Avis White Paper

The Evolution of the Connected Car

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Executive Summary

Imagine a world where you can start your car's engine from two streets away and your office building asks you if you want to keep the lights on or off overnight, while your fridge reminds you that you have nothing left for dinner. What will it mean for you and your business?

This might sound like something from science fiction, but actually this is already happening today. From cars to office buildings, objects are getting smarter, and connected car technology is set to revolutionise the car rental industry.

For years, car rental hasn't dramatically changed. While vehicles have upgraded and services improved, customers still go to a counter, sign paperwork, collect keys and head to their vehicle. But as the world embraces connected car technology, this will all change – and it's happening now.

We've seen 'digital' disrupt and reshape other markets, such as music, photography, retail and – more recently – taxi hire. Industries such as banking have developed thanks to advances in technology, with mobile phones now a representing a valid alternative payment method, much faster and more efficient than cash machines and debit cards. And, thanks to the connected car, we can now expect to see car rental transformed, too.

Technology is evolving at a fast pace, and the connected car will soon become the new normal. Its potential benefits are numerous, with telematics and the collection of data adding to the shift towards mobility as a service, which could have a big effect on both car rental and the wider automotive industry.

With the potential for autonomous cars on the rise, it's becoming increasingly obvious that connected cars are already here and they are prompting new questions, posing new challenges and providing new opportunities that automotive companies and others are trying to address. These include safety and liability, data usage and security, and the transition towards service provision, amongst others.

The connected car has the potential to transform the car rental experience of the future, with opportunities to make people's car journeys smoother, more efficient and more enjoyable – with the simple tap of an app, people will be able to see which car has been assigned to them and have the option to change it if necessary. They will be able to open the car without a key, and the paperwork would have already been taken care of thanks to sign up process of the app.

This vision for the future is just an example as connected technology is set to revolutionise not only the automotive industry, but also business models of other related industries such as telecoms, insurance and leasing. It will also have an effect on mobility solutions and how travel and procurement managers provide these for their employees.

In this report, Avis has brought together different perspectives from business leaders who share their take and insights on the connected car revolution, and what it could mean for the car rental industry.

Contents

About the Authors

Nina Bell, Managing Director, Northern Region (EMEA), Avis Budget Group

Nina Bell is responsible for the Company's vehicle rental operations in Denmark, Norway, Sweden and the United Kingdom. Nina has over 13 years' experience with Avis Budget Group and spent three years as Strategy Director, EMEA, before her current role as Managing Director. Prior to this role, she led a new business development team, implementing strategic initiatives across the region.

Anders Eugensson, Director of Government Affairs and Core Values Communications, Volvo Car Corporation

Anders's role is part of the cross-functional team responsible for defining the long-term Volvo Cars safety strategies. Having joined Volvo in 1984 Anders has been involved in the structural crashworthiness design of the Volvo 850, before joining the legal requirements department and later the Volvo Safety Centre, working on strategic issues as well as interacting with governments and policymakers.

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Carlo Gagliardi, Strategy Partner, PwC Strategy

Carlo is one of PwC's global thought leaders and practitioners in digital strategy and differentiation, and has authored various articles on digital advantage. He specialises in digital transformation and innovation, including "Connected Life" and new business models made possible by the emergence of Digital Identities. Carlo leads the PwC Digital Practice in the PwC Strategy& UK. He has 25 years of experience in advising clients and routinely facilitates workshops with CXOs and presents at conferences on themes around growth, advantage and innovation in the Digital Age.

Dr. Nicolaus Gollwitzer, Global Head of Telematics, Internet of Things (IoT) and Chief Executive Officer, Vodafone Automotive

Nicolaus joined Vodafone in March 2011 as Global Head of Technical, Internet of Things (IoT). With over two decades' experience in the technology and telecommunications sectors, Nicolaus successfully led the Global Technical IoT team, enabling the completion of multiple business transformation programmes and improvement of the customer service organisation. Since the acquisition of Cobra (now Vodafone Automotive) in 2014, he has led Vodafone's Global Telematics team to deliver world class connected car services and products for the automotive, fleet and insurance industries.

Jay Parmar, Director of Policy and Membership, British Vehicle Rental & Leasing Association (BVRLA)

Since joining the organisation in 2000, Jay has successfully led the delivery of the three key drivers of BVRLA membership: status and credibility; voice of the industry; and information and guidance. Jay is adept at lobbying to promote the benefits of the industry and consults regularly with policymakers to ensure fairer legislation is produced to support sustainable growth and safer roads. He utilises his Whitehall and Westminster network to secure a good deal for the fleet sector and negotiates hard for his members and their customers.

What is a connected car?

Contributed by Avis Car Rental

Most cars coming off the production lines now are "connected" – meaning that they offer internet connectivity, along with a local Wi-Fi network, allowing devices inside or near the car to share that internet access, while Bluetooth allows people to use the system to make hands-free phone calls.

Like other devices which are part of the "internet of things" – such as fridges, cookers and security systems – the vehicle is able to use its connectivity to offer new functionalities to the owner. Advances in technology have resulted in innovations from a whole host of industries – Samsung's Family Hub Refrigerator takes pictures of fridge contents to monitor what food is left and can tailor product recommendations based on preferred foods; British Gas's Hive system allows you to control home appliances from heating to sensors from a mobile, tablet or laptop; Sonos can access speakers to play different music in different rooms at the same time.

A recent study carried out by Avis discovered that only 57 per cent[1] of respondents actually knew what was meant by the term. While driverless cars have been grabbing the headlines there is still work to be done in educating the public about connected cars.

Only **57%** of people knew of the term **"Connected Car"**

Telematics

The term "telematics" has mainly been associated with insurers monitoring drivers' habits, often using "black boxes" to keep tabs on drivers deemed to be a high risk.

But connected cars offer so much more – from satellite navigation with instant updates on live traffic information to allowing communication between cars and "smart" street signs and other connected vehicles.

Data is the key to telematics. As vehicles become more intelligent, they produce more information that can be analysed and shared to improve the driving experience, to bolster existing services and to create new ones.

Data brings benefits to the driver, the manufacturer, the mobile provider and the vehicle owner: it can enhance safety and sharpen engine performance, offer emergency warning and distress call systems, vehicle tracking, vehicle diagnostics, maintenance alerts and tools to improve fuel efficiency.

Fleet operators can also benefit from these features, and commercial vehicle operators are already forging ahead with applications specific to the demands of freight haulage and passenger transport. For example, Stobart Group, which operates 2,500 trucks in the UK, logs details of every delivery in real-time, enabling vehicle movements to be rearranged at a moment's notice to increase efficiency and reduce empty trucks on the road[2].

But the use of data presents its own challenges and concerns, particularly to consumers. Our recent study found that people are uncertain about how the data will be used – and by whom. In fact, just 10%[3] said they would be happy for their data to be shared with a third party while an additional 40%[4] said they would want to give express permission in order to do so. We will explore this key element of the connected car further within this report.

Connected vs autonomous

Fully autonomous cars are the next step in the evolution of transport, building on connected car services to make journeys safer and more efficient. Autonomous cars are highly connected and will have the ability to talk to other nearby vehicles and the road infrastructure, to optimise traffic and road safety and to manage parking tolls and other public services, leaving the driver to get on with other activities, for example catching up with their emails. While some of these elements already exist, the fully autonomous vehicle is still a concept that has yet to be fully realised.

While a number of trials are already underway by car manufacturers to push the boundaries of autonomous vehicles, currently they remain semi-autonomous. This means they can handle some parts of the journey, but the driver must remain alert and ready to take control where required.

And that is the main difference between a connected car and an autonomous vehicle: connected cars offer benefits such as traffic and navigation information, parking assistance and predictive emergency braking – all of which assist the driver – but an autonomous vehicle can drive itself.

"With connected car technology moving forward every day and the potential to affect a huge range of industries, it's crucial that we share knowledge and explore the opportunities that it presents. As you will discover in this report, telematics, data and new mobility services are among us, and their proper application and usage can provide huge gains – both today and long into the fully autonomous future."

Nina Bell, Managing Director for the Northern EMEA Region, Avis Budget Group

[1] Avis survey, conducted in June 2016, 112 respondents

[2] http://eddiestobart.com/about

[3] Avis survey, conducted in June 2016, 112 respondents

[4] Avis survey, conducted in June 2016, 112 respondents

Connected, automated, shared

Contributed by Vodafone Automotive

"The automotive industry is in the middle of a technological revolution – and whether you're a car manufacturer, fleet operator, town planner or insurer, the radical changes are set to affect you. A new kind of transportation ecosystem is being built for tomorrow, and in it nearly everything we take for granted about owning and using vehicles is ready to be reinvented. Those who embrace these radical changes can turn the disruption into an opportunity".

Dr. Nicolaus Gollwitzer, Global Head of Telematics, IoT and CEO Vodafone Automotive

Vodafone Automotive

The connected vehicle: changing the travel experience

Millions of connected cars are already on the road and the numbers are growing rapidly, it is predicted that one-in-five passenger vehicles will be connected by 2019[5]. Just as we can no longer tolerate a home, hotel or office without Wi-Fi, we expect our vehicles to be part of our always-on lives.

> ***"Connected vehicles will deliver value for everyone."***
>
> **Dr. Nicolaus Gollwitzer, Global Head of Telematics, IoT and CEO Vodafone Automotive**

Ultimately consumers, car manufacturers and related industries and players will see a range of mutual benefits:

- Cars will be connected to the factory, allowing data flow on vehicle performance and real-world user behaviour. Manufacturers can use this data to improve their products and services, for example to develop more fuel efficient engines.
- Better reliability will result from the issuing of over-the-air (OTA) updates to vehicle systems, correcting faults remotely, without the huge cost of a traditional recall.
- Connected cars can inform dealers and drivers about problems and book vehicles in for upcoming services. In some countries, the local authorities will also require new vehicles to come with connectivity to alert the emergency services in the event of an accident or breakdown.

37% of people want mobile connectivity in cars[6]

- Connected fleet management solutions give controllers up-to-date insight in order to optimise the utilisation of drivers and vehicles; monitor safety, security and compliance, control running costs, and deliver a more responsive service to their customers.
- Creation of smart cities. Put the journeys of millions of people and millions of vehicles together and what you have is a large part of the smart city. The data from the connected vehicle will be a large part of what makes the smart city function. Millions of vehicles could share data with traffic signals, with other cars, with emergency services and with smart parking bays to help overall traffic flow around the city, to the benefit of all.

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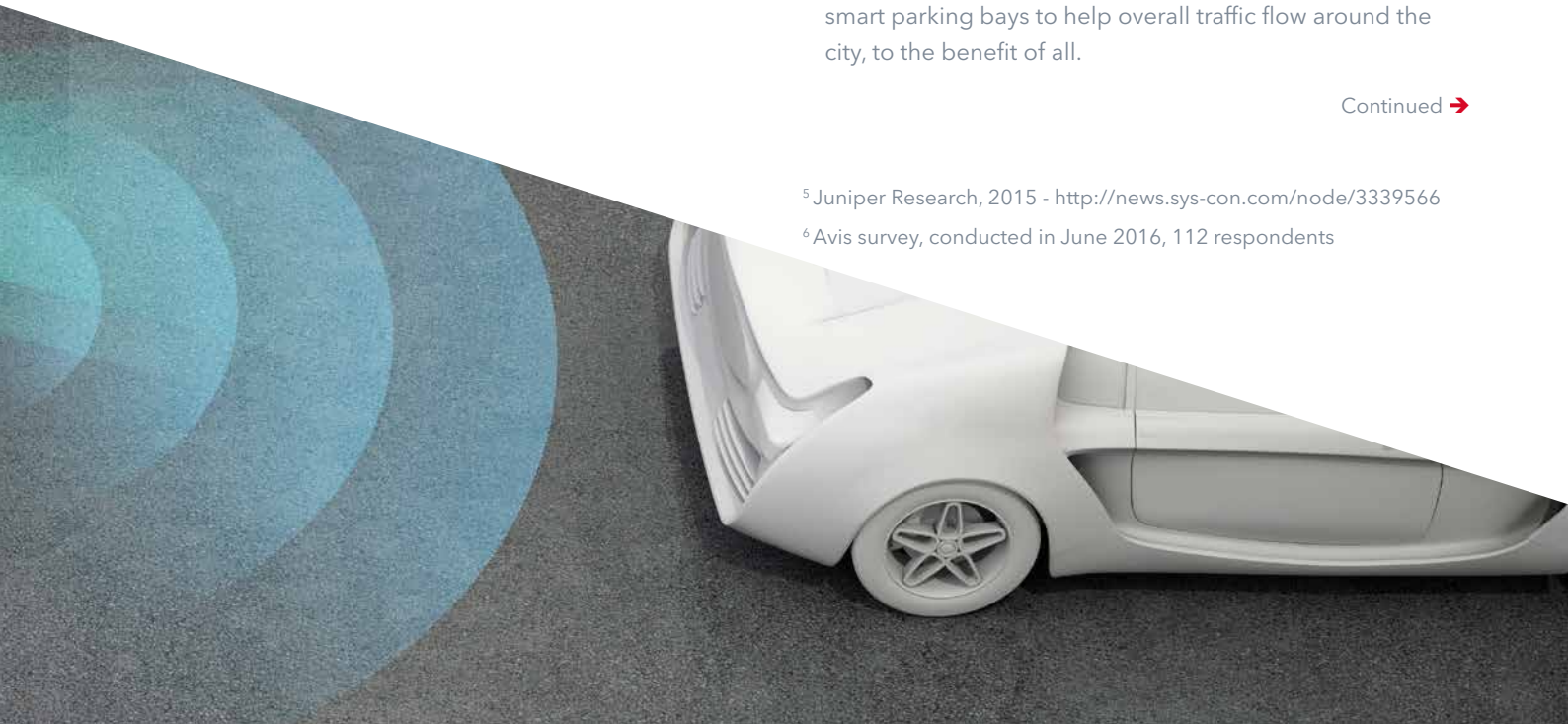
[5] Juniper Research, 2015 - http://news.sys-con.com/node/3339566

[6] Avis survey, conducted in June 2016, 112 respondents



Connected, automated, shared

Contributed by Vodafone Automotive

53% said vehicle to vehicle communication is the future

Vodafone Automotive

Barriers to overcome

Despite the benefits, there are barriers for businesses to overcome:

- **Culture:** Monitoring driving behaviour is not welcomed by all drivers.
- **Economics:** The purchases of fleet management solutions can be delayed by lengthy vehicle replacement cycles, and the business case for investment may be weakened or deferred by periodic economic slowdowns.
- **Integration:** To get the full benefit of investment, fleet management solutions need to be integrated into supply chain systems, ecommerce, HR systems, Enterprise resource planning (ERP) and business processes across the business. Like any major integration exercise, this can be disruptive.
- **Technology:** Conventional in-car electronics architectures were not designed with today's connected services in mind. Car manufacturers will need to learn from the IT world and accelerate their adoption of new car network architectures based on faster technologies like Ethernet, and more resilient models, like clustering.
- **Security and Privacy:** Securing the connected and self-driving vehicle is a hot topic for manufacturers, regulators and insurance companies. While automotive manufacturers and their component suppliers have a significant role to play in securing the car as an endpoint, all participants in the interconnected transportation ecosystem must contribute to securing the data as it flows. Also, data privacy, compliance and data sovereignty are issues that must be considered very seriously.

Conclusion

From the foundation of revenue-generating connected car services, the way consumers and enterprises use vehicles is poised for a dramatic shift. Far from isolating drivers from the world around them, connected – interconnected – cars will link people seamlessly to their homes, phones, workplaces, stores and the infrastructure.

Strands of this new journey-centric ecosystem already exist, and given the long development cycles associated with cars, urban infrastructure and social change, all players in this new world need to start work on shaping it today.

Connected car services are an important first step, but just as critical is working to forge non-traditional partnerships that benefit all parties, from the driver to the automotive company to the media, insurance and public sector bodies.

"Interconnected transportation is a complex and exciting journey for everyone involved, across industries and across the world. Partnerships are fundamental to establishing the data flows and commercial models that will underpin a truly customer-centric mobility ecosystem."

Dr. Nicolaus Gollwitzer, Global Head of Telematics, IoT and CEO Vodafone Automotive

The future of individual mobility

Contributed by Volvo Car Corporation

Connected car technology has opened up a world of possibility for the automotive sector – and that technology is pointing to a single guaranteed future: fully autonomous vehicles.

"Self-driving cars will change the world. As a firm that has always prioritised the safety of drivers, passengers, pedestrians and other road users, we see autonomous driving as a natural extension of our philosophy of car making."

Anders Eugensson, Director of Government Affairs and Core Values Communications, Volvo

That philosophy has led to the Volvo Vision 2020:

AIMING FOR ZERO: VOLVO VISION 2020

'Our vision is that by 2020 no one should be killed or seriously injured in a new Volvo car'

Image supplied by Volvo

Volvo's Anders Eugensson takes the longer-term view of what can be achieved with self-driving cars.

> ***"For rental cars, instead of just using apps for booking – the car will actually drive itself to you. There will be no need to go to the rental place."***

And while current semi-autonomous cars insist that the driver keeps his or her hands on the wheel and attention engaged, Volvo sees the technology as having the potential to free up time for work or leisure. For example to read, see a movie, update Facebook, and check emails. ***"Older people see being connected as a distraction from driving, younger people see driving as a distraction from being connected."***

81% of drivers say safety is top priority

Benefits of autonomous cars

The advantages of realising truly autonomous technology in vehicles are huge:

- Autonomous cars allow you to spend the time in your car how you want.
- Parking stress could also be ended with their occupants able to hop out at their destination and leave the vehicle to take care of parking itself.
- Town planning can be improved as car parks will take up less space with lower ceilings and more narrow parking spaces. They can be outside of town, as the car will park itself.
- Autonomous driving cars will be legal, cautious and polite.
- They will offer greater mobility for the blind and for the disabled.
- Traffic flow will be improved with no crashes or disturbances, and vehicles will co-operate with one another. Speed will be set to optimise traffic flow.
- Commercial transport will be a major application for autonomous driving, with freight and public transport both likely to be early adopters in some circumstances. Intermodal transport, moving people between transport hubs, is likely to be an early application for autonomous cars.

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The future of individual mobility

Contributed by Volvo Car Corporation

Image supplied by Volvo

Technical challenges

While the technology holds a great many opportunities and exciting developments, there are of course many challenges to overcome:

- Testing every conceivable scenario
- Understanding unusual situations
- Cybersecurity – the car must be impregnable
- Privacy when connected
- Interaction between driver and vehicle
- Understanding liability, both civil and criminal and, who is liable for the crashes when the car is in control

Overcoming the challenges

Challenges are opportunities that have yet to be realised and to ensure we overcome them; Volvo has embarked on an ambitious program of testing and development. The Drive Me program is endorsed by the Swedish Government and aims to pinpoint the societal benefits of autonomous driving.

Next year (2017) will see the largest-ever trial of autonomous cars for Volvo as 100 IntelliSafe Autopilot-equipped XC90s will be used on the roads around Gothenburg in Sweden.

More than 30 miles of typical commuter route will be covered, with a maximum speed of 50mph for the vehicles involved.

The experiment is not just about proving that autonomous vehicles can function on the current road network, but is also intended to discover how human drivers interact with these cars in the real world.

Similar experiments are set to follow in China and in London.

Conclusion

The future of individual mobility is sooner than you may think, you will order the car you need, when you need it and it will drive to you from a shared car pool. You'll then drive where you need to go and the car will take care of itself from there.

This begs the question: will we need to own cars in the future?

Not necessarily. The type of vehicle you order might vary according to your needs on the day – and you will only pay for the amount of time you use it for. Volvo predicts that manufacturers will develop a lifelong relationship with customers through this model.

By offering the freedom to decide what we need for that particular day – and what we want to do behind the wheel – we open up new dimensions of mobility. The freedom of being in control. A car designed around our customers and their needs.

"We are on a very exciting road to the future – and it's started already. Today we say oh my god there's no one driving that car. Tomorrow, we will say oh my god there's someone driving that car. As our technology develops and trials complete, we will continue to drive the industry forward and establish autonomous driving as a part of our daily lives. After all, the best way to predict the future is to shape it."

Anders Eugensson, Director of Government Affairs and Core Values Communications, Volvo

Racing ahead with autonomous cars and digital innovation

Contributed by PricewaterhouseCoopers (PwC)

> *"Over the next five years, the connected car could disrupt the entire automotive ecosystem. Connected cars are the leading edge of disruptive technology that's changing not only the automobile, but the nature of the automotive industry."*
>
> **Carlo Gagliardi,**
> **Partner and Co-Lead of the Digital Practise, PwC**

The automotive industry will undergo fundamental change as semi-autonomous driving emerges, followed by an eventual shift to full autonomous driving. Auto makers will take on a new identity as providers of mobility services. This will open the door to lucrative new digital revenue streams, especially as they begin to explore opportunities in other digital areas such as entertainment, commerce and monitoring a driver's health and fatigue level.

We foresee annual sales of connected car technologies tripling to €122.6 billion by 2021. This is a slight slowdown in adoption speed compared to earlier estimates, attributable to the decision by European regulators to give OEMs an extension to 2018 to install automatic emergency calling systems.

Core pillars of the connected car

There are three pillars supporting the connected car market:

1. Cars are becoming digital service platforms and car makers will become mobility service providers.
2. Data will drive the services, with autonomous cars demanding granular mapping and environmental data on areas like lane markings, road signs and traffic flow.
3. Connected cars will usher in a new ecosystem business model, the car rental market is ripe for innovation but security and privacy concerns must be overcome.

> *"Data is not a product – it is the new currency. And it is far more powerful than money. Money can only be used to buy a single item, but data can be used to buy many."*
>
> **Carlo Gagliardi, Strategy Partner, PwC**

A vehicle is one of the many "things" in the Internet of Things (IoT). Many players will offer digital services through connected car technology, ranging from entertainment to mobility management and health monitoring. These services will be a highly fragmented market where competitors from numerous industries converge. Just about anybody can play, but winners will be those that shape service offerings to the needs of mobile customers and provide the best user experience.

> *"Cars are becoming software."*
>
> **Carlo Gagliardi, Strategy Partner, PwC**

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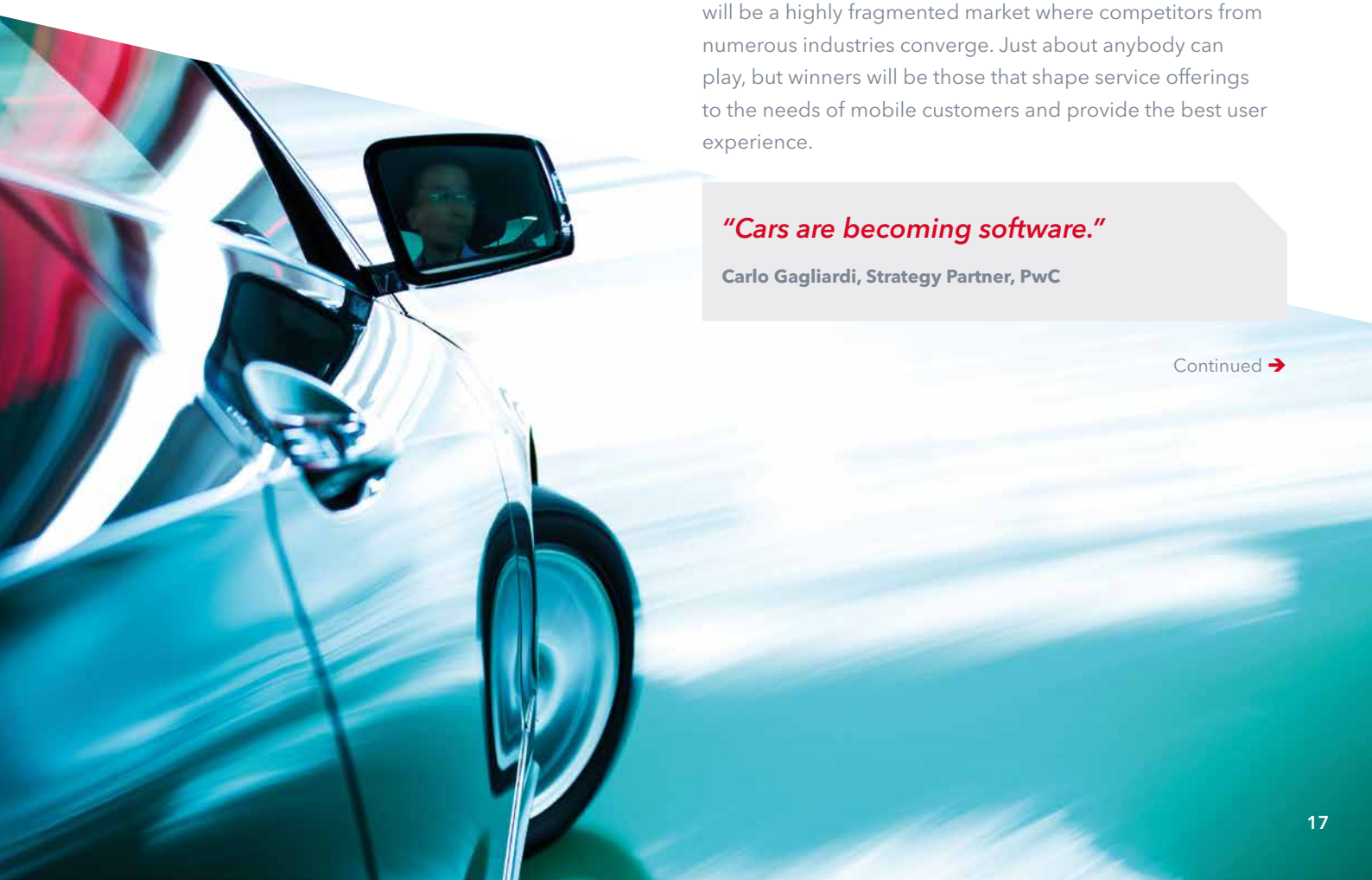

Racing ahead with autonomous cars and digital innovation

Contributed by PricewaterhouseCoopers (PwC)

We expect overall revenue from digital auto content to grow **204%**, to **€122.6 BILLION**, between 2016 and 2021[8]. The key catalyst of this is the European Union's mandate to implement emergency calling technology (eCall) by 2018.

Seven functional areas

We see the connected car developing around seven functional areas:

1. **Safety:** the ability to warn the driver of road problems, and automatically sense and prevent potential collisions.
2. **Entertainment:** the ability to provide music and video to passengers and the driver.
3. **Well-being:** optimisation of the driver's health and competence. Examples include electronic alerts that detect or mitigate fatigue.
4. **Vehicle management:** support for minimising operating cost and – for example – keeping up to date with servicing and traffic data.
5. **Mobility management:** guidance on faster, safer, more economical, and more fuel-efficient driving, based on data gathered for the vehicle.
6. **Home integration:** the ability to link the car to your home, office and other buildings, enabling seamless connection no matter where you are.
7. **Autonomous driving:** the ability to operate the vehicle without a human driver at the controls.

We expect connected car technologies to generate **€40.3 BILLION** in end-customer spending in 2016. Safety and autonomous driving accounting for about **61%**[7]

New players

> ***"To thrive in this business, auto makers and suppliers must learn to compete with new players, including technology companies native to the digital realm."***
>
> **Carlo Gagliardi, Strategy Partner, PwC**

Technology companies and auto makers operate with profoundly different principles and this colours their perspectives on autonomous vehicles. Auto makers have a product manufacturer's point of view. They see autonomous driving technology as an add-on to existing platforms. Tech players, by contrast, see the connected car as a greenfield opportunity, with autonomous driving as the starting point.

Auto makers favour proprietary technology tightly linked to hardware, emphasising reliability and regulatory compliance. Their development cycles are long and their closed systems don't interact well with outside technology.

Technology firms are less concerned about legacy systems. They value speed-to-market, versatility, rapid product development, and frequent iteration. Many operate on open platforms with standard protocols that can be used by a wide range of players. Their products show keen understanding of consumer needs, but can fall short in reliability and durability.

> ***"The ultimate winners will combine auto maker and technology perspectives. They will get to market early with digital offerings that meet customer expectations, while building the scale to dominate markets."***
>
> **Carlo Gagliardi, Strategy Partner, PwC**

Conclusion

We foresee four 'ways to play' or business models emerging, and some large players may pursue more than one at the same time.

1. **Aggregator of data and audiences** - Collecting and distributing vast amounts of data from connected cars will have value for third parties, such as insurance companies. Scale is the key to success for this way to play. Technology companies have the global scale and open systems needed to win as aggregators. Car manufacturers have a critical advantage with the control of primary data from the car.
2. **Digital service provider** - Many players will offer digital services through connected car technology, ranging from entertainment to mobility management. Winners will be those that shape service offerings to the needs of mobile customers and provide the best user experience.
3. **Digital augmented product provider** - Many car manufacturers will capitalise on their automotive expertise and customer insights to help optimise the performance and utility of vehicles. They'll offer a range of digital services such as fleet management, predictive maintenance, and automated driving to operators of large vehicle fleets. This way to play requires exclusive control of vehicle sensor data, billing relationships with customers, secure navigation data, and access to the artificial intelligence engines in autonomous vehicles.
4. **Digital enabler** - Some competitors will carve out niches as suppliers of high-value digital components of connected car infrastructure. These specialty players are likely to target a single product, such as street-monitoring sensors that tell an autonomous car whether roadways are clear. Control of technology through patents and standards is critical to their success.

[7] Racing Ahead With Autonomous Cars and Digital Innovation, Connected Car Study 2015, PwC

[8] Racing Ahead With Autonomous Cars and Digital Innovation, Connected Car Study 2015, PwC

Think on your fleet

Contributed by the British Vehicle Rental and Leasing Association

The automotive industry will experience more change in the next decade than it did in the previous 50, but what we are seeing is not one revolution, it is three.

1. **Radical changes in the way vehicles are powered, operated and used.** Drivers reliance on petrol and diesel fuelled vehicles is in decline as electric vehicles finally deliver the range, mpg and cost of ownership required to make them serious contenders for fleet buyers.
2. **The industry will be led by electronics and software,** where it was once dominated by mechanical engineers it has been transformed into one led by electronics and software. The modern car is one of the most complex devices on earth, with a host of electrical systems, sensors and processors that are making driving safer and more sustainable, and gradually removing the need for any human intervention at all.
3. **The modern connected car is part of the wider 'Internet of Things'**, and capable of sharing data in a way that will transform the way we live and work.

Data fundamentals for the fleet sector

The fleet sector is very adept at managing vehicular assets. It has a long track record of managing their safety, emissions, utilisation and costs. But in order to thrive in the new world of connected mobility services it needs to build its capabilities in managing a very different kind of asset – data.

1. **The data must be mined methodically and strategically:** Connectivity facilitates the collection of enormous volumes of data about driver behaviour, user preferences and the vehicles themselves. The data must be able to generate insight that provides value for car manufacturers, the fleet sector and other stakeholders such as insurers or service providers.
2. **Vehicle health data:** One of the most important vehicle datasets is that pertaining to its condition. Remote diagnostics allows early detection of faults, wear and tear. This facilitates early maintenance. It also makes it possible to budget better for such work, or to price warranty cover more accurately.
3. **Vehicle usage data:** The vehicle transmits data about how it is being used, which means fleet managers can monitor fuel consumption, mileage driven and other data and vehicle diagnostics.
4. **Driver behaviour data:** Drivers are assigned to vehicles and because of this the vehicle data is also driving behaviour. This information can be used to engage with drivers to encourage changes to their behaviour. However, it also gives insights about the driver and therefore could be argued that it crosses into the realms of personal data.

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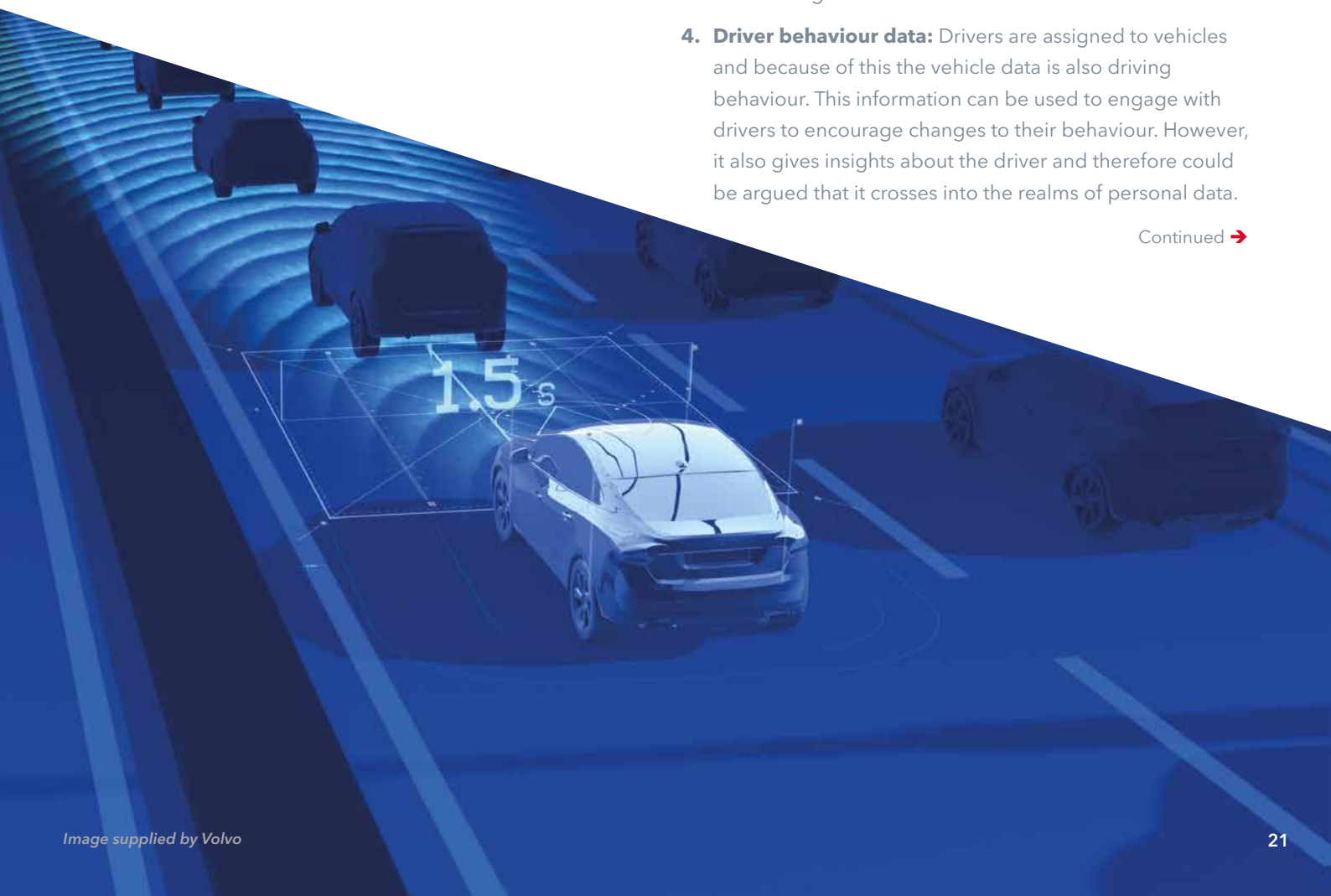

Image supplied by Volvo

Think on your fleet

Contributed by the British Vehicle Rental and Leasing Association

Key considerations

To make the most of the opportunity presented by connected cars, the BVRLA highlights four key areas to consider in the fleet sector.

1. Data protection and access

Personal data is particularly sensitive, as it is subject to data protection legislation, which in practice means it cannot be collected without good and specified reason and without an individual's consent.

Once it is clear that it is lawful to collect and process data, organisations must make sure the information is accurate, and that it is kept securely. Large firms with big databases of employees and customers are generally advised to employ their own data protection officer.

Data access is proving a thorny issue, with overlap between business models and applications – but most car manufacturers believe the solution is to provide access via a proprietary data server, often described as the 'Extended Vehicle Platform'. If telematics data is only available via this source, it creates understandable concerns about whether third-parties will have equal and open access to this data at little or no extra cost.

> *"It is imperative that the fleet sector develops and implements practical and procedural responses to cyber security threats."*
>
> **Jay Parmar, Director of Policy and Membership, BVRLA**

Image supplied by Volvo

BVRLA Quality Assured

2. Cyber security and hacking

Vehicles increasingly resemble computers on wheels, not least in terms of the cyber security threats they face. They are run by software and contain increasing amounts of confidential information.

> *"An F-35 fighter jet has around 8 million lines of computer code. A connected car has 100 million."*
>
> **Jay Parmar, Director of Policy and Membership, BVRLA**

Companies must protect end users, ensure they are protected against threats and reduce legal risk in relation to liability in the event of theft or accidents.

Automotive manufacturers and fleet operators must also prevent hackers from accessing data and/or gaining control of a very expensive and potentially lethal asset. People must be trained and authorised to deal with practical situations, processes must be implemented, and the right technology must be used. There must be a new framework of cyber security standards.

3. Digitisation breeds demand

The current fleet management sole supplier model is now under greater pressure than ever before thanks to the transparency and detail available from an increasingly digitised supply chain. It is becoming easier than ever for fleets to shop around and demonstrate the savings that are being made.

Despite extra competition from disruptive market entrants and manufacturers looking to develop new revenue streams, there will always be demand for fleet management support, particularly if it can enable an organisation to manage the increasing convergence of technology, vehicles and the data that it collects.

Whatever the organisational model, whether in-house or outsourced, digitisation will be an increasing trend, with data analysis, smartphone apps and digital payments replacing call centres, static websites and traditional banking methods.

4. The future of fleet mobility

Traditional models of car use are being eroded in many urban areas, where the growing problems of congestion and air quality are forcing policymakers to reduce road space and increase charges. Elsewhere, younger motorists are embracing a service-based mentality by renting or using shared vehicles – and are comfortable with a digital, smartphone-enabled approach to buying and using mobility services.

The concept of Mobility as a Service (MaaS) is being embraced. In its simplest form, MaaS links every kind of transport together in a single, intuitive mobile app that combines transport options from different providers, handling everything from travel planning to payments and expenses..

> *"MaaS is about providing users, both travellers and freight, with seamless, on-demand access to a range of transport modes tailored to their individual needs."*
>
> **Jay Parmar, Director of Policy and Membership, BVRLA**

Whether they are delivering a bespoke solution or something that has been bought off the shelf, even the smallest rental or leasing company should be able to play a role in this new world of mobility services. Clever technology and easy to use apps are one thing, but true fleet and asset management expertise and a dedication to personalised customer service will always have a value.

The future for car rental

Contributed by Nina Bell

Nina Bell, Managing Director for the Northern EMEA Region, Avis Budget Group

The connected car represents a new era for our industry. It has the potential to revolutionise car rental for consumers and businesses alike, opening the door to a more seamless, intuitive car rental experience, and giving businesses valuable insights into consumer preferences, safety and security, and fuel efficiency.

So what will car rental look like in the era of connected cars?

From the app on your smartphone, you will be able to see which car you have been assigned and have the option to change to other vehicles in the same price bracket or to upgrade at the touch of a screen.

You will then walk to the car, and open it with your smartphone. You will find the keys already in the car and you can simply drive away. No paperwork, no signing in multiple places and no waiting. When you return the car, it will automatically tell us the final mileage and the fuel reading as it arrives on site, and you can close out the rental agreement from your phone.

The customer journey I have just described is not something way off in the future; it is being trialled in the United Kingdom today and is enabled by connected car technology.

We've already started

This experience described is already available at more than 60 locations in the United States, and we are now trialling it in the United Kingdom with pilot programmes at Heathrow, Stansted and Manchester. The product is called Avis Now and you will be seeing much more about this from us as we continue to expand this offer.

But it doesn't stop there

We believe connected cars will not only change car rental but also the business models of other related industries, such as insurance and leasing. It will also impact how travel and procurement managers provide mobility solutions for their employees.

> ***"We have revolutionised car rental following our guiding principle: to keep the customer at the heart of everything we do.***
>
> ***In fact, that's why we've created this report; to share insights and knowledge from true experts in their field, and drive conversations on the opportunities and developments in our industry."***
>
> **Nina Bell, Managing Director for the Northern EMEA Region, Avis Budget Group**

If you want to keep the conversation going or find out any more about the connected car and what opportunities it presents for your business, please contact UKMarketing@avis.co.uk.

avis.co.uk/forum

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