Advancements in transportation technology are an unstoppable force and will change transportation in the same way that the internet has remapped the world. However, the law will struggle to keep up.

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INTRODUCTION

It is an exciting time for the transport industry. Automotive technology has advanced dramatically over the last few years, and now the widespread use of autonomous vehicles appears to be just around the corner. Tesla are expected to release their first fully autonomous cars by 2018, while Ford have pledged to develop their own models within five years.\(^1\) One consultancy has even predicted that between 2040 and 2050 at least half of all traffic in the US will be autonomous as technology becomes more refined and more affordable.\(^2\)

There are numerous benefits to be gained from the widespread availability of autonomous vehicles. Self-driving cars are expected to offer greater mobility to those who are unable to use conventional driving systems, and by regulating fuel use and planning journeys they are expected to be more economically and environmentally efficient.\(^3\) Other forms of autonomous vehicle such as lorries, drones and ships are expected to have significant benefits for business and commerce, while overall the removal of human error from the operation of these forms of transportation is expected to improve safety and reduce the possibility of accidents.\(^4\)

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4. ibid.
Considering the imminence of these new technologies and the huge impact that they will have on the world, it is now more important than ever to examine how the law will respond to these new developments. Given the enormity of this topic it is impossible to consider the impact of multiple classes of vehicle across multiple areas of law in one short essay. Therefore, this article will explore the impact that driverless cars are likely to have on tort and insurance law. Overall it will be argued that within these sectors a significant overhaul of existing legal principles is not needed, and that the best course of action is a gradual evolution of the existing law. However, difficulties may arise from the rapid development of technology driven by a competitive market place. If regulation does not match the speed of innovation, the law may struggle to keep up.

I. IMPLICATIONS FOR TORT

The introduction of autonomous vehicles presents a number of important implications for liability law in the UK, most obviously in relation to negligence in driving. It has been estimated that worldwide there are 1.25 million traffic-related deaths each year, and that more than 90 percent of road accidents are caused by human error. While the adoption of autonomous vehicles should in theory make roads safer and accidents less frequent due to the removal of human error, it is widely accepted that “even a careful design of automated driving systems cannot fully eliminate the unreliability of software.” As the primary cause of road accidents shifts from human error to technical defects, the law of liability will need to be reconsidered in order to cover new circumstances.

Under the current legal framework, the UK uses a ‘fault-based’ approach to negligence in cases involving road traffic collisions rather than the strict liability approach taken in other European jurisdictions. This means that rather than the ‘holder’ of the vehicle being automatically liable regardless of whether or not they were in control of the vehicle at the time of the accident, the courts will look at the facts to determine whether the person in charge of the vehicle fell below the minimum standard of care and was therefore responsible for any harm caused.

A fault-based approach to negligence presents a number of problems when applied to fully autonomous vehicles. Since the ‘driver’ is not in direct control of such a vehicle, it has been argued that it is “contradictory to assume negligence… if an accident occurred during such an automated phase.” For regulators, this contradiction raises the problem of who should be held responsible in such a situation. The importance of this question becomes even more apparent when we examine the underlying purpose of liability law; Lohmann observes that in the

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7 ibid, 336.
UK, liability law serves the two main purposes of compensation and deterrence. In other words the law provides protection to the injured party by ensuring compensation, and provides incentives to those responsible to take adequate measures to prevent the occurrence of damage in the first place. With this in mind, it is submitted that any reform of the current legal framework must not only take into account the impact of new transport technologies on road accidents, but also keep the foundational principles of liability law intact.

Taking these matters into account, it is likely that in the case of fully automatic vehicles liability will shift towards the manufacturer, resulting in a legal framework similar to existing laws on product liability. The reasoning behind this shift is that in an automated system, accidents will occur as a result of technological defects rather than human error. As Jeffcott and Inglis observe, “If the driver has passed control to the vehicle the manufacturer would be liable for any harm caused as the product is defective.” The vehicle manufacturer can be considered an adequate risk bearer since the shift in liability will incentivise manufacturers to make their vehicles as safe as possible while providing appropriate compensation to injured parties. The method by which this can be accomplished forms a part of the law on insurance, which is discussed next.

II. IMPLICATIONS FOR INSURANCE

A consideration of the impact of autonomous vehicles on tort law leads naturally to a discussion on how insurance law will be affected by advancements in transportation technology. As stated above, the biggest cause of road accidents is human error, and the widespread adoption of autonomous vehicles is expected to make roads safer and reduce the frequency of accidents. Correspondingly it is expected that the need for insurance should also fall. However, where accidents do occur it will be necessary to determine how liability is apportioned and how insurance will cover the costs of the parties involved.

Under the current framework, insurance liability will usually fall on the insured driver, a third party driver, or both. However, in an accident involving a self-driving car a number of other parties are likely to become involved, such as the manufacturer of the vehicle as well as sub-contractors responsible for software.

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10 ibid, 338.
11 ibid.
12 ibid, 337.
15 Oliver Ralph, ‘Cost of car insurance to plunge with rise of driverless vehicles’ (Financial Times 2016) <https://www.ft.com/content/8718f37a-21d9-11e6-9d4d-c11776a5124d#a7x7e42f5d7dQ9> accessed 23 March 2017.
programming or individual components of the autonomous system.\textsuperscript{17} In the early days the issue of how to apportion liability will be complicated, and will most likely be decided on a case-by-case basis.\textsuperscript{18} It is also likely that the courts will need to rely on expert advice in order to establish facts and get to grips with rapidly changing legal and technological issues.\textsuperscript{19} Overall it is expected that, since accidents caused by fully autonomous cars will more likely be due to software errors rather than human error, motor insurance will be extended to cover product liability in a similar way to how liability under tort law will shift towards the manufacturer. However, compulsory motor insurance is likely to be retained, and so while insurers will continue to bear the brunt of accident costs they will in turn be able to make claims against manufacturers.\textsuperscript{20} Overall this framework would give certainty to affected individuals that their insurance will cover any damage, while also holding manufacturers to account for system failures.\textsuperscript{21}

III. WILL THE LAW KEEP UP?

This article has discussed just a few examples of how driverless cars are likely to impact the world and how regulatory frameworks are likely to be adapted to suit these new technologies. The overall impact of autonomous vehicles is much broader than one short essay can cover. However, it seems that for the most part, what is required is a gradual development of existing legal principles rather than a dramatic overhaul, and this was the method proposed by the UK Government’s \textit{Pathways} publication.\textsuperscript{22} As Syed observes, we are likely to face a driverless evolution rather than a revolution; it is “mission difficult, not mission impossible”.\textsuperscript{23} However, it is important to take into account the effect of industry competition on regulatory standards. The first company to offer fully autonomous cars is likely to set the standard that other manufacturers must meet in order to stay competitive. This has led to concerns that if the speed of technological progress is greater than regulatory standards then there is a danger that the market will set the level of safety that consumers can expect. It is therefore vital that public debate and government scrutiny keep pace with advances in automotive technology; if they do not, then there is a danger that the law may not keep up.\textsuperscript{24}

\begin{footnotesize}
\begin{enumerate}
\item ibid.
\item ibid.
\item N Syed, ‘Regulating autonomous vehicles’ (2017) CTLR 11, 14.
\item UK Department for Transport, \textit{The Pathway to Driverless Cars} (London: DfT Publications, 2015)
\item N Syed, ‘Regulating autonomous vehicles’ (2017) CTLR 11, 15.
\item O Jeffcott and R Inglis, ‘Driverless cars: ethical and legal dilemmas’ JPIL 19, 22.
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CONCLUSION

In conclusion, despite the vast implications of autonomous vehicles and the speed at which technology is progressing, it is perfectly possible for the law to keep up and provide an effective regulatory framework. To do so however it is vital that governments take a proactive approach to this complex task, and ensure that regulatory views keep pace with industry developments. Autonomous vehicles present an exciting opportunity for consumers, businesses and legal professionals. For aspiring lawyers as well as those already in practice, this is an area which should not be overlooked.