

Aon Risk Solutions

Autonomous Vehicles - The Risks and Rewards of the Future of Personal Transportation

February 2014

AON
Empower Results®

Self-driving vehicles have long been a staple of science fiction books and films. Along with intelligent robots and super computers that controlled large parts of characters' lives, they portrayed a world free from mundane chores such as housework and driving.

But just as computing and robotics have made the transition from fantasy to become practical tools of every day life, the technology needed to build autonomous cars is mostly available today. Yet, the likelihood of their emergence, in the near future, as a major innovation in personal transportation poses a series of profound challenges for the auto industry, for federal, state and local governments and for U.S. consumers.

A recent study published by KPMG and the Center for Automotive Research suggests that issues such as the speed and scale of adoption of autonomous vehicles among the driving population, and the enormous investment and collaborative effort required between the public and private sectors to build the necessary infrastructure for this new generation of automobiles, are likely to be among the more formidable hurdles that need to be overcome. In addition, the related legal, regulatory and risk management issues that will have to be addressed are likely to be equally complex.

Despite these daunting obstacles, in my view there is a strong case to be made in favor of autonomous cars and the transformative benefits they could offer to society.

Safety First

According to the National Highway Traffic Safety Administration (NHTSA), there were approximately 5.3 million police-reported motor vehicle crashes in 2011, resulting in 2,217,000 injuries and 32,367 deaths. While there has been impressive progress in vehicle safety since the mid-'90s with accident rates (per 100 million vehicle miles travelled) dropping by over 45% from 1995 to 2011, accident rates increased from 2011 to 2012 by 6.7%. From an economic cost perspective, the American Automobile Association (AAA) estimates that the cost of automobile accidents is around \$300 billion annually which equates to around \$1,500 per person in the U.S.

An even more striking figure is that NHTSA research suggests that 93% of accidents are caused by human error. The increasing role played by driver distraction has become a topic of national debate and driver distraction has been identified as the primary cause of 3,328 deaths and 421,000 injuries in 2012 (up 9% over 2011).

By doing away with the need for a driver – and, therefore, also doing away with the risks introduced by continuous human decision-making and driver distraction – autonomous cars may go a long way toward cutting down these figures by offering significant improvements in automotive safety.

Self-driving vehicles offer other potential advantages. The economic effect of traffic congestion, which, AAA estimates, costs the U.S. economy around \$100 billion a year, is likely to be reduced. The day-to-day frustration of those who commute with cars is also likely to be reduced. These changes may potentially translate into productivity gains at work and a general reduction in traffic violations. They may even lead to a drop in incidents of road rage and make drunk driving obsolete.

More broadly, autonomous cars may also benefit the changing demographic profile of the population. The generation of baby boomers, who were famed for their love of cars as aspirational products, is likely to seek vehicles in the future that offer convenience, safety and mobility. And today's generation of upcoming consumers, who are nurtured in a world of Web-based connectivity and rapidly evolving technological advancement, are likely to view autonomous vehicles as tools that liberate them from the tedium of driving to engage in more productive activities.

Convergence and Adoption Challenge

The arguments in favor of autonomous cars may be compelling but so are the challenges. The substantial investment needed to design and build new infrastructure to connect these vehicles may not be readily available when there are so many other pressing demands for investment financing including basic road maintenance. Moreover, the collaborative effort required among various parts of federal, state and local government, the automotive manufacturers and parts suppliers, infrastructure and technology companies, and industries such as trucking is likely to be immense.

Transition to new vehicles and new infrastructure will take time. In the interim, older vehicles may well have to be retrofitted with transmitting technology to enable them to connect with new infrastructure.

Public appetite will also take time to adapt. Consumer research conducted by Kelley Blue Book as part of its Market Intelligence 2012 study revealed that 63% of respondents would not buy a self-driving vehicle.

However, the legal and regulatory questions presented by autonomous cars perhaps pose the biggest challenges. At the moment, only four states have introduced legislation to legalise the use of autonomous cars with a few other states currently considering similar legislation.

Changing Risk Management Landscape

There are also many significant risk management implications. The introduction of autonomous vehicles is likely to reduce the risk of vehicle accidents but it will not totally eliminate them. The question of who is at fault in case of an accident becomes complicated, as driver error will no longer be the default cause.

Absence of vehicle operator liability is likely to create interesting questions about who will assume the responsibilities and liabilities for accidents and may consequently have potential implications for the owners of public and private infrastructure. It will also certainly raise questions about a potential shift in responsibility toward Original Equipment Manufacturers (OEMs). It is possible that auto industry OEMs may, in the future, have to take on liabilities that are currently attributable to "driver error."

Clearly, autonomous vehicles raise significant questions about the legal responsibilities of the vehicle owner and whether ownership will continue to be the source of liability, particularly as the owner will not be driving the vehicle. For example, who is responsible in the event of a self-driving car parking itself and hitting a pedestrian?

The implications for the personal auto insurance industry are likely to be enormous. Currently, a driver's insurance rate is principally based on a combination of driving behavior and driver profile. The metrics used for such calculations may well have to be reconsidered in the context of self-driving vehicles. Indeed, the role of the personal auto insurer may have to be reconsidered – perhaps the financial protection provided by these insurers may be shifted to OEMs, infrastructure providers or a new government-provided solution that will facilitate cooperation of all stakeholders. With the expected dramatic drop in vehicle accidents and their related costs, the personal lines auto insurance industry may very well become obsolete. Will we miss all of those creative commercials?

Potential Ramifications for the Auto Industry

Autonomous cars also pose significant challenge to the auto industry itself. There is likely to be a need for greater investment in telematics engineering and for technology that improves operational efficiency. This is likely to result in a move away from trying to *improve* human decision-making, and toward introducing technologies to *replace* human decision-making.

Furthermore, there may be a shift in consumer demand with less emphasis on performance vehicles and, as a direct corollary, on collision safety features including seat belts and air bags. The consumer's interest may likely shift away from the satisfaction of *driving a vehicle* to experience the freedom of *being driven by a vehicle*.

America's Love Affair with the Automobile

It seems hard to imagine that anything could come between American consumers and their love of the automobile and driving. The car has been a fundamental part of American culture. It has even defined some of the most memorable moments of U.S. social history. However, the automobile has continued to evolve to reflect the needs and tastes of society. Continuous technical improvements over the past 50 years, have refined and adapted the automobile to satisfy the increasingly sophisticated demands of the consumer. The appetite for automotive innovation has proven to be insatiable. The auto industry's relentless efforts to reinvent the car and the continuous search for safer driving, may well mean that it is possible for autonomous vehicles to become commercially available over the next 25 years.

Will Americans' historic love of the automobile continue in the age of the autonomous vehicle, or will future generations simply view personal transportation as another application for what seems to be an insatiable appetite for technology in their lives? The answer to this question will not appear overnight, but may take the better part of the next two decades to play out.

Contact Information

Mike Stankard
Managing Director
Automotive Industry Practice Leader
+1.248.936.5353
mike.stankard@aon.com

About Aon

Aon plc (NYSE:AON) is the leading global provider of risk management, insurance and reinsurance brokerage, and human resources solutions and outsourcing services. Through its more than 65,000 colleagues worldwide, Aon unites to empower results for clients in over 120 countries via innovative and effective risk and people solutions and through industry-leading global resources and technical expertise. Aon has been named repeatedly as the world's best broker, best insurance intermediary, reinsurance intermediary, captive manager and best employee benefits consulting firm by multiple industry sources. Visit www.aon.com for more information on Aon and www.aon.com/manchesterunited to learn about Aon's global partnership and shirt sponsorship with Manchester United.

© Aon plc, 2014. All rights reserved.

Aon plc and its affiliates (collectively "Aon") do not provide or express an opinion or recommendation regarding any company or matter mentioned herein. The recipient understands that Aon has endeavoured to include information known to it which it believes to be relevant to the recipient. The recipient further understands that neither Aon nor its employees shall make any representation or warranty as to the accuracy or completeness of this information. Aon shall not have any liability to the recipient or any other party resulting from the use of this information by the recipient or such other party. May not be reproduced in any way or disseminated to any other party without the prior written consent of Aon.

#13914 – 02/2014