

Electric Vehicle Ecosystem: Navigating through Uncertainty

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Deeshraf Elias: By 2050, more than two-thirds of the global population will live, commute, and work in urban areas. As urban populations grow, so does the need for more sustainable and eco-friendly mobility.

Fortunately, consumers today have shown growing preferences year-on-year towards electric vehicles (EVs) according to Deloitte's 2020 Global Automotive Consumer Study. What constitutes the shift towards this new paradigm of electromobility? Why are people buying more EVs and how do we accelerate this trend globally? Today, we discuss the journey towards the future of sustainable mobility.

Hi everyone! Welcome to another edition of our Future of Mobility series, bringing you the top voices from the sector - decision-makers, innovators and shapers pushing the envelope on future ideas for transportation and beyond. I am your host, Deeshraf and today, we are joined by Markus Bartenschlager, managing

director at Digital Charging Solutions. Markus, thank you for joining me today!

Markus Bartenschlager: Yeah, thank you for having me.

Deeshraf Elias: Now, I'll like to start with your introductions. Markus, can you share with us more about what Digital Charging Solutions have been doing to drive change towards electromobility, as well as your role in it?

Markus Bartenschlager: Well, Dee, our whole mission started in 2012 when we started with a very very little team within BMW, with the support of Deloitte at that time, to establish fast digital charging services for the use of BMW customers called ChargeNow. We developed this service mainly for the implementation of the (BMW) i3 in November 2013 when we then opened up services in about 20 countries worldwide and established the service from there-on into 39 countries. Back then, we used



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different partners to establish the business but soon, we acknowledged that we wanted to have more control over the service and not hand over our customers to different network partners and suppliers of charging services in different countries. We wanted to be better able to influence the development and to be able to scale the business. A digital service and a digital business is something you need to scale otherwise you cannot fulfil the expectations of the customer, you cannot use scale effects on the cost-side, and you cannot be attractive in the long term.

So I was asking the BMW board at that time to really carve that business out and bring out a company that is independent and works for everybody and delivers service to even competitors of BMW; to be able to attract a much broader customer group and then also push back the benefits to our shareholders when the size of the business grows. We can then get back the prices, influence the development of collaboration partners and the development of charging services.

Deeshraf: Now Markus, expanding on what you've just mentioned, could you share when DCS officially started and what was the initial focus of the company?

Markus Bartenschlager: That was in 2017 – for DCS and we started to develop completely new IP systems which we then revamped in 2018 and of course, the continuation of the BMW charging services. At that point in time, we were trying to focus on building the digital public charging service and bringing up the coverage in Europe as wide as possible. We connected about 500 different network partners into our solution. Today, we are still focusing on OEM solutions so we have 13 brands at this point of time under contract and we serve our customers with actual solutions



with APIs and to deliver them the right service to open up white-label services towards their customers.

So we get our OEMs to build their own brand, like the Mercedes “me Charging Services.” Now, we have the me Charging Services, BMW charging services, and Allianz charging services and just last week, we introduced the servers for the FCA (Fiat Chrysler Automobiles) brand.

Now, we go beyond OEM services and we also focus on fleet customers. Fleet customers also want to have digital charging services that aren't public and therefore we are now working on home/ workplace-based charging solutions but also looking at the digital part of home-based and workplace-based charging.

Basically, we are really pioneers in this field of e-mobility and we are in the middle of connecting all the different chargers out there and bringing it together as one accessible service - one easy and convenient service for finding and using the right charger.

For us, it also was really an interesting start – to start with premium OEMs because premium OEMs always ask for more. We need to develop their service to fulfil customer expectations in the right way. Now (with our current model and experiences), many other players out there can benefit well from our solutions.

Deeshraf Elias: The EV charging infrastructure market is projected to grow tremendously as more people switch to EVs. I wanted to hear from you: what and how big of a role do you think infrastructure plays in driving the adoption of EVs?

Markus Bartenschlager: In my opinion, a nation-wide charging infrastructure is one of the major factors that will help e-mobility to achieve the breakthrough. The difference between driving in an Internal Combustion Engine (ICE) car and driving in an EV is charging. And there, you need to differentiate between public chargers – available to everybody, workplace chargers – available for employees, and private chargers – for those at home. There

is a significant improvement in every sector and starting with the public charging infrastructure where DCS really specializes in to bring services across to the customer. In the first month, we were already focusing on coverage, to really bring all the different players together. As I've said, Europe has 500 different players; we had to connect to really deliver significant coverage and it's an ongoing process because the networks are growing and for Europe, it was expected that maybe in 2030, we'll need at least 1 million public chargers to fulfil the expectations and growth of EVs.

The big trend of having chargers with higher energy capacity so that charging is getting is much faster; the car batteries are forever growing so there is a demand for so-called DC chargers, fast chargers, 50kwh and so-called HPC – high-powered chargers which go from 150 to 350kwh to really bring an option or a service for EV drivers to go from A to B.

Not only the coverage is necessary but also the quality and the reliability of charging is really very very important. There is one example which is really, a story where a government doesn't succeed in setting up a major charging network in the right way. It was Japan.

In Japan, they took a lot of money and budget from the government and pushed to set up a lot of chargers but the chargers were not connected to each other and were placed in the wrong destinations so the customers didn't feel really well charging at some remote places without any kind of services around or attractive things to do. This was an investment gone in the wrong direction and it's a good example of what not to follow.

As I've said, quality and reliability are very very important and to give the customer the right information about how to use the charger,

about availability and many more data which are necessary to fulfil their expectations. And the third topic that is key is really to bring out advanced services. So for example, we really try to serve the customer with intelligent e-routing and new technologies such as Plug-and-Charge where it's easy to just take the cable, plug it into the car and then get your charge without thinking: "do I need any kind of card which is necessary?" This is the right development so it's not only the number of chargers but it's also the quality, its reliability, and the service around to make it easier for handling.

Deeshraf Elias: Now, in addition, what do you think will be the direction of EV infrastructure development in the future?

Markus Bartenschlager: As I've said, we really need to build up HPC stations across the highways to really connect long distances but we also need fast chargers in urban areas where it is really hard to have the right amount of power. You'll see that also the big oil companies will use their facilities within the cities to create an interesting charging hub where you get fast-charging, location-based services around. There, you will find that the target is for charging to become as easy and fast as refuelling.

And on the other side, in the urban areas, it is difficult to charge your car overnight so here, you will see much more charging stations that help the people in the urban areas. For example, (people in these urban areas) they have no owned parking solution but they have to charge overnight. Charging stations that provide parking and charging as a combined service helps to solve these problems. I think these will be future trends in EV infrastructure.



Plug-and-charge is something in the development right now so that the customer does not need to use an RFID card or any kind of authentication but simply plugs in his cable and authentication runs via the backend of the car to make it really really easy and convenient for the customer. That is, I think, one of the biggest topics of EV infrastructure development in the future.

Deeshraf Elias: That's an interesting point and I wanted to build on top of what you've mentioned. With the ongoing COVID-19 crisis, do you think the uncertainty introduced by the pandemic will have any significant impact on the development of EV technologies?

Markus Bartenschlager: Yeah, I think that is a good question. Of course, COVID-19 had also an impact on the development of the EV industry. We can see, of course, that the EV sales dramatically dropped down and also from our servers we can see that the charging sessions, of course, decreased quite significantly. However, from our APIs, we can see that it (the number of charging sessions) picks up quite quickly now. And I personally think that the governments now are also opening their

purses and giving more subsidies, especially in Europe where there are subsidies from the European governments and local governments. You see that unbroken drive to make e-mobility successful.

I also think that people are getting more conscious of the environment now that they took a break, went home, and thought about life and the environment so I think while demand might have fallen now, the industry will really maybe benefit from COVID-19 in the long run actually.

Deeshraf Elias: In recent years, the EV industry has seen numerous collaborations between major players for joint solutions. Markus, I want to hear more from you about how beneficial have collaborations with other mobility ecosystem players been in driving the adoption of EVs?

Markus Bartenschlager: I think it's one of the most important topics: the collaboration between the major players while having joint solutions. As I've said previously, we are in contact with 500 different players out there who are setting up EV chargers.

We are together with most impactful power suppliers, we are in close collaboration with EV manufacturers, we are in close collaboration with the oil industry and also with the tech industry and that is really the important thing. Collaboration is key to overcome the hurdles of all the problems we were identifying.

If you see how much data we are shifting back and forth; how much intelligence we need to better serve the customer, then you'll see how much collaboration is necessary. Every industry really needs to work together here.

Deeshraf Elias: And looking ahead into the future, Markus, from your extensive operations in Europe, do you think governments and countries in Europe are setting the example for other regions in making positive steps towards EVs?

Markus Bartenschlager: Yeah, I think the subsidy programmes are now, really taking off. We can see that, for example, the VAT (value-added taxes) reductions are really important for the fleet segment – to really make it attractive for fleet users to buy new EVs.

It takes time – for example – those responsible for EV fleets in different companies may adjust their fleet programmes or their drivers but this is something that is still in motion right now and we will really only see the impact here also coming from the subsidies from the government in the near future.

Deeshraf Elias: I wanted to pick off from your last point and ask you to weigh in on this. Do you think the transition to EVs will be fronted by commercial vehicles or personal vehicles?

Markus Bartenschlager: Yeah, in the future, majority of EVs will come from fleet segments as large fleets are being converted from diesel

to plug-in hybrids or eventually towards BEV (battery electric vehicle) fleets but private households are also opening up more and more to using EVs as well.

For the commercial vehicle sector, it really depends on the offer of different EVs because you need to really serve different usage patterns. For example, you'll see that small commercial vehicles are now necessary to get into some cities because some small cities in Europe do not even allow ICE cars to enter. But for long distances, I think the offer of BEV is still not sufficient and maybe plug-in hybrids will be the right solution here so it's really a question of if the options for the right customer segments are available. Today, the choice is quite small and limited.

Deeshraf Elias: Building on that point, we started to see different mobility modes looking to adapt into EV fleets. How effective has this transition been and are there any other factors that should be considered?

Markus Bartenschlager: Yeah, it's a good question. I was expecting much more EVs coming into car-sharing/ ride-hailing but if you look into the fleets there, you can hardly see any big portion of EVs and I think there are some hurdles to overcome.

Basically, on the topic of charging – if you look at car-sharing – they need to be charged by the customers and therefore you'll need an attractive and easy-to-use service otherwise you'll have to use fleet force and these are

tremendous costs - to fill up the battery again with some external people - and therefore the business case is really hard to achieve for car-sharing companies.

The same holds for ride-hailing services and taxis as well where the total cost of ownership (TCO) is very very important. You'll start seeing fleets running around with some plug-in hybrids only when the TCO really decreases and when the taxi driver will have a benefit out of it. But still, I think the range is still not sufficient and you'll need to have an intelligent e-routing to fill up the car along the way to the destination. And you'll need good fleet management to manage your car-sharing or ride-hailing fleet.

These are all topics that DCS is also driving forward. If we meet the needs of these fleet operators, then I think that the option of EV fleets will really pick up.

Deeshraf Elias: And finally, I would like to wrap things up and ask something a bit more personal. Markus, what excites you the most about the Future of Mobility that gets you up every morning?

Markus Bartenschlager: It's a combination of many things. As I said, bringing together different industries and playing the role as the one who combines all these industries for one target – to supply the customers with an efficient service for EV driving. That is something that drives me every day – to convince that our service is necessary for the



major adoption of EV driving and to make clear that people understand that we need to work together to really fulfil the expectations of a mass market.

If you envisage that maybe in the far future, millions of EVs will drive through the cities and on the highways, can you imagine how much intelligence (EVs) it needs to really fulfil the expectations that it can go from A to B without running out of charge? This is something we are really driving forward and make the people understand and with this vision, everybody is really motivated to work together. And this is driving me every day and of course, my team is really passionate about this industry, these ideas – to really have an impact to work together and come up with new solutions that sometimes fail – but then stand up again and create better solutions. I think we are happily in

an industry that is supported by all the different players - from the government-side, from the OEM-side, from the power supplier. I think we will have an interesting time ahead of us. This is always an important motivator for me to wake up in the morning and to go to work.

Deeshraf Elias: Well, that's all the time we have for this episode. I'll like to thank our guest for joining me today. Markus, thank you for such an interesting conversation. In the meantime, if you want to comment on this podcast or the topics covered, you can send us an email at seapodcast@deloitte.com. That's spelt S-E-A podcast @ deloitte.com. Also, don't forget to subscribe to our podcast to get the latest episodes – we are available on Apple Podcast, Google Podcast, Spotify, Soundcloud and Stitcher. I am Deeshraf and until next time.

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