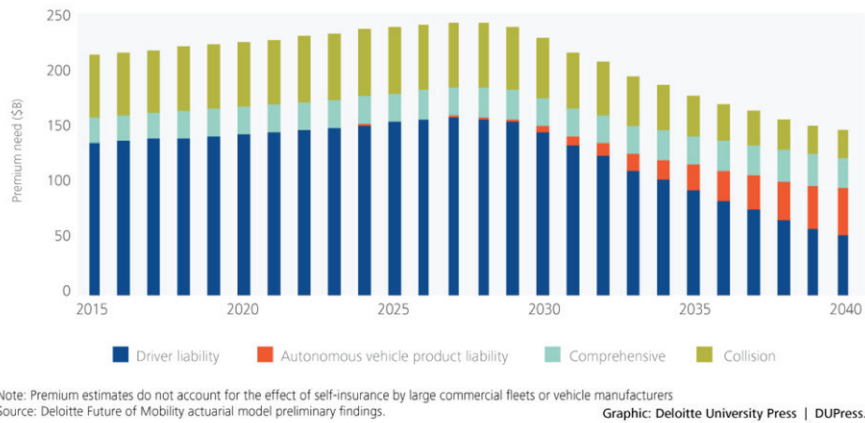


Soon, the historic factors used to determine the likelihood of an auto accident and to price insurance will no longer be viable. The change will lead insurers to examine other industries that have experienced transformational safety changes. Aviation is prime example.

Already, the underwriting and pricing of risks for personal, commercial, and trucking insurance is beginning to take assisted driving technology advances into account. Across the fleet space, companies are rapidly integrating assisted driving technologies in order to reduce the frequency of accidents, identify drivers with risky behaviors, and stem losses related to distracted driving and driver fatigue. Those companies deploying these technologies more slowly are being penalized with significant premiums and a lack of available limits of insurance.

With the advancements in autonomous technology, these trends will accelerate. As seen in Figure 3, the shift of premium in total and how that is allocated will be part of this transformational change. Notably, manufacturers, component suppliers, and technology companies will start to assume more liability for the performance of their systems.

Figure 3



It is worth noting the trend for collision coverage projected in Figure 3. While a reduction over time is expected, more accidents are initially forecast as human-driven and driverless cars share the road. Ultimately, driverless cars will have a positive impact, reducing both injury rates and insurance payouts.

Today, however, there is concern over how to ensure autonomous vehicles are safe before they interact with the public. Among the challenges for policymakers is how to mitigate public concern about the convergence of human-driven and autonomous vehicles, while not stymieing the advance of technology that can save lives. Once the collision coverage curve starts to bend around 2029, roads will be much safer than they have been for the past century, but product liability insurance premiums for manufacturers are projected to grow substantially.

Another factor with which policymakers will have to grapple is the severity of future auto crashes. Below, Figure 4 shows the projected step decline in accident rates as autonomous vehicles become common. It is contrasted with a similarly steep increase in Figure 5, which shows that as accident rates fall the cost of each accident will increase significantly. This is because the cost of a vehicle is projected to increase significantly over time.

Figure 4

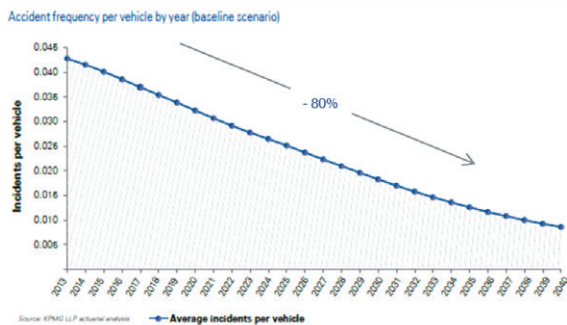
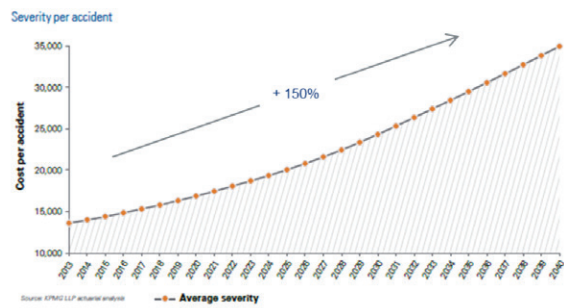
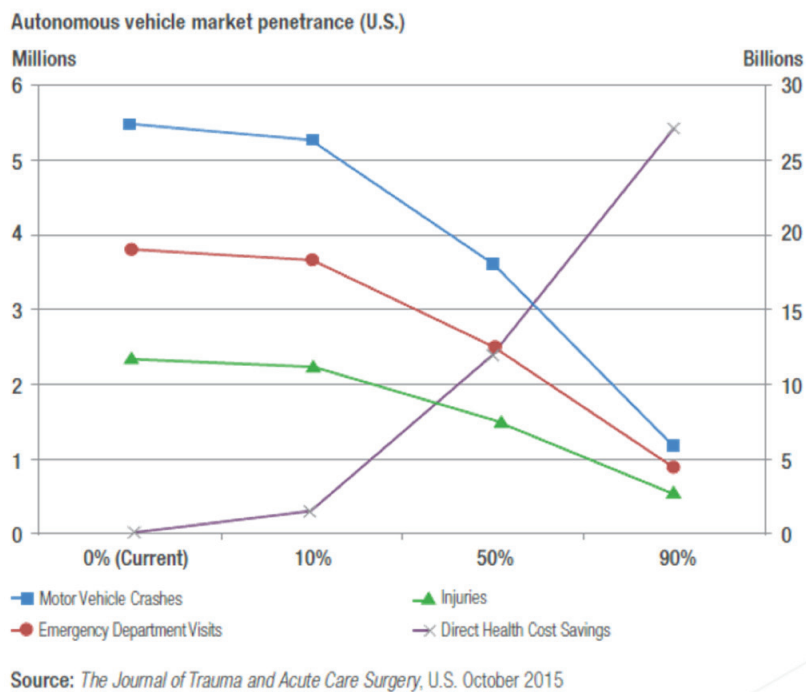


Figure 5



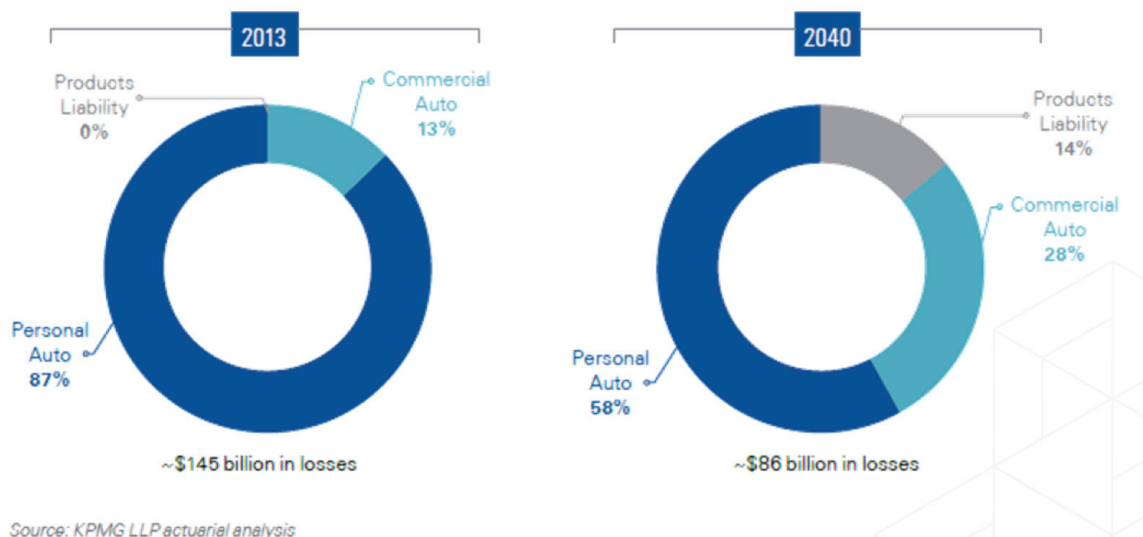
A correlating factor to consider is the potential impact on health care coverage. The adoption of autonomous vehicles is predicted to greatly reduce the volume of injury-causing vehicle crashes. As Figure 6 shows, this is forecast to result in substantial direct health care savings. While it will be a great benefit to society, the change will likely cause financial losses for hospitals, medical care providers, and a wide variety of industries in ways we cannot forecast today.

Figure 6



The strongest growth in insurance will be in the area of product liability. A key question is how organizations will appropriately manage this risk. As society becomes more dependent on various products, those products' manufacturers and distributors will bear more liability. It will become necessary to refocus current risk management strategies to account for this shift.

Figure 7



Trends in Legislation and Insurance Coverage

Policymakers in Washington, in statehouses, and in regulatory agencies around the world are in the first phase of enabling the transition to autonomous vehicles. Despite the likely broad societal and economic impact, legislators and regulators have made establishing a regulatory framework for autonomous vehicles a relatively low priority.

But, government is not alone in moving cautiously. The insurance industry is also struggling to adapt and looking to policymakers for guidance. As with cybersecurity and related insurance, there is value for a public-private partnership to help develop the technology and marketplace.

As you know, the US Department of Transportation's National Highway Traffic Safety Administration released helpful new federal guidance in *Automated Driving Systems: A Vision for Safety 2.0* in December 2017. The guidance calls for industry, state, and local governments, safety and mobility advocates, and the public to lay the path for deploying automated vehicles and technologies. The states of California, Connecticut, Nevada, New York, and Tennessee now require \$5 million of automobile liability insurance for manufacturers to test autonomous vehicles. Indeed, almost all states have evaluated the need for specific legislation to address the testing and deployment of autonomous vehicles.

However, autonomous mobility companies are struggling to buy competitively priced insurance for their auto risks. Smaller companies were buying insufficient capacity in the personal lines marketplace. The traditional insurance marketplace is struggling to address the needs of small- to midsize fleets looking to enter the autonomous vehicles market.

At Marsh & McLennan Companies, we believe this is not satisfactory. We have challenged ourselves and the insurance marketplace to rapidly develop solutions that can address the risks as they exist today, and quickly evolve and expand as the technology moves forward. Just the same, regulations cannot evolve into a barrier to deploying autonomous vehicle technologies. The US must not let an underdeveloped insurance market or regulations prevent this technology from moving forward.

Facilitating the autonomous shift requires regulatory flexibility to allow insurance solutions to evolve. As consumers and companies no longer own assets — but rather buy access to them — we need to transition the way insurance functions. Marsh & McLennan is committed to working with insurance companies to develop new insurance products that cover individuals or assets for specific actions or over certain periods of time, potentially on parametric triggers.

The current regulatory framework limits the development of innovative insurance products when there is not specific historical loss data or case law. Without flexibility, it is hard to develop products that address emerging technologies and changes in consumer demand for insurance products. That flexibility to innovate and develop new products has helped enable the success of ride-sharing insurance solutions over the last five years.

Working with industry leaders in the space, Marsh developed the first ride-sharing policy to adapt to the fact that people were no longer using their vehicles for 100% personal or 100% commercial use. The solution we pioneered — leveraging the flexibility offered by the surplus lines framework — has been codified by policymakers across the country. The insurance solution provides protections for the ride-sharing public as well as the drivers of ride-share automobiles. Marsh has facilitated the creation of hundreds of insurance products throughout the personal insurance marketplace that have allowed broad consumer choice to purchase insurance that meets individual needs. We envision similar innovation enabling successes across the autonomous mobility space.

Conclusion

Growing up, we were always reminded to never get into a car with a stranger. I'm willing to bet that nearly everyone in this room used a transportation network company in the past week and got into a car with a complete stranger. Who knows — in another decade, we may regularly get into a car with no driver at all.

The shift is on. Society is moving from driving our individually owned cars, to sharing cars that we or someone else drives, to sharing cars that are autonomous. The effect of this is nothing short of revolutionary. Policymakers should embrace the significant social and economic benefits now and the insurance sector must be nimble and willing to change the way it views risk and offer competitively priced enhanced insurance for the next millennium.