

The shape of things to come

Giles K Bailey asks: Why should an autonomous car still be a 'car'?

There has been so much recent talk about the autonomous car, or vehicle, and how it could revolutionise the driving experience. Imagine sitting, for example, in your favourite Jaguar XF Saloon and enjoying the countryside as the car takes control of the routing and driving experience and you only need concern yourself with conversation with your passengers, selecting the most soothing music and enjoying the view.

As this technology revolution gathers the interest of political leaders, designers, engineers, investors and analysts around the world new concepts and user cases are being

developed and the hard thinking is progressing on a range of issues such as how to mix existing technology and autonomous vehicles; the safety of pedestrians and cyclists in urban environments – as well as likely in the countryside; should 'autonomous' mean fully self-driving or is a partial solution more realistic, affordable and would offer most of the key societal benefits; which type of roads are most appropriate for these new vehicles – local streets, controlled driving environments such as office parks, or access controlled high speed motorways.

Meanwhile, Google launched and promoted its version



Mercedes-Benz

The interior of the Mercedes F 015 Luxury In Motion concept vehicle

“Driving is not just about the vehicle, we as a society have invested significantly over the last century in developing structures, landscapes, services and lifestyles for the ‘driven’ vehicle”



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of the new autonomous vehicle – which doesn't particularly look like a classic and alluring car at all. Google has promoted a vehicle that seems more like a super compact city car or a golf buggy. Apple has similarly recently announced its intention to enter the autonomous car market by 2020 with the entire product and marketing savvy that this business is well known for.¹

These initiatives are leading the OEMs to reconsider and redesign their businesses and the role of their vehicles. For example, BMW have launched a series of electric and hybrid vehicles of quite different designs under the 'i' brand

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1 “Apple wants to start producing cars as soon as 2020”, Bloomberg, February 19 2015

2 “Detroit dinosaurs hit the road to Silicon Valley”, *Financial Times*, February 6 2015

as well as a range of car-sharing services. Renault-Nissan have progressed industry-leading electric vehicles. As a convergence of industries it is interesting to see that many of the OEMs are setting up innovation centres in the Silicon Valley in California to progress new models and to be close to potential disrupters.²

THE CAR AS THE DRIVER

But, have we missed a key issue in the ultimate impact of the autonomous vehicle? If we start the debate from the viewpoint of the non-autonomous vehicle with a driver and which is the history of this industry for the last 100 years, we would naturally assume that the next evolution would be to assist and then perhaps remove the role of the driver – while keeping much of the rest of the design and associated driving infrastructure in place. This seems to be a great opportunity for the driver as outlined at the start of this article – in terms

of a more pleasant journey. In addition, driving is not just about the vehicle, we as a society have invested significantly over the last century and particularly since the 1950s in developing structures, landscapes, services and lifestyles for the 'driven' vehicle. You could argue that most of the design of the post-War suburban community is more about the driven car than the person or natural environment.

This raises a number of issues. As human beings we began to live in urban societies over 5000 years ago. So, for the vast majority of our history our communities were not designed around the car. In the long-term view of history, the last 100 years, let alone the last 50, are but a moment in time. We shouldn't and don't need to assume our present structure of cars on every street and for almost any personal movement is a basic requirement. Yes, change takes time, but 100 years ago our streets had no cars!

Modern and historic industry contains many examples of industrial change that led to new paradigms of customer use and behaviour. For example, most of us still call the small device in our bags or pockets 'phones' even though most use is as a portal to a range of data services. As a further example, the patent for the simple barcode was in 1952 as a means of grocery store stock control. It has however, led to the modern situation of allowing many modern grocery stores to move to self-service and significantly reduced one of the early core areas of labour in the supermarket – the checkout till operator.

The world is also rapidly urbanising. Europeans can often reflect on life through the lens of our historic cities which have been inhabited for hundreds of years and have generally been adapted to life in a range of eras. However, much of the future urban landscape of humanity hasn't been built yet. It will be in Asia, South America and Africa.

"Continuing population growth and urbanization are projected to add 2.5 billion people to the world's urban population by 2050, with nearly 90 per cent of the increase concentrated in Asia and Africa..."³. In addition, "...close to half of the world's urban dwellers reside in relatively small settlements of less than 500,000 inhabitants, while only around one in eight live in the 28 mega-cities with more than 10 million inhabitants."³

Our existing urban landscapes will have to be redesigned to meet the evolving needs of society that will mean change and a change that has always occurred in our cities.

IS IT EVEN A CAR?

So what is the autonomous car? I'm not a car technologist and I'm certainly not a fortune teller, but what is clear is that this is perhaps the most significant redesign of the role of urban mobility since the car replaced the horse as the principal means of human mobility. This is far more important than the environmental shift to electric vehicles.

The autonomous car isn't a 'car' any more. It is more akin to a personal (and group) means of mobility. It needs to

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be secure for its occupants as well as other users including pedestrians and the natural environment around it. It should be comfortable and for longer journeys probably quite luxurious for many users.

In this modern world, information connectivity will be paramount for the device. This includes the ability to remotely monitor the unit and control its operation and maintenance as well as for the user(s) to make the most productive use of their travel time or simply be entertained. The vehicle should be propelled by a sustainable and environmentally responsible means of power. And, the device should be able to work within the longer-term view of the needs of human centred urban design environments – both road and home/business.

There are, no doubt, a few other key criteria. However, quite a bit of what a contemporary car provides is really not required for this vision such as the 'three box' design of engine, passenger compartment and rear stowage area. Or, the car's seating arrangement of driver, front passenger and

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³ World Urbanization Prospects – The 2014 Revision, United Nations Department of Economic and Social Affairs, New York, 2014

then passive rear passengers. Or, having the driver immediately in front of a range of detailed controls that need to be operated at a moment's notice while still safely controlling the vehicle. In fact, many of the current design elements of a car may be quite inappropriate for a real autonomous device.

There are a number of directions in which this debate could progress and it is likely that, as we have seen in other industries, a range of new user cases will develop for the car that will lead to quite a varied set of mobility devices for different needs and situations. It may not simply be a situation of mass production but, much more about intelligent needs.

A vision I particularly find appealing is playing out in the airline industry as the airlines search for the most luxurious, attractive and effective seating experience. This is particularly in the business and first class markets where a range of designs are being rolled out that offer users a private and comfortable space that, in effect, allows them to flexibly make the most appropriate use of the few hours in the air – including for sleep. This is a very space- and weight-constrained business and thus, it can be argued, does have some parallels to the potential autonomous device industry. Is the business class seat really the future of experience inside an autonomous vehicle?

And finally, why would you need to personally own this vehicle? I don't own the aeroplane or the seat that transports me across the Atlantic, the shopping trolley I get at the supermarket or the seat on the train I use every day. All of these services are easily accessible and generally affordable when and where I need them. Hence, they can be easily re-used by others when I don't need them.

Is the ultimate future of the 'car' a non-personally owned series of niche mobility units that offer sustainable travel, but allow extreme flexibility in terms of how time is spent inside the unit? Is the resulting device, therefore, actually still a 'car'?



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