



Insight

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# The Implications of Driverless Cars for Boards



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Principal

# Introduction

The automotive industry has hit a pivotal point in its evolution; according to Thomas Frey, the introduction of driverless cars will change transportation more dramatically than the invention of the automobile itself. Autonomous (or partly autonomous) cars, trucks, aircraft and boats already exist, and the technologies used in their production, e.g. artificial intelligence, machine vision and sensors, are rapidly improving. One of the great transformations that driverless cars will bring is the move away from vehicle ownership towards autonomous shared mobility services.

In recent months, several telling signs have emerged from the automobile industry that this disruption has reached a pivotal point; most notably business models are being adapted, explicit time frames have been announced and the automobile industry is competing in earnest to release self-driving cars. Elon Musk has said that almost all new cars being produced in 10 years' time will be driverless, and that by 2027 it will be rare to find a car that isn't autonomous.

The disruption that this new technology is already creating has flow on effects that will change the way we travel and the way industries, like the transport and insurance industry, structure their offerings. Industries have already begun to grapple with what this disruption will mean for them; even Uber CEO, Travis Kalanick, has acknowledged that Uber's survival is dependent on being the first to deliver a self-driving taxi network.

Johann Jungwirth, Volkswagon's head of Digitalisation Strategy, expects driverless cars to be on the market by 2019. General Motor's Head of Foresight and Trends, Richard Holman, has said that most participants in the industry expect self-driving cars to be on the road by 2020 or sooner. Unsurprisingly, Elon Musk has accelerated his own timeline, and Tesla expects their first autonomous cars to be ready by 2018.

## Consider the following

- Google's self-driving car, Waymo, conducted the first completely driverless journey through the city streets of Austin in 2015 – Steve Mahan who is legally blind was the sole passenger in the car that successfully navigated everyday traffic;
- In 2016 Uber's self-driving truck made its first delivery (of 50,000 beers);
- Self-driving Ubers are already on the roads of Pittsburgh;
- Self-driving tractors are already being used on farms;
- Tesla expects their first autonomous car to be on the market by 2018;

- Ford has doubled its development staff in Silicon Valley and aims to provide mobility services with fully autonomous Fords by 2021;
- Self-driving trains are expected to be introduced in Germany by 2023;
- Driverless cars will be in use all over the world by 2025;
- Uber's fleet is set to be driverless by 2030;
- By 2030, the driverless car industry is predicted to be worth about \$90 billion;
- By 2035, autonomous cars will make up 10% of total car sales worldwide.
- In the next five years, low cost and commercially available drones and submersibles could be used for a range of applications

Quickening the pace is the entry into automobile design and production by companies with technological backgrounds, such as Google and Apple. These new entrants are compounding the disruption felt by the traditional automobile manufacturers who began by resisting the progress. Dr. Alexander Hars describes this period of rapid disruption as being "in the middle of a global, distributed innovation process around self-driving cars and driverless mobility where all parties are learning, refining their thinking, changing their vision of the future and adapting their actions accordingly."

**KPMG has highlighted the following as the most significant impact of driverless cars:**

- Crash elimination – what will this mean for insurance companies?
- Data challenges including the threat of hacking into the car's system as well as privacy breaches.
- More efficient traffic flow, and therefore greater travel time dependability;
- Productivity improvements – freeing up time for drivers.
- New models for vehicle ownership: car-sharing companies such as GoGet are already taking off across the country.
- Improved energy efficiency.
- The need for new business models that are not constrained by the traditional focus of the automotive industry on volume leadership, consumer cars and traditional branding.

Kalanick expects Uber's fleet to be driverless by 2030 at which point the service (and other ridesharing services) will be so inexpensive and ubiquitous that they will render car ownership obsolete. Peter Diamandis, founder of Singularity University, has forecast that self-driving cars will start to kill car ownership in just five years. John Zimmer, the co-founder and president of Lyft, has said that by 2025 car ownership will all but end in cities.

## Challenges and Threats

Elon Musk has predicted that the change coming to automobile offerings will be so significant that it will eventually become illegal for humans to drive cars themselves, as it will be regarded as too dangerous.

### The car insurance industry

**Over 90% of car accidents occur as the result of human error; take human error out of the equation with autonomous cars, and the utility of car insurance is significantly reduced. The introduction of driverless cars and the concurrent rise of ridesharing services raises long-term questions about the relevance of car insurance. Deutsche Bank has warned that:**

- in 20 years, there may not be a car insurance industry as we know it;
- in 10 years, the roads could be virtually accident-free; and
- in 5 years, this all stops being some 'George Jetson' fantasy.

The development of autonomous technology is occurring rapidly and the disruption it is already causing raises real questions about the future of the car insurance industry. For the first time, Allstate Insurance (the largest publicly held personal lines insurer in the US) included autonomous cars in the risk section of their 2015 Annual Report.

The combined challenge of autonomous vehicles and the increased use of ridesharing services is being recognised for the first time, and even Allstate acknowledges the reality that insurance companies "may not be able to respond effectively".

### The automobile industry

A major challenge for automobile producers is to shift the focus of their strategy away from selling consumer cars toward providing mobility services. Dr. Hars says this process "must be

unencumbered by the current ‘realities’ of the auto market” and instead must “include scenarios, business models and market dynamics that may entice investors to pour funds into promising opportunities.” Case studies such as Kodak highlight the difficulties faced by industries where the players need to drastically change their direction, particularly when those players have accumulated vast experience and hold strong, shared convictions about the industry.

Dr. Hars points to this shift towards ridesharing services as the reason that automobile producers have been reluctant to advance the development of this technology. However, this hesitation has allowed new entrants into the industry, including Google, Apple and Baidu.

However, the automobile industry is certainly not the only industry that will be affected. Both the air travel and hotel industries have been identified by Audi senior strategist, Sven Schuwirth as being under threat. Short domestic flights and short-term accommodation will be rendered largely unnecessary as people will be able to sleep and work in their cars en route to their destinations.

## **Data challenges**

The most significant threat posed by driverless cars is the potential for hackers to compromise their data systems. The threat posed by people or organisations hacking these vehicles is severe; from the invasion of privacy through tracking the whereabouts of vehicles, to compromising the safety of vehicles by feeding the system false data. What does the potential compromise of privacy mean for public figures and politicians, if their location can be easily tracked?

## **Opportunities**

### **Job creation**

Significantly safer cars will also change the way cars are designed – there will be no requirement for safety features such as roll cages, airbags and seatbelts. This creates potential for alternate uses of the space within vehicles, for example the ability to create a moving office.

Manufacturer’s focus will shift from the driver experience to the passenger experience. While crash elimination may see the demise of industries such as car insurance, it will also create a whole new market for the redesign of the cars of the future, and the electronic, aesthetic and functional offerings.

**This shift will create a huge range of new jobs, including the following that Thomas Frey has identified:**

- In-car “ride-experience” designers
- Operators of fast food drones that will dock with moving cars
- Traffic flow analysts
- Traffic system planners, designers and monitors
- Automated traffic architects and engineers
- Driverless operating system engineers
- Luxury vehicle designers
- Traffic transitionists and impact minimisers

## **Increased accessibility of driving**

**Driverless cars will also hugely benefit people who would otherwise not have access to the independence of driving. This includes:**

- People who are visually impaired;
- People too young to drive;
- Older people who have never had, or have been unable to keep, their license;
- People with disabilities or injuries that prevent them from being able to drive;
- People who are unable to afford cars or ridesharing services at their current cost;
- People who have lost their license;
- People on medication prevents them from driving;
- People who are unable to afford, or have lost, car insurance.

The personal benefits, as well as the benefit to the economy, of these groups of people having the independence that comes from driving, is significant.

It is clear that unprecedented changes are already happening in the automobile and wider transport industries, and all those that are directly or indirectly connected to them. In the words of Dr. Hars; the avalanche is in full swing now and it will be a tough ride for those who fail to adapt while there is still time.

## Implications for Boards

This is just another example of the amazing changes sweeping most sectors of the business world. In this case, two major international industries, automotive manufacturing and vehicle insurance, will be first affected but Boards must think creatively about the spin-off effects to their areas of business.

Boards need to understand the forces sweeping across their businesses and ensure that the business is innovating to remain competitive.

Innovation, to prepare for inevitable change and to respond to unforeseen events, will demand more time from boards in the future.

More on this topic soon.

# Thanks for reading

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