Parking 20:20 - our vision for the future of parking
Driven by rapid technological developments and implemented through policy and business, intelligent mobility is a growing phenomenon. A vital aspect is the ever-increasing integration throughout the transport profession and to be part of these developments, the parking profession must be at the forefront of future mobility and be ready to bring its expertise and knowledge in new and innovative ways to improve the customer experience.

One of the British Parking Association’s (BPA) 5-year strategic aims is to encourage invention and public acceptance of innovation in parking technology. But how does the parking profession maximise the benefits of the many developments and what role does the BPA play in this?

To find the answer to these and other questions, the BPA commissioned research into the future of parking, exploring how the profession can become active rather than passive. We have strived to identify the major trends of future mobility concepts, analyse their prospects for the short, medium and long term and explored possible development areas for the parking profession within those trends. There is no doubt that the BPA has a key role to play as an enabler and in communicating opportunities to our members.

Our research shows that the parking profession needs to take action in a number of different areas and that different approaches are necessary to accompany the breadthness of the topic. It’s essential that we gather expertise and knowledge that sits within the parking profession and share best practice with our members, allowing everyone to benefit from developments in the area of future mobility.

Representing such a diverse range of organisations provides a unique position. We see only too clearly the issues currently facing our members, yet we must also look ahead to see where the profession is heading over the next 5 to 10 years and beyond.

Our new steering group, Parking 20:20 will take the lead in focusing on intelligent mobility and the future of parking. It will steer a course for BPA members which in turn will, we hope, influence the wider parking community. Enabling a truly mobile society that will deliver benefits for all is the call to action. The future is here and it’s time to make that a reality.

Teresa Farndon
Chair of Parking 20:20
In the course of the 20th century the motor car transformed the way we lived, worked and played. Exponential growth in car ownership and usage focussed attention on the importance of parking. In the first two decades of this century the internet, mobile communications, e-payment, social media and big data have revolutionised a number of traditional activities (e.g. travel, banking, and printed media) and rendered others obsolete. In the next decade these same factors are likely to radically change motor cars, the way we use them and, consequently, the parking sector.

The British Parking Association is committed to supporting its members and helping them identify the opportunities and threats that change and innovation will bring to the sector. To this end the BPA has set up a future of parking and Intelligent Mobility focus group (now called Parking 20:20) and commissioned the research that underpins this report.

I would like to thank everyone who contributed towards the report, in particular Justus H. Loebler, a graduate of Imperial College London who undertook the research for the BPA, as well as Kelvin Reynolds and David Smith who oversaw the project. The BPA has commissioned and funded this work but we would like to thank Siemens for their support in publishing this report, and the DfT and CarPlus for contributing images. Most importantly, I would like to thank all the members and stakeholders who took the time to tell us how they see the future of parking.

Nigel Williams
Chair of the BPA Board
Technology and innovation is rapidly transforming the transport network. From data driven devices that put information in the hands of the user or operator, to products and services that increase fuel efficiency or radically reduce emissions – all are moving at pace. The parking sector needs to understand these demands, react to them and ensure that parking plays a part in meeting the expectations of Government, regulators and customers themselves.

The way that we use cars is changing and the focus of the parking profession must be on providing the infrastructure and services that facilitate this change. We have identified seven areas where our efforts must be directed.

**Our seven areas of focus**

- Data & Apps
- Payment
- Integration
- Real-Time Data
- Shared Mobility and Car Clubs
- Electric Vehicle Charging
- Autonomous Vehicles
OUR AIM

Promote the creation and adoption of common standards in data collection and sharing so that parking and traffic management can deliver a better customer experience.

What the future holds

- Thinking innovatively about acquiring, processing and presenting real-time data
- Responding to the opportunity provided by open data systems
- Designing new systems that simplify the process of finding a parking space
A parking database for the UK
Many European countries have open and accessible databases of parking spaces and this transforms the way parking information is gathered and presented. By connecting data collection and presentation, we can ensure data is more credible. It also paves the way for enhanced standards, making it easier for operators and local authorities to provide their data.

Standards and regulation
With the development of new systems of data capture it is important that the right standards are in place from the outset. Governing the way data is captured and used will provide confidence to the customer and ensure that data systems are compatible in the future. Acting early, and as a sector, also ensures that the high costs associated with the creation of new systems are managed appropriately.

A focus on the customer
Currently customers can access data from the internet via a mobile phone app or their in-car systems. Traditional use of the internet provides a greater level of information about location, pricing and capacity yet will not offer the real-time opportunities of mobile phones or apps. In-car systems offer an integrated solution that can present parking information alongside route guidance, but the use of these by drivers is tightly restricted.
OUR AIM

Encourage and support the deployment of payment systems and services that meet customer needs.

What the future holds

> Understanding and inspiring customer expectation
> Adopting innovation to drive forward improvements
> Changing customer behaviour in a balanced way
A fluid environment

The way we pay for things is changing rapidly. Contactless, ApplePay and other systems are becoming the norm where transaction speed offers the customer and provider an improved experience. As these systems become more established customers will expect the parking profession to keep pace and the barriers often cited, such as the length of time it takes to set up an account, will diminish. In this period of change it will still be important to offer customers the fall back option of a cash transaction.

Mobile payments

Many customers already pay for parking via their mobile, either through an app or a voice recognition system. We see two distinct opportunities for these types of payments. Firstly, their use can be increased alongside existing parking payment systems. Secondly, the development of a standardised payment mechanism that customers can access irrespective of parking provider or mobile phone operator, will greatly improve the way that customers can make payments via their mobile phones.

The future of cash

The parking profession has a long association with cash payments but as the wider transport network adopts a cashless approach we must follow suit. Parts of the transport network in London have been cashless for some time; motorway and bridge tolls are doing the same and black cabs - another long-standing supporter of cash payments - are introducing card payments. As a sector we must offer our customers the services they want while also demonstrating our commitment to innovation and self-regulation to Government.
Ensure that the parking profession and the services it provides are an integral part of multi-modal journey planning.

What the future holds

- Introducing parking into the concept of a seamless journey
- Harnessing the opportunity presented by smart mobility
- Reducing vehicle emissions associated with parking
A parking database for the UK
Information that makes it easier for the driver to locate and use a space will greatly improve customer experience. Car parking is no different from other transport modes as customer demand is actively driving the solutions that improve the link between the stages of our daily journeys. With smart technology developing rapidly this will only accelerate. Leaders in this field have already integrated their parking data into in-car and mobile Sat Nav systems.

Integrated networks
The inclusion of parking and traffic management will play an important role in establishing a truly integrated transport network. Playing an active part in enhancing connectivity from transport hubs such as commercial centres or airports and developing links into urban and rural settings will facilitate this development. Airports often lead in this area with Heathrow’s innovative personal pod system due for expansion, while other airport parking operators are looking at autonomous valet parking schemes.

Changing priorities
Intelligent mobility provides the opportunity to reconsider the car’s place in the environmental debate. Traditionally, policy decisions try to nudge people towards public transport to reduce emissions, yet with a changing attitude to car use and the inclusion of parking within in-car navigation systems, the opportunity to rethink is provided. Reducing congestion and cruising time while looking for a space will have a positive impact on local congestion and air quality.
REAL-TIME DATA

OUR AIM

Gain knowledge and expertise on what information is required for real-time, guided customer journeys and enabling smarter journey planning.

What the future holds

> Defining the data requirements for the parking profession
> Thinking innovatively about data capture
> Providing data to the customer in a way that works for them
The current situation
Sensors, whether ground, wall or ceiling mounted, are the most commonly used way of capturing parking occupancy information. However, these can be expensive to put in place for on-street parking as sensors generally have to be built into the road surface. New technology, where flatter more compact sensors can be fitted on top of the road, is currently in development. Data streamed back to a central point every 30 seconds and the addition of more costs-effective sensors will enable a greater level of data capture across the parking network.

On the ground
In the City of Westminster 3,500 ground level sensors are monitoring parking occupancy levels. The London borough was keen to reduce congestion and rebalance usage to increase occupancy levels. Interestingly they also saw an increase in payment and motorists reported that it was much easier to locate a parking space. The technology has an information provision reliability of 98% and batteries last between three and seven years. In light of all this the installation of a further 7,000 sensors is being considered.

Beyond ground sensors
Innovation is rapidly improving the way parking occupancy data is captured. In Berlin, Siemens are trialling a new radar based system where a single streetlight mounted sensor can monitor up to six spaces. However, the parking sector needs to consider how the car itself can provide the data required – whether this is sending occupancy data as it leaves a space, or by scanning for free spaces. As driver assisted systems and automation increases, and more vehicles become connected, the barriers to these opportunities decrease.
SHARED MOBILITY AND CAR CLUBS

Understand the use of sustainable and shared transport services that will influence the provision of consumer focused parking services.

OUR AIM

What the future holds

- Responding and championing new and emerging technology
- Understanding how changing ‘ownership’ will impact on the parking profession
- Setting standards, influencing policy and establishing best practice
The Shared Economy
The concept of ownership is changing both in society and within the transport sector. New business models are creating a disruptive force which is changing how customers use and view mobility and these models are competing with traditional transport providers. As these models develop, concepts such as car sharing, car clubs and Uber may become more popular and the parking profession needs to respond to ensure that provision and policy accurately reflects customer demand.

Policy keeping pace
The need for standards across the parking profession is a growing concern. Policy needs to reflect the changing way that travellers view the car, providing legislation that is both relevant today and looks ahead to the future. In a practical way the transport sector as a whole will be considering the wider implications of data capture and use, insurance, and the way that spaces are policed on a local level. Uber shows only too clearly the implications of policy not keeping pace with innovation and developments in technology.

Car Clubs
The pace at which the transport sector is developing is clearly highlighted by the growth in car clubs. Station-based schemes such as ZipCar, which require local authorities to provide designated spaces that cannot be used by other motorists, have become popular. More recently free-floating schemes have come to the fore, where vehicles can be left in almost all on-street parking settings and located using an app. These two variations on the same concept show how quickly innovation can be brought forward and how different the impact on local parking policy can be.
OUR AIM

Ensure that the parking community supports the increasing use of alternative energy sources for electric vehicles by providing relevant recharging infrastructure.

What the future holds

> Tackling car emissions and improving local air quality
> Providing an infrastructure that works for vehicle owners
> Incentivising and encouraging change
Providing the right infrastructure
There are currently more than 7,000 charging points in the UK. To support greater use of electric vehicles this number needs to increase. The existing network tends to focus on key points – such as city centres, airports or other commercial centres. But as the prevalence of electric vehicles increases, this network will need to expand to support on-street residential locations and rural areas.

Reducing emissions
Electric vehicles are also known as ‘ultra-low emission vehicles’. As they are battery powered their emissions are far lower than standard petrol or diesel vehicles. Tackling the air quality issue is an important factor in the motoring industry and to its regulators, and the parking profession needs to play its part. By providing policies and guidance to facilitate a growing charging network, and by supporting the development of new and innovative solutions, emissions of CO₂, NOₓ and particulates can be significantly reduced.

Focussing on the customer
The way that people use electric vehicles in the future will dictate how they are charged. For residential users, or people that will be at their destination for a longer period of time, standard charging facilities will be sufficient. But for customers making shorter trips, with only a short stay at their destination points, a faster charge will be required. As the network expands along with the use of electric vehicles then the provision of rapid charging points-at places like supermarkets or service stations and across on and off street parking locations-will become more important.

“Over 80% of our members believe that intelligent mobility will change or influence the parking profession”
AUTONOMOUS VEHICLES

OUR AIM

Collaborate with developments and trials of autonomous and self-parking vehicles to enable appropriate parking facilities and services to be provided.

What the future holds

> Acting as the catalyst for new and emerging technology
> Developing a robust customer proposition for the parking profession
> Creating and defining the policies and standards to support autonomous technology
Automation today
The presence of automated systems within the motoring industry has been steadily increasing over the last 20 years. Cruise control, lane departing systems or autopilot functions for use in congested traffic have all been successful. Yet these all require the driver to take over control if required – whereas recent developments for assisted parallel parking show that more complete autonomous systems can work successfully in complex, low-speed urban settings.

The future of automation
Much research is being carried out within the field of autonomous vehicles. This includes the use of pod based systems at Heathrow and Milton Keynes, as well as the development of fully automated vehicles led by companies such as Google. The approach taken by Google differs from many others within the motoring industry as the focus to date has been on steadily adding greater levels of automation to their vehicles. These very different aspects make for an interesting and dynamic future for autonomous vehicles.

Valet parking
The use of automated vehicles provides opportunities for different parts of the parking sector. For valet parking operations, the ability to develop and trial such systems should be actively pursued. By adopting such practices, the movement of vehicles could be managed more securely and vehicles could be stored closer, while the customer would be offered a more flexible, on-demand system. The parking profession needs to be involved in these developments to ensure that the right products and policies are developed.

“Only a third of members think autonomous vehicles are part of this debate”
We realise that looking to the future and considering issues that will affect the parking profession is only the start of the conversation. That’s why we have been engaging with our membership and gathering their insights, thoughts, plans and aspirations for the coming years.

Our corporate strategy encourages invention and public acceptance of innovation in parking technology. We will identify opportunities to work with government and like-minded stakeholders to deliver sustainability in parking linked to social responsibility.

Over the last 12 months, a focused group of individuals representing members from across the broad spectrum of the parking profession, has come together to help us understand and map the future of parking. In addition our research has helped clarify and reinforce the key issues and provide a network to further explore these exciting and thought-provoking opportunities.

By working collaboratively wherever we can, we will ensure that the opportunity presented by intelligent mobility is realised throughout our membership and the millions of customers they represent.
A STRATEGIC APPROACH

Encouraging innovation, investment and the fair and effective use of technology will improve the delivery and management of parking services and keep the consumer at the heart of our thinking.

We are committed to arranging a programme of events that will deliver better value for our members; this will enable them to be increasingly recognised as parking professionals.

By building a consensus with all stakeholders and informing and influencing government, we will ensure that the opportunity presented by intelligent mobility is realised throughout our membership.

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<th>Collaborating online</th>
<th>Engaging Stakeholders</th>
<th>Thinking Innovatively</th>
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<td>&gt; Our online network, Parking 20:20 will enable the parking community to delve deeper into the seven areas we have identified and create projects to respond specifically to each.</td>
<td>&gt; Our high level stakeholder group The Parking Forum meets quarterly and informs those who work across the transport sector how parking plays a vital role in journey planning.</td>
<td>&gt; Members gather at our Annual Conference to explore current issues and provide knowledge sharing and collaborative opportunities for all members whatever their background or experience.</td>
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<th>Sharing Knowledge</th>
<th>Focusing on the consumer</th>
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<td>&gt; Parkex is the BPA’s flagship event and is Europe’s largest, dedicated parking exhibition and the premier meeting place for the parking community. New technology solutions and innovations are always high on the agenda for many exhibitors and delegates.</td>
<td>&gt; Keeping the consumer at the heart of our thinking is a key objective of the BPA’s strategy. Encouraging innovation, investment and the fair and effective use of technology will improve the delivery and management of parking services.</td>
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The future of parking will change rapidly over the coming years. New products and services will enter the market, led by a combination of customer demand and policy that will provide a disruptive influence on many aspects of the parking profession.

Autonomous vehicles, technology that reduces emissions, new ways of capturing and analysing data, or even a shift in the way we view vehicle ownership. All present significant challenges and opportunities that we will need to consider, understand and respond to. As your professional body we look forward to working with everyone to create an exciting, brighter, and sustainable future of parking.

**THE FUTURE OF PARKING – AT A GLANCE**

- **Data & Apps**: Promote the creation and adoption of common standards for data collection and sharing for parking and traffic management to enable a better customer experience.
- **Payment**: Encourage and support the deployment of payment systems and services that meet customer needs.
- **Integration**: Ensure that the parking profession and the services it provides are an integral part of multi-modal journey planning.
- **Real-Time Data**: Gain knowledge and expertise on information required for real-time, guided customer journeys and enable smarter journey planning.
- **Shared Mobility and Car Clubs**: Understand the use of sustainable and shared transport services that will influence the provision of consumer focused parking services.
- **Electric Vehicle Charging**: Ensure that the parking community supports the increasing use of electric energy sources by providing relevant recharging infrastructure.
- **Autonomous Vehicles**: Collaborate with developments and trials of autonomous and self-parking vehicles to enable appropriate parking facilities and services to be provided.
Traffic Managers face multiple challenges; busy roads, safety, environmental challenges, limited resources, budgetary restrictions and ever-changing technology.

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Talk to us today about your traffic and parking problems so that Siemens are part of the solution tomorrow.

siemens.co.uk/traffic
As the UK’s leading association of parking providers we are uniquely placed to instigate debates about the issues facing our profession, as well as the unique and innovative solutions that will ensure that parking remains a core component of the UK’s transport network.

1970
We formed nearly 50 years ago

2007
Approved Operator Scheme launched

Representing
650+ Members

82,000 employed in parking sector

Celebrated 10 years in 2014. Around 1 in 4 car parks awarded the Park Mark.

Over
100 qualifications awarded with WAMITAB

Providing information and advice for motorists.

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