

Spotlight on parking data



EPA President **Nigel Williams** joins some of the EPA's data experts and other thought leaders to bring you a special-edition newsletter, offering an insight into the EPA's data initiatives and highlighting the importance, value and use of our parking data

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Parking: digitalisation, data and interoperability

The phrase 'data is the new oil' is a bit of a cliché, but it certainly applies to parking. Data occupies a similar position to that held by oil in the 18th century, in that it is an immensely valuable but untapped asset. Our sector is particularly rich in data; however, many of our colleagues still view their data infrastructure as a cost centre. We need to help them transform it into a profit centre by using the data for overall improvement and to enable interoperability in our extremely fragmented industry.

As the EPA President, I am very conscious of our need to recognise emerging opportunities to exploit our data assets and to identify potential pitfalls. We must do everything possible to avoid those pitfalls or mitigate their effects.

During the past 11 months, the EPA has started or expanded projects and initiatives concerning our parking data (EPA 2.0). As I hope everyone is aware, this burst of frenetic EPA data-related activity – as well as lobbying on cross-border enforcement, and electric vehicle (EV) and fire regulations – was made possible by the farsighted sponsorship of APCOA, Indigo, Interparking and Q-Park. On behalf of all our members, I thank them for their investment and their trust in us to use it wisely.

Frank De Moor, CEO of Q-Park and one of the sponsors of EPA 2.0, believes the future of the parking sector lies in collaboration. 'Parking has been an island in the past, but now we are a crucial part of urban mobility networks. If we really believe in a sustainable urban mobility system, where the role of the car is related to public transport and urban mobility, we have to

realise that interoperability, standardisation and sharing data are the keys to success.'

Not everyone agrees with this open-data approach and – without wishing to push the oil analogy too far – it is true that our data is the subject of much interest from powerful entities, such as the public transport lobby, that wish to control it and use it for their own ends.

Roland Cracco, CEO of Interparking, chair of the Belgian Parking Federation and another EPA 2.0 sponsor, wrote to me recently, saying: 'Belgian (and other) car park operators

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are very concerned about the confidential nature of their data. We do understand the pressure of the authorities to obtain our data, but this cannot violate our trade secrets and business confidentiality.'

While acknowledging the importance of Roland's concerns, the EPA must show the way and tread a fine line between protecting our members' business confidentiality and providing the necessary data to power new sustainable mobility.

Ronald Frijns, head of business intelligence/artificial intelligence (BI/AI) at Q-Park, believes it is a question of stakeholders



Nigel Williams, EPA President

in the sector adapting quickly and efficiently to the inevitable changes.

'The parking game is changing. Every parking (related) company is taking its first steps in a new strategic, digital and commercial era. Mobile, apps, digital, cloud, application programming interface (API) integrations, and real-time reservations are all ways to expedite data delivery to our customers, thereby facilitating their customer journey and instant decision-making across different modes of transport, urban needs and mobility.

'The only way to go is to share data on a common base standard, with a close eye on confidentiality and data security. Only standards and conscious data strategies can avoid unmanageable, architectural chaos and inefficiencies in development, data integration and related data security issues.'

This brings us to an initiative that is close to my heart – the Alliance for Parking Data Standards (APDS).¹ The APDS specifications were developed by industry experts to meet our sector's needs. They now constitute the global standard for parking data. This is a significant achievement in a period of only five years.

However, like all standards, the APDS specifications are only useful if people and organisations adopt, specify and implement them widely. It is now up to the EPA's members, and their members and clients, to do just that.

Speaking a common language

There is no need to reinvent the wheel, but, unfortunately, too many of the parking sector's top brains are doing exactly this.

This is the view of **João Caetano Dias**, one of the pioneers of digitalised parking systems and parking platforms with Empark (now Telpark) in Spain and Portugal. Currently an adviser to EasyPark, João says developers and their investors should be concentrating on providing better services, more intuitive interfaces and enhancing the user experience.

'[Instead] they spend too much time creating an infrastructure to support their inventions,' he says.

'On top of this, different cities have different enforcement solutions, different operators use different access and control systems. If someone developing a payment system wants to reach many cities and diverse operators, they soon realise they are spending an inordinate amount of time and resource on integrations because every city has its own API and every system has its own language to talk to external systems.'

This point is one that resonates with **Maurizio Locatelli**, who is responsible for parking technology at Interparking. 'Until the advent of APDS, there were no standards

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covering all aspects of parking data. Efforts to connect services across Europe were rendered complex, expensive and unreliable because of the incompatibility of the data elements between environments.'

The answer, says João, is a common language and standards. 'If there's a common language, it's clear how to communicate with a city or operator.'

At the moment, standards are viewed as a 'nice to have', bringing down implementation and development costs.

For Maurizio, there is also a more persuasive argument. 'From an operator perspective, the adoption of APDS comes with a cost and, therefore, a migration from home-brew solutions to a standard is only feasible if there's an ability to connect to external services.'

'At the moment, there is an attitude of: "but why change? We have it working today". If the change is driven by the IT companies, it will be less attractive than if it is seen as a benefit to the business.'

Keith Williams, technical director of Parking Matters and lead on the UK's National Parking Platform (NPP) pilots, agrees. 'The NPP pilots in the UK have demonstrated that a relatively simple APDS-based platform can allow *all* parking systems to communicate with each other cheaply and effectively. There is no need for systems to be "natively APDS" because they can communicate with other systems via a converter that typically costs about €5k to develop.'

Assessing the current situation, João says: 'We are in the middle of this journey. APDS is not a goal in itself, it is an instrument towards achieving higher levels of interoperability. The standard has been developed and has been supported by the main players in the market and by the national associations, through the EPA, IPMI [International Parking and Mobility Institute] and BPA [British Parking Association]. It was adopted by ISO [the International Organization for Standardization] and is the basis for the latest version of the DATEX II part 6 standard.² Now, it's a matter of time. Public tenders are already starting to ask for compliant systems; equipment

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providers will start selling compatible equipment, although it takes many years to renew parking systems completely.'

Maurizio recalls the experiences of Intelligent Transport Systems (ITS) in Belgium. 'It successfully reached out to the VVSG [Association of Flemish Cities and Municipalities] and was able to put its narrative regarding DATEX II into the recommendation put out to the VVSG's members. Since then, tenders regarding mobility and parking have been consistently referencing DATEX II as the go-to standard. The emergence of NAPs [National Access Points] and the NAPCORE [National Access Point Coordination Organisation for Europe] initiative will certainly be a driving factor to push the DATEX II and APDS standard into each country.'³

Case study

Car park stereotype turned on its head



Car parks are rarely considered safe spaces after dark. The stereotypical dark, shadowy, eerie car park is beloved of police dramas and gritty films about the criminal underworld.

The BPA, working with local police in Sussex, has turned this stereotype on its head by promoting Park Mark car parks as safe spaces after dark. Park Mark is the accredited logo of the Safer Parking Scheme, and is given to facilities that achieve the requirements of a risk assessment conducted by the police and the BPA. This includes measures that help to deter criminal activity and antisocial behaviour, demonstrating that the operator is taking action to prevent crime and reduce the fear of crime in their car park.

Jon Allan, BPA head of innovation, technology and research, says: 'The initiative uses the APDS APIs and specifications to share data from the 4,500 Park Mark-accredited sites listed on its Park Mark finder website.⁴ It has already attracted more than 250 businesses across the county and is part of a wider focus by Sussex Police on tackling violence against women and girls. This is just one example of how the implementation of APDS as the common language for sharing parking data allows us and our members to provide better services and enhance the user experience, using existing data at relatively little cost.'

OCPI: supercharging the EV market

One important dataset that needs to be on the NAPs is the crucial information about where EV chargepoints are located and their charging capabilities. This information is essential to facilitate the transition to electric vehicles.

At the same time, there are numerous stakeholders working across the EV infrastructure, so finding a way to bring information to a point where data exchange is simple for everyone concerned is essential if motorists are to have a smooth journey.

The Open Charge Point Interface (OCPI) specification is an industry standard that has been developed and deployed to support data exchange between interested commercial parties involved in the use of chargepoints for energy supply to EVs.⁵ It primarily focuses on information exchange between chargepoint operators and e-mobility service providers. The specification supports authorisation, chargepoint information exchange (including live status updates and transaction events), charge detail record exchange, remote chargepoint commands, and the exchange of smart-charging commands between parties.

Transportation and IT consultant **Jonathan Harrod Booth** explains the importance of readily available information: 'Understanding where chargepoints are, which networks are providing them, their physical characteristics in terms of the types of connectors available, and the maximum (electrical) charge rates are important for customer choice.'

'As an EV user, when out on the road I need to access information services and apps to identify where opportunities exist to charge my EV. Protocols such as OCPI are a critical means to access this information, which many of these apps and information services use.'

'Without an industry specification such as OCPI, information about the location, facilities and status of chargepoints would probably be network- or supplier-specific, and difficult to access by the travelling public.'

The use of common protocols, such as OCPI, makes it significantly easier for

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the EV chargepoint industry to support EV roaming – that is, using different locations and networks to be able to recharge an EV. The information can then be made available through information services and apps to enable EV drivers to get the widest view on where chargepoint opportunities exist.

Jonathan says the industry is evolving – and with more and more people opting for EVs, it has to. 'As a consumer, I want the flexibility to search for and pay for parking that APDS-enabled solutions has the potential to offer. In the UK, the NPP pilot is illustrating this flexibility, with four local authorities now supporting multivendor parking payments, where customers can pay using one of several app-based parking services. NPP is based on the APDS specification. The same evolution of service is likely to occur with EV charging services.'

'Having interoperability between services to pay for parking and those to pay for EV charging is obvious. Therefore, the specifiers of OCPI and APDS need to take steps to enable the two specifications to work smoothly together.'

Aside from consumer confidence and convenience, Jonathan points out some other benefits to interoperability between OCPI and APDS.

'There will be better opportunities for combined and integrated customer services, including payment, and an improved ability to search for parking facilities with EV charging – and understand the combined cost. There will also be the creation of commercial opportunities for parking and EV charge providers to become the customer's single point of contact for combined services.'

Avoiding the Tower of Babel

The need for a common language becomes even more acute when the different mobility communities – including EV charging, public transport, bike and scooter hire, car sharing and parking – need to talk to each other. One important driver for intermodal communication of data is the EU's ITS Directive 2010/40/EU and its Delegated Regulations,⁶ whereby each European Member State must establish a National Access Point (NAP) for mobility data that will eventually, and inevitably, include static and dynamic data on parking (location, availability and pricing).

NAPCORE was formed two years ago to coordinate and harmonise mobility data platforms across Europe.

Timo Hoffmann, general secretary of NAPCORE and an employee of the German Federal Highway Research Institute, says: 'The problem with the NAPs quickly becomes apparent. If every Member State develops their own data mobility platform, with the formats and standards differing from country to country, then the collection of 30-plus NAPs resembles the Tower of Babel.'

'We realise that trying to standardise everything would take a really long time and is not always the best thing to do, so we are trying to harmonise things while taking into account differences between NAPs. With ever-advancing technology, it is possible to make platforms interoperable without them being the exact same. NAPCORE is the platform for facilitating pan-European mobility data exchange.'

Under the cooperation agreement that the EPA signed with NAPCORE earlier this year, the EPA and APDS are showing the way by developing a translation module that converts parking data in the APDS format into the NeTex format.⁷ With the help of industry experts such as Q-Park's Ronald Frijns, the EPA is also developing a standardised European data profile (or list of data items) that fulfils the requirements of the relevant EU Delegated Regulations and takes account of the needs of our sector.



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Case study

AVP ready to take Germany by storm

Stuttgart Airport offered a vision for the future when it introduced the concept of automated valet parking (AVP) into one of its parking facilities. Once given the green light for commercial use, manufacturer Bosch and parking operator APCOA plan to install the technology in a further 15 car parks across Germany.

In the first iteration, four parking spaces per car park will be ready for AVP. However, **Dr Markus Heyn**, chair of the mobility solutions business sector at Bosch, says Bosch and APCOA are ready to ramp up the infrastructure as the demand grows.

Germany is one of the few countries to have already passed the SAE Level 4 legislation that creates a framework for systems such as AVP. Other countries, such as France, are poised to follow. Once the legislation is in place, APCOA and Bosch are ready to step in.

The alluring vision of automated valet parking

'Just imagine, on your next visit to a city, you simply drop off your car and it finds its own parking space – saving you not only search time, but also, possibly, a long walk and the stress of being late,' says **James Toal**, senior vice-president Europe at SKIDATA.

'We see automated valet parking (AVP) as a big opportunity for operators to offer visitors a great welcome experience, while optimising the use of their car park by accommodating more cars on less floor space.'

Powerful artificial intelligence and a set of cameras installed in the car park allow an AVP-equipped car to park itself. This new technology offers more safety and security,

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as no people are physically involved. This is the promised land of AVP. A driver merely turns up at a designated pick-up point and the AVP system does the rest, often putting the vehicle into a much tighter spot than most humans could achieve.'

James adds: 'As parking system suppliers, we can play an essential role by offering and connecting AVP seamlessly into the customer's journey and improving their parking experience.'

A new age of car intelligence means less searching for parking spaces, thereby cutting congestion – although, for most urban areas, AVP is still a way off. **Markus Schneider**, owner of Plexx-Digital – a parking software solution specialist – and chair of the APDS Change Control Group, says: 'At the moment, there is no reliable information on the speed with which AVP will enter the market. Critical mass is needed for

this new technology to deliver its benefits.'

Theo Thuis, managing director innovation at Q-Park, is more hopeful. He says: 'We understand that, by 2027, all new cars will be equipped with AVP sensors and software. Therefore, the car parks that are equipped will be able to offer AVP services. However, there must be viable business models. Above all, AVP must be affordable to have a chance of entering the market. Currently, the AVP system suppliers are still working on bringing the costs into an acceptable range.'

Also vital for the adoption and success of AVP is standardisation. 'In an environment with so many different players, standardisation is a critical success factor. All participants in the process chain need to speak a common "technical language" – in this case, APDS,' says Markus.

Theo believes that the big win for the parking sector is the fact that, as a new player, AVP is working with APDS, rather than adding standards retrospectively. 'Many people remain sceptical about AVP, but we have started this project by implementing APDS standards into a new functional area of parking. This is the first time that automobile manufacturers and the AVP suppliers are adopting APDS as a standard. It will be used as a standard for interoperability within the new parking function. This marks a turn of events in which manufacturers and the suppliers of AVP systems realise the importance of working alongside the parking industry. Suddenly, they see that we are an important part of the bigger picture. Until recently, the problem was that the parking sector is so fragmented and there were no parking data standards – but APDS is changing that. This is a flag-bearer for other parts of the parking sector to adopt APDS.'

The recent move to involve the sector in the development and implementation of AVP is music to Theo's ears. 'In the past, all the technological testing was carried out without the parking sector. Now, the manufacturers and their suppliers are inviting and involving us. That is knowledge sharing, knowledge gathering. This involves a new role for the EPA – explaining to our members what is going on and what is going to happen, even when almost no-one is believing in it yet.'



APDS: the great enabler

As the chair of the APDS Change Control Group, **Markus Schneider** is increasingly contacted by organisations that are developing new products or applications based on APDS and need advice, or that wish to request changes to APDS to enhance its capabilities. 'For example,' he says, 'the City of Antwerp and Digipolis (Belgium) are using APDS APIs as the interface for their new fleet ANPR enforcement vehicles; Mitte (Spain and US) has developed a cloud-based parking platform; and Riverty (Germany, Netherlands, Nordics) has based its parking API for purchases and debt collection on APDS.'

There are also some big national implementations under way. The Bulgarian Association for Parking and Sustainable Urban Mobility unites the largest Bulgarian public parking municipal companies, so the association is uniquely positioned to identify best practices in parking and mobility on the European level through the EPA, and adapt them to its local context.

Its chair, **Nikola Rogatchev**, says: 'We are striving to implement innovative solutions with tangible impacts that are immediately appreciated by the end-users. We are using APDS as the backbone

for designing our parking platform. The open exchange of ideas that the EPA enables through its wide network and meeting platforms has also contributed to advancing our work. We have benefited greatly from the unique insights and lessons learned in this space. There has been so much quality work already done that is making our life much easier.'

With the help of APDS, the association is moving quickly and plans to launch the platform in 2024. By this time next year, it aims to have covered 85 per cent of the public parking spaces in Bulgaria, all major airports, and 15 per cent of the small private off-street parking spaces.

The biggest and most complex implementation of APDS to date is being finalised by the UK government's Department for Transport. **Morten Sorensen**, chief distribution officer for EasyPark, says he is impressed by what he has seen so far with the NPP.

'It has great momentum as it moves to a full production platform. The platform has been built in line with the APDS standards to facilitate a simplified data exchange between the subcomponents of connected applications,' he says.

'More than six phone parking providers, a growing number of hardware providers, and the main back-office enforcement software providers have integrated into the NPP within the past year.'

'Successful pilots have been deployed in Manchester, across the city council's car parks; in Cheshire West and Chester's on-street and off-street parking; on one street in Oxford; and across the entirety of Coventry City Council's on-street parking and off-street car parks.'

Keith Williams adds: 'Once it receives the final go-ahead, the NPP will make it possible to bring all parking data and digital payments in the UK into one place, regardless of who the supplier may be. For motorists, councils, private operators and equipment manufacturers, it is a step towards a far more transparent landscape.'

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Ensuring data privacy – a welcome challenge

As day-to-day routine parking operations become ever more reliant on data processing and the use of personal data, the topic of data privacy becomes more and more important.

Cameron Clayton, CEO of EasyPark Group, explains: 'Information security and cyber defence are essential parts of conducting business. As a global player, it is important to protect our company's information and customers' data at all times. We always need to ensure the continuous improvement of our information security infrastructure, processes and technology.'

In late 2021, EasyPark approached the EPA and APDS to suggest that they jointly set up an industry working group to develop a set of guidelines, with recommendations for how data privacy principles should be applied to parking. The intention would be for these guidelines be used to help EPA members and others in the global parking sector to achieve compliance with local data privacy laws and regulations.

In Europe, the EU's flagship legislation, the General Data Protection Regulation (GDPR),⁹ protects the individual's right to privacy when it comes to the collection, storage and use of data. **Sebastian Raendler**, group director compliance at APCOA and member of the EPA/APDS working group, says: 'GDPR is both a blessing and, at times, a challenge. With the GDPR, the European legislator regulates many very different scenarios in which personal data is processed. This has resulted in very abstract rules that come with some uncertainties for the individual

user. Guidelines can be helpful to reach a higher level of certainty in compliance efforts and are an excellent instrument to achieve a consistent application of data protection law.'

As data controllers across the EPA membership grapple with the regulations, APDS has provided guidelines in the form of a multinational document. Sebastian explains that these guidelines are non-binding and serve only as a recommendation.

However, there are parallel approaches where national industry associations make use of the possibility, provided for in the GDPR Article 40, to develop codes of conduct for their member organisations in dialogue with the respective local supervisory authorities. These codes of conduct become binding after approval by the supervisory authority and apply to all members of the respective industry association who have signed up to the code of conduct. The Austrian Parking Association (WKA) was instrumental in getting the first such code of conduct approved in 2019.

Sebastian gives the example of work being carried out by the German Parking Association (Bundesverband Parken e.V.). 'A working group of the technical committee has been developing a code of conduct for the parking industry in Germany for almost four years. So, there are approaches and assistance both at the national level and in the multinational context of the APDS. I am convinced that this multilevel approach makes sense. Who knows, maybe one day there will even be a code of conduct at EPA level?'

Final word

We have come to the end of our first EPA newsletter, putting the spotlight on our projects and initiatives concerning parking data. I hope that hearing from our industry experts and thought leaders has given you some insight into why the rather abstract topic of parking data has very concrete practical applications and is extremely important for the future of our sector.

I leave you with a final word from **Philippe Op de Beeck**, CEO of APCOA and one of the sponsors of EPA 2.0.

'The parking industry is in an exciting transformation phase driven by digitalisation, urbanisation, and new transportation modes.

Technical innovation, new business models and a network approach based on partnerships and connectivity increase the importance of parking infrastructure as a critical part of tomorrow's sustainable mobility. For us, the parking operators and owners, making our physical and digital infrastructure available in the most convenient way for consumers and partners will require more and more effective data exchange.'

My EPA board colleagues and I greatly appreciate the support of all our members and sponsors during this exciting phase. We are looking forward to great things coming from the new EPA 2.0 (aisbl) very soon!

Endnotes:

1 allianceforparkingdatastandards.org

2 datex2.eu/datex2/specifications

3 NAPCORE is an EU-funded project that stands for National Access Point Coordination Organisation for Europe: see napcore.eu

4 parkmark.co.uk

5 evroaming.org/app/uploads/2021/11/OCPI-2.2.1.pdf

6 eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010L0040

7 NetEX is intended to be a general purpose

XML format designed for the efficient, updateable exchange of complex transport data among distributed systems

8 bit.ly/PNJun23NPP

9 gdpr.eu

