



Built Environment Committee

Corrected oral evidence: Public transport in towns and cities

Tuesday 8 March 2022

10 am

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Members present: Baroness Neville-Rolfe (The Chair); Baroness Bakewell; Lord Berkeley; Lord Best; Lord Carrington of Fulham; Baroness Cohen of Pimlico; Lord Grocott; Lord Haselhurst; Earl of Lytton; Lord Moylan; Lord Stunell.

Evidence Session No. 4

Heard in Public

Questions 41 - 53

Witnesses

I: Professor Susan Grant-Muller, Institute for Transport Studies, University of Leeds; Sampo Hietanen, Founder and Chief Executive Officer, MaaS Global; Martin Howell, Transport Markets Director, Worldline UK&I.

Examination of witnesses

Professor Susan Grant-Muller, Sampo Hietanen and Martin Howell.

Q41 **The Chair:** Welcome to the House of Lords Built Environment Committee's public evidence session on our inquiry into public transport in towns and cities. This inquiry will consider the impact of technological and digital developments on travel behaviours, future trends in public transport innovation and how public policy might be shaped in light of these trends. We are particularly interested in connectivity across modes and better integration through data and innovation, which is very much the subject of today's hearing.

We will be making recommendations to the Government later this year, but today's session will focus on data and mobility as a service. Our witnesses are Professor Susan Grant-Muller of the Institute for Transport Studies at the University of Leeds; Sampo Hietanen, founder and chief executive of MaaS Global and Whim; and Martin Howell, transport markets director at Worldline UK&I. The session is being broadcast live on parliamentlive.tv and a full transcript is being taken. That will be made available to our witnesses to make any corrections after the session. I would ask members and witnesses to keep their questions and responses brief, as we have a lot to cover and there are three of you giving evidence. You do not all need to say the same thing three times or repeat what your colleagues have said.

I will kick off with a general question, and I will turn first to Professor Grant-Muller. How could the use of data deliver better integration and connectivity across public transport modes, particularly in urban areas and outside London, which is our particular focus? How could that help transport services to meet consumer demand? We are very interested in looking at transport through the eyes of the consumer as well as the provider.

Professor Susan Grant-Muller: We need to better understand demand for services. That means understanding the whole trip that people are taking. At the moment, there is a lot of data collection on a particular mode for a particular section of the journey. We are lacking data on the first part of the journey, when people leave home and connect with the transport system, and at the end part of the journey, when they leave the transport system and go on to their final destination.

There is a different kind of data that we can collect. In order to do that, we need to look at data integration, which is one possibility, or to consider how we can better pick up data from individuals as they travel through the system. This is really where technology and new forms of data have a role. The collection and integration of data on its own is not enough, because there is a real task of processing it and making it into actionable information. That takes particular kinds of skills that are not necessarily embedded in traditional transport suppliers, operators or local authorities. That requires either upskilling—providing people entering the transport profession with new skills—or forming partnerships with third-party suppliers, which can use that data and create the information

services that will help people, and with academic institutions and centres of knowledge and expertise, such as the Alan Turing Institute. Those kinds of partnerships can help.

The Chair: We are very interested in examples. Would you be able to send us examples of the collaborations that are happening or examples of good practice? It is an invitation to you all and to anyone watching this evidence session. Some of this is early stuff, and people will want to have a look at good practice.

Sampo Hietanen: If we look at what needs to be done outside London, what is happening in the transport and mobility sector is digital disruption. If you want to compare it with something else, I would like to take the example of GSM in the telecoms sector. There was a big disruption in the 1990s. We all remember that in the 1980s it was just family phones that were connected. It was not thriving economically and it was not an international field or anything. Then a disruption happened, a digital disruption, that changed everything.

We are undergoing a similar one now in mobility. We have to remember that the size of the mobility market is about 10 times larger than the telecommunications sector. People spend about 20% of their household costs at the moment on mobility. If we think about that, 76% of that value lies in privately owned vehicles, which are used roughly 4% of the time. There is an opportunity for humongous productivity leaps. When we are thinking about how to solve public transportation and other transport service issues outside London, there is another good analogy from GSM. As soon as there are good enough markets in the bigger cities, such as London, Leeds and many others, the Londoners will also want to have the service outside of London. It is just like with 3G. At least where I come from, Finland, I remember that everybody said there would never be a cellular phone network somewhere like our Lapland, and here it is. It is because of the demand.

We need to do the right things. This does not happen in exactly the same way, because nobody has enough coverage to do what is needed to compete against car ownership. At least how I see it, the biggest question we should be asking is what it would take for anyone here or in the audience to give up their car. If we dare to do that and if we have an answer for that, we will actually solve the issue.

The Chair: That is a brave question. Just before we leave that previous phase of innovation, are there two or three headline lessons from the mobile phone transformation that we could apply to our study?

Sampo Hietanen: At least from what I know, from running a company that offers mobility as a service to consumers, I am sad to say that the biggest innovations do not happen with tech start-ups such as ours. They happen within regulation and legislation. The reason is quite obvious. In order for us to be at the same level for people as car ownership is, we have to have all modes of transportation in one service . A car is

your freedom insurance at the moment. It will get you anywhere any time on a whim, just like that.

We need to combine everything else out there. Public transport alone will not be relevant enough to be as good as a car; neither will ride hails and taxis or micro-mobility—bikes, car clubs and such. If you put all of them together and make it really simple and convenient, you start to be at that level. The problem is that nobody has or will ever have enough supply for all-inclusive Mobility as a Service , and it would not be a desirable world where anyone had it all simultaneously. This means cross-usage of all the resources.

In order to do that, at least in light of the experience I have, it is rather hard for the companies to skip the evolution phase of trying to control the ecosystem per company. It is obvious that an open ecosystem will happen, but there are a lot of power fights. The legislators hold a lot of power in opening up the supply with fair, reasonable and non-discriminatory terms (FRAND) that are needed.

Martin Howell: I am keen to avoid doing what you asked us to avoid doing at the beginning, which is to repeat what the other people have said, but in every case the question comes down to understanding demand. The means to do this is out there. It is quite possible to understand where people want to travel from and exactly where they want to go, and to provide them with incentives in order to make the right choices, whether those are environmental or to avoid congestion and using cars.

It is also about making sure that, when those people do provide that data, they know they are doing it in a trusted environment. One of the big problems we have in the whole data question or argument is that we have developed a world where people do not trust what will happen to their data. They believe that data will be exploited. If they allow themselves—let us use this phrase—to be tracked, they believe that will probably be to their detriment. They will be hounded by advertising they do not want; something is probably not going to be optimal as a result of that.

We need to do something similar to what they have done in London, for example, where you know that your movements using your Oyster card are used only for that purpose. We have to start engendering more trust in how data is used if we are to use all the means available to us to get people out of their cars and using a wide range of mobility services. It is not just about public transport.

Q42 **Lord Berkeley:** We have had three very interesting answers so far. You are quite right about the need to include public transport as well as cars, but do not forget that there are pedestrians, people on e-scooters, people on bikes and people on roller skates, as I saw yesterday. They all have, presumably, an equal right to be included in whatever journey demands they want, but, as you mentioned, Martin, there is also the question of confidentiality. People know where we are now, if we have our mobiles

switched on, unless we try to do something special. How is it possible to have all the data you want, on an open-source data basis if possible, while preserving one's privacy and confidentiality? How can that be done? It seems to me an impossible task. Martin, maybe you should answer the question first.

Martin Howell: I will attempt to. This is not going to work in every environment, because we know that data on people's purchases is being sold repeatedly in order to profile them. That is how the internet economy works. When it comes to getting people to surrender data, it can be done in two ways. One is that they knowingly give up data about their movements to an operator or to a provider of a service. That operator then has to make it crystal clear and has to be held to account for the confidentiality of that data and it not being sold on. All that data can also be used in an anonymised way. You can see where people are moving without it being tracked to an individual. That could be done through an app; it could be done through your phone data.

The big issue we have is that so much of this data is held in silos, because it is in a commercial interest to hold the data that an organisation or an operator has gathered. If there is one thing that I would urge the committee to consider, it would be legislation to mandate open data so that all data is shared, but it has to be done on the basis of trust. It is difficult, because we have created the wrong environment and all the wrong conditions for people to trust. It will come down to individual operators and providers of services to start building that trust back up. It will take time.

Lord Berkeley: Sampo, it is a similar issue that we have had in the past on selling railway tickets and things like that. Most of us believe that competition is a good thing, in which case the various competitors have to have equal access to the data. How can that be achieved? If you think you are ahead, if you are an Amazon or something, you do not want the competition to come in. Is there a way of doing it?

Sampo Hietanen: I can tell you about some good things from my home country, Finland. They mandated transport service providers to open all their transportation services. It was called the Act on Transport Services. The idea is that, in order to have aggregated services, every transportation service provider is mandated to have an open API. They still apply GDPR, so your personal data is not shared.

A lot of this also has to do with the market logic. At the moment, many of those who possess a lot of data use that as a product. If we had, for example, more mobility operators that sell their services directly to consumers, they would not have such a big incentive to sell the data in the background. I will give you an example. In the whole of Europe, people spend roughly around £250 on their mobility every month. This is quite a lot of money. If I remember correctly, players such as Facebook, which can draw the most out of personal data, will pay 20 cents or so. If I am selling something worth more than £200 to a consumer, why would I go and misuse that trust for only a few cents? It is also about governing

the market logic. The Act on Transport Services enables all the aggregators to use the same data. Enforcing that law is another thing; it has not gone that well.

Professor Susan Grant-Muller: We have come to know that there is a value chain associated with data; it has become commodified. Where the public understand the kind of value that will be generated from their data, and indeed if there is value for them, they are more likely to consider trusting. The data could go, for example, to third parties that the public and the operators trust, if everybody feels that is a safe environment.

To weigh in another consideration, there is considerable concern and risk aversion out there among suppliers and operators to step over the line as far as GDPR is concerned. Rather than risk any broken trust or risk overstepping that line, suppliers are not necessarily using technology to its fullest extent at the moment. What is needed to address that as well is for there to be access to advice, information services and expertise so they can fact check what they are doing—is this use of technology okay in GDPR terms? That is not always available equally among all operators in all parts of the country. Some places have real expertise and others do not.

The Chair: This reminds me of my time at Tesco, when trying to keep the Clubcard data trusted and totally separate so that nobody could access it, not even *Guardian* journalists, was a prime focus of my efforts.

Q43 **Lord Moylan:** TfL made all its data open source about 10 years ago. I am not aware of any problems that have arisen as a result of that. Why is this such a difficulty?

Sampo Hietanen: For anonymised data there is no problem whatsoever. You can have statistical data. Is there any use or market value of that? I would have to say that there is not much. The important part—this is where there are a lot of misconceptions about data in the field of mobility—is being able to access the transport system, which happens through having ticket sales and other trip payments open. That is where the market value for everything lies. If we are talking about data as just statistical things that happened in the past, it is really hard to make that valuable in many ways. A good thing about that is that it is safe, in the sense that you will not be able to track one individual using it.

There is a good principle called MyData, which I firmly believe will be the one we have in the future. All this comes together, from different types of provider, in the individual. That is where it is actually useful. You do not have a subset of the data. That is where it should be governed as well.

Lord Moylan: What you want is access to personalised data in the way that Facebook has. I agree with you that the importance of the regulatory framework is often commercially determinative, whether that is a good or a bad thing. When you say you want a regulatory framework or law that mandates the sharing of data, it is not just anonymised statistical data

that you want; you want something that allows you to do ticket sales.

Martin Howell: We are talking about sharing data. That is for demand planning, service planning and enabling you to see what the general trends are. When it comes to individualised data, I am not suggesting that personalised data that identifies individuals should be mandated as being sharable. That should be down to personal choice. If there is one point that I would really like to make here, it would be that we have developed a culture that forgets that the data should really belong to the individual. They are the generators of that data; it is about them. Yet we have developed a culture that says, "Because I've collected the data, that data's mine". We need to change that.

Lord Moylan: Leaving aside the general principle, so I understand this in my own mind, what you are looking for is data of the sort that says, "Because Moylan goes down to Kew very often, he may be interested in a different botanical garden. We'll get on to him and try to sell him a ticket to go to this botanical garden, which is not Kew". That is an idea just as an example. You want to know enough about me to know that I personally have an interest in botany, which might mean that you suggest other destinations or things like that. Is that what we are aiming at here?

Sampo Hietanen: It is more to do with what is known as on-behalf purchasing. If I am an aggregator and I want to have TfL, the public transport in Leeds, the taxi systems and everything like that, there is a right for the individual to say, "This aggregator is allowed to purchase all the tickets on all the services on my behalf". There is no need for further data sharing beyond that leg of your journey about your individual trips or travel; it is just about having access to the actual services.

Lord Moylan: I am sorry; I am really trying to understand what we are looking at here. I could do that by saying that I will buy all my tickets using one particular credit card or debit card. Effectively, that credit card company has all my travel data. They may not know it, but I might tell them. They might give me a discount for travel, and I say, "Yes, I'll do all my travel bookings through you. It will all be paid for with this card. You will know all my travel patterns". That is okay; I could do that now. What is the aggregator offering me on top of that?

Sampo Hietanen: As an example, say we are in the UK and we are trying to be as good as owning a car. If I told you that, for the same price as your car, with no extra cost, a bit like Netflix, you are allowed to hop on any train, any metro, any tram, any taxi, any car club, any scooter, any bike or anything else within the whole of the UK, would that make you say that it is good enough? This is a bit of a difference from Visa or Mastercard. There is no service. When we talk about mobility as a service, I would like to emphasise that what people really want is the last word; it is the service. Just having a credit card itself is not enough, at least in my experience.

Lord Moylan: Now we are talking about something else. I am sorry to

hold things up. You are talking about a product. I still do not see how the data makes the bridge to the product. They are two separate things, are they not? If the service were on offer, I could pay a subscription of £250 a month or whatever it is to have all that access. Where is the data?

Sampo Hietanen: Data does not allow that at the moment. It is not doable. At the moment the relevant interfaces to allow one all-inclusive monthly subscription to open all transportation services in the UK is not doable. Data access points do not exist.

The Chair: We might investigate this a bit further offline so we can move on, because it is a very important point that Lord Moylan has raised. We are early on in our inquiry. I would like to move on to Lord Stunell, if I might.

Q44 **Lord Stunell:** Yes, in fact this is really the same question. Where are we going to be in 10 years' time? How will this impact the transport market or travel patterns? I am familiar with the idea of driving and finding a red line on the road ahead of me, because they have tracked how many people are queuing at the traffic lights; I might swerve off course as a result of that. I have the same problem as Lord Moylan in seeing exactly where that connects. Linked to that, is it going to be that you need data from door to door or from first bus stop to last bus stop? It seems to me you are missing a stage out, if you do not.

Professor Susan Grant-Muller: From my understanding, door-to-door data is needed, because we need to know, for example, where people are struggling to get from their door to connect with a network that is efficient and gets them to where they need to be. Is this a deterrent that means people are not using public transport and choosing to use a car, for example? Are there issues with the bus station being in one part of town and the train station being in another? That can make it impractical for people to connect between the two.

At the moment, we do not have sufficient understanding about people's problems with connectivity. We can look at this from an efficiency point of view and say, "If we imagine someone getting off the train and then having to go to another terminus, this is how long it would take", but we need data from people to understand what some of those barriers are. There are people who will choose and need to choose to take convenience, because they are maybe encumbered with children or they have mobility issues or luggage. They need to have convenience and ease of connection as part of that choice.

Lord Stunell: Sampo, what has been the rate of change in Finland, in your practical example? My question is about where we will be in 10 years' time. Should the committee worry about this or is it over the horizon?

Sampo Hietanen: It is coming more quickly than we expect. It tends to be the case that many of these trends are at first underestimated and then something happens. What I see is pretty obvious: more and more people, starting in the cities and with young people, do not want their freedom of mobility to be covered by car ownership any more. They are

underserved. It is not so much about that one trip; that is just an element. What people are really after is a guarantee of this anywhere, anytime, just on a whim. For that, it needs all kinds of particles in it.

The market most likely will be that there will be less and less car ownership. If this is true, it has a tremendous impact on both the market and the city structure. Where we now talk about corridor policy, we will be talking about hubs. If you are without a car, you will be making a change in your journey. If we want to make it comparable with car ownership, that interchange will have to be the best part of your day. If we are honest, going into a tube station for a change today is probably not yet the best part of your day. It may be in 10 or 20 years' time.

You can expect in 10 years' time for digital disruption to have quite dramatically changed how people purchase or fulfil their freedom of mobility. You will have more operators promising you a service level to a certain degree so you can go places that you want without investing in the asset of a car.

Lord Stunell: Some of the user groups are really quite sceptical about this. We have had some evidence on this just this week. Their answer to the question is that it will be pretty much the same as it is now. Do you want to challenge that more vigorously?

Sampo Hietanen: Wherever I talk about this, it is always the 50-plus men who say, "This will never happen. Everybody loves their cars". I am sorry; I am close to it, so I am allowed to say that. Then there is someone in their 30s who says, "I don't recognise myself in that". We have been in the market in a small city, Helsinki, for quite a while. Prior to Covid, we asked users how many of them were giving up their cars, and 24% said that they either avoided buying a car or sold their car because of this. The product or service is not yet where it should be. You can expect that there will be more of that.

It does not mean that people should give up their cars. It is more that we need to present them with credible choices. Those young people who do not wish to own a car really are underserved at the moment.

Martin Howell: There is also a role in highlighting the true cost of the ownership of a car. We have never done that. We can point out to people just how long their car spends depreciating, rusting and not being used, and that there are alternatives available. They have not been available up to now, but what Sampo is doing in Helsinki, and what is being done elsewhere in the world, is a great example of being able to say, "You could do things differently. You don't have to own a car". The people we are trying to persuade, though, are not the young, as Sampo said. They are perhaps the intermediates, who have to decide whether they buy another car or whether there is a viable alternative. To be viable, it has to be end to end.

To go back to your question, which was like Lord Moylan's, there are two levels of data here. There is the data gathered about how people are

travelling around systems and cities, and there is all sorts of data already available on that. Then there is the active choice made by an individual to surrender data about exactly where they are going from point to point, which you can use to tailor a service to them once it is established. It will take time. I am not sure whether it will be 10 years; I hope it will be. You can offer them a service that fits their needs. They may be infirm and do not want to use e-scooters. They may want convenience, they may want comfort, they may want to choose the greenest alternative. If you know what their individual choices are and where their individual journeys are going from and to, you can start to provide them with a service that will persuade them to get out of their cars.

Lord Berkeley: Very quickly, it is fascinating to hear the number of people giving up their cars. Are a significant proportion of them using cars that you can hire on the streets? I have forgotten what they are called now.

Lord Carrington of Fulham: They are called car clubs.

Lord Berkeley: Is that significant or is it irrelevant?

Sampo Hietanen: They cross-use them. Like I said before, eventually, once you give up that car ownership, you do not really care that much whether it is a scooter or a car that you pick up on the street. There are so many of these car clubs in Madrid nowadays that people just pick up one of them and go, and then leave it at some point. There start to be more of the means. I would like to divide this into two parts. One is the demand. If people have someone, a MaaS operator, who promises that all their trips for the next year are covered, we are good. The second part is whether we have enough supply. That means that we have to have last-mile coverage. We have to have all this with a really good and robust public transport system as the backbone of the whole offering.

Q45 **Lord Carrington of Fulham:** Looking forward, I can see how this would work in an urban area with quite a high density of people, a lot of whom are travelling to the same sort of location. Cities are not like that. They are like that in the centre of London, and I guess it is like that in the centre of Helsinki, although it has been a few years since I have been there. How would you cope with this outside London or in its suburbs—the outer boroughs, as we would call them? If this is going door to door, the multiplicity of journeys will be enormous. People are not going to the same place; they are going to different places. To make your program or your app work properly to provide a service, there will have to be a lot of interchanges to get them from door to door to the final place they will. In other words, you will have to get on your scooter, leave your scooter at the bus stop, get on the bus, get off that bus, get on another bus, get a taxi and whatever.

I can see how, theoretically, you could co-ordinate that and make all that possible, but somebody will say, "That's an awful lot of faff, when I just have a car sitting outside my house. I can drive there in 10 minutes without having to go through half a dozen changes of transport". How are

you going to overcome that? I do not understand it.

Sampo Hietanen: I will give you a couple of examples. Where I come from—this kind of Multimodality is normal for many places, and for Londoners and for people in Helsinki—people tend to say, “I need my Range Rover here in the garage, because I need to get to the countryside”. We have a lot of summer cottages. On average, people do that five times a year. In Tokyo, over 50% of cars are used only once or twice a month, so less than once a week, but people have them as their freedom insurance. This is what happens. I normally say to these people, “Take a rental car. Take a nicer car than the one you have in your garage. With the amount you’re driving , it doesn’t really matter that much”.

If there is more and more supply of transportation services , we can also have changes in travel behaviour . One element which the change in the internet brings for many other fields is the visibility of supply and demand. I was on a panel with someone who came from a really rural area. Where I come from there is practically no one there. They were asked this question: “There’s no supply in these rural areas. How can you ever bring these mobility services over there? In the cities, you have trams, subways and everything going all the time”. They said, “I was just on a dirt road and seeing that the interval of the means of transportation was close to five minutes. It was just that it was private vehicles”. If you had visibility on the supply and the demand there, and you could use all the different modes, you would be closer.

Lord Carrington of Fulham: It would mean people sharing cars, sharing their private space. The thing about a car is that it is a means of transport, but it is also an entertainment centre and a private space where you think about what you will do over the next day. It is a place where you have a row with your wife or your husband. You have the kids in the backseat playing video games. Then a stranger comes along, sits in the front seat and says, “Right, take me where I want to go”.

Sampo Hietanen: Did we not think about that? I have to say I was one of those who thought that Airbnb would never work. I would never let a stranger into my house. But there are ways of doing this in rural areas; there are examples. One is social transport. At least in many parts you give rides for certain people to go places. That can be used to incentivise the market. Instead of a person taking a taxi, you can give them a ride. A person can give a ride to their neighbour and take them along to listen to the row with the wife, for example. It just might work. I am not saying that it happens first. It happens afterwards, more or less, but there are opportunities.

Lord Carrington of Fulham: We have everybody sharing all means of transport and we have providers setting up presumably to have Uber-type cars going around and picking people up, taking them wherever they want to be and sharing, and so on. You will have anonymised data from the Uber drivers, or the companies that are running the Uber drivers, by that stage, because presumably there will be more than just Uber. They

would have a commercial advantage in not sharing the critical data, so you have legislation that forces them to. They will still not share the data, will they? The reality is that they have a commercial advantage in sharing the minimum amount they can legally get away with. It is not going to work, is it?

Sampo Hietanen: They do not have to share all the data. All they have to do is open up the ride so that an aggregator can hail, pay and do all this in order to make it convenient for people. In a way, the question is this: "Can I pay £250 to cover everything within the UK?" Is that doable, so that one app opens all the doors? If that is doable, it is fine. It does not mean that all the data needs to be shared. It means just accessing relevant data per one person for that trip.

Martin Howell: Nobody is advocating that we go for a wholesale switch, that the car must be killed and that we must find a way of getting everybody into shared transport or on to public transport. No matter how well meaning we are, people in rural areas, for whom there may not be a viable bus service, will have to have a private vehicle.

Increasingly, the problem is that the cost of that being an internal combustion engine vehicle will go up and up, and the cost of an electric vehicle at the moment is too high for many of those people. There will come a point when those lines converge. It has not yet. Someone will need to have a private vehicle. The question is about the mix and what we can do for the mass of people and the untapped demand that we could be meeting.

The Chair: I do not know how you deal with safety. I am rather appalled by the idea of sharing a car with just somebody who happens to come along.

Baroness Cohen of Pimlico: What about sharing a scooter?

The Chair: That might be better than sharing a car. If you think about some of these awful cases, there are problems of safety for individual passengers.

Q46 **Baroness Bakewell:** I am interested in the rate of change. Everyone knows that as people get older they get more reluctant to try out new systems. I downloaded the Whim app last night and put in several addresses as to where I might want to go. Each one began with a 15-minute walk. That is not what I am looking for. I will get in my car. That is just a quick idea. What about the ends of journeys and the interaction there: going to the car or the bus and, at the other end, getting to where you want to be? This is still a problem that makes the car the most attractive.

Professor Susan Grant-Muller: I agree entirely. This is a real barrier for some people, particularly when we are thinking about remote places. I have a lot of sympathy for people who are basically disconnected because of the place they live in. The service may be there and it may be summer proof, but, come winter, will they manage to get to the bus stop and

stand in the howling gales? There is a need to consider the infrastructure and the safety considerations of people being in the dark at 4 pm on a winter's day in some of these places.

There is a place within this landscape for on-demand services, which is something we have skirted around a bit. If people know that they will make trip, they can book that in advance. Where there is sufficient evidence of trips needing to be made from a particular village to a town, for example, a shared service can be put on, pick up from people's homes and get them to some major locations. That is one possible solution.

We have also not spoken about—maybe it is a bit out of our remit—what will happen with autonomous vehicles, particularly shared autonomous vehicles. They could be part of that on-demand supply as well. Particularly as we look at an ageing population with older ends to our lives, that could enable people to have access to transport and give up their vehicles perhaps a little earlier than they would have decided, because a vehicle is available that will pick them up from home and take them to their destination. It may need to pick up people on the way or not, but that is a possibility.

Sampo Hietanen: Sadly, they are not available here in London. I would invite everyone to come to Switzerland, Helsinki or Tokyo to try it, where all these modes are available. It is a vital question. When people make the biggest decision, which is the investment in the car, they do not think about their next trip or even the next week. They think about a year ahead.

Customers ask me, "Can you guarantee that I can take all my trips for the next year?" This comes down to whether we have enough supply. They say, "When it's snowing, when I need to go out to the countryside or when I need to do this or that, can you do it?" For sure, the car is also a vital part of making sure that all the trips are covered. The next thing is whether you need to own it. People ask, "How fast am I in a car?" In some of the major cities, wherever you are it is no more than a two-minute walk to find a car that opens for you and you can just go. It is this service-level guarantee that people are interested in.

Baroness Bakewell: The problem is that the density of population in our major cities is so great. Surely that kind of provision is a logistical nightmare.

Sampo Hietanen: Yes and no. The density is also a good thing. Our W him mobility application is also live in Tokyo. You have this means of access. Where it is more about asking for a route, people look at it like a radar for what is available in the next 100 metres: "What can I take?" People have an idea of what they want, but they just want access. In a way, it is like a skeleton key to your city or your world. The fact that there is so much availability gives choices. It gives a chance to say, "We can be better than car ownership". In Helsinki, you might have to pick up the car some kilometres away.

Baroness Bakewell: Older people do not want to have all these choices that they have to worry about. They just do not want to have to make any decisions at all, which again makes the car much more plausible for older people. Just get in—one journey, one decision. Having so many options can hit the problem of people being confused and finding it difficult to make choices. Do you agree, Martin?

Martin Howell: I completely understand. This goes back to the question of the amount of individual data, preference and customer choice that is being disclosed at the beginning. If, for example, an older person has mobility issues, they may say, "When I use this app, if I request transport and I request some journey choices, I don't want to have to walk. I want something that will be easily accessed". That means that unfortunately they may have to wait a bit longer.

We must also not discount public transport being more accessible to people. We talk about the density of populations in large cities outside London and in London. The bulk of those people will still continue to use public transport, but if we plan it properly we can make those services more flexible and more demand-dependent than they may be at the moment. There will always be room for an individual to be able to say, "I've got particular issues and, accordingly, I don't want something that's going to involve an e-scooter or having to walk to find an e-scooter", heaven forbid.

The Chair: The apps could be improved a bit. I use Citymapper a lot, and you have to make awkward choices. You should be able to put in the fact that you are disabled or whatever. That is coming, I assume.

Martin Howell: Yes. That should be the default. You put your choices in, and that rules every decision that is made.

Q47 **Lord Best:** As well as not using the app because you use the car, there are all kinds of reasons why it may be difficult for some people to access this whole new world. You need a mobile phone, you need a good signal, you need to be digitally literate to work it, you need a credit card or contactless payment of some sort. These requirements exclude a lot of people. Are we just hoping that over time everybody will have a mobile phone, that the signal will be good, that everyone will be digitally literate and that we will all have credit cards? Will this always be a partial market?

Lord Moylan: Like in China, it will be suspicious if you do not have a mobile phone.

Martin Howell: Is there anyone in the room who does not have a smartphone?

Lord Stunell: Yes. They put me on the committee specially.

Sampo Hietanen: I would have to say that there is a natural evolution to all kinds of disruption. The most likely ones to pick up a MaaS application are those we would call car hesitant. They are 25 to 35 and

they already have enough money that they could buy a car, but they are not really keen on doing that. They would like to postpone. For the younger generation, it is also a commitment that they do not want to make. Since they are underserved, they are in a way pushed to buying a private car. We have seen even in the US, where the car is dominant, that for the last two decades at least even getting a driving licence tends to be something you do when you are older. Young people's love affair with the car is dying.

It is more to do with whether we want to make sure that at least these people are serviced. It is most likely that the car will be dominant for a big majority of people, at least for a while. How it happened for me, with my smartphone, is that my kids taught me that I needed to do this. I suppose that will also happen with this. It is the 20 year-olds who will pick it up. They have not bought into the system of buying a car, and they need choices as well.

The Chair: Is there a disincentive effect? Do we need to think about disincentives? In central London my children do not have cars, because you have to pay a very big annual parking charge and for insurance.

Sampo Hietanen: That is a stick. We need also carrots.

Professor Susan Grant-Muller: We need a combination of the two. One solution will not fit everybody. There are cases in London and the suburbs of London, but also in places such as Leeds, Newcastle and the Lake District. We need to look at this in a tailored way and look at many solutions.

I want to pick up again on the issue of user burden, which is important. It is not just about whether people can use ICT or the phone. The burden of using the service per se can impact on older and younger people. It is also true that driving has become quite a user burden in a number of towns and cities. People find it very difficult to process the volume of information that is coming out on the highways. People are choosing not to make some journeys because of the stress of driving. The picture is more complex than we may be able to paint in a short time.

Baroness Bakewell: It is highly individual, is it not?

Professor Susan Grant-Muller: It is.

Baroness Bakewell: It varies from person to person. It is almost hard to generalise at all.

Professor Susan Grant-Muller: There are at least two groups of older people. One is a set of older people who are financially not particularly well off. Those people have often developed a habit of using public transport during the working part of their lives when they were economically very active. They were working and dealing with the household, picking up children and all sort of things. They continue to use public transport in older age, because it feels familiar. They are reluctant to change.

Then there is another group of older people who are economically much better off and who have become used to the car. They have difficult decisions to make when they come to retirement and they stop working. At different points in their lives there are opportunities to reconsider the transport choices that they are making. The more choices we have available, the more likely it is that we will get some of this tipping towards different kinds of modes that help us to become sustainable.

Baroness Bakewell: The problem will be to keep them informed about what would match their needs. It will be a major pressure to link up with all the ageing charities and so on to press the explanations that older people will need.

Lord Best: I have a quick supplementary for Sampo. You have been piloting in Birmingham, and it has not been working terribly well. What has gone wrong?

Sampo Hietanen: Covid was a big blow. It was not good to start with a completely new product category in mobility when Covid hit. That was about the time when we were supposed to be booming over there in Birmingham. The other part has to do with what we call supply liquidity. People downloaded it a lot, but they have high expectations. In the time of Netflix, people think, "I have everything and it's right there". We had to go step-wise.

When you have an app, it is hard then to justify a card that combines with it. It has to be completely mobile; everything has to be opened by the mobile phone. We need access to different types of taxis, car clubs, bikes and such. From the first day, people's expectations were humongous. We are happy and hopefully coming back with a bigger service offering in the UK, now that Covid is relieving. It really comes to the service level that we need for people.

For the elderly, by the way, we have a second peak, after the 25 year-olds and such. The over-45s are more than one third of the customers. We have tried to get into this. The second peak tends to be when the birds leave the nest. That is when some of the ageing people get rid of a second car or even the first car. They really do need service and convenience. This is where the individualism comes in, because what is great about the car is that I choose my car, no one else.

Q48 **Lord Moylan:** I am not normally somebody to burst in on other people's time, but I am struggling to understand mobility as a service and what it offers. Despite my great age, I gave up my car. I did not replace my car. I went without the car for three years. The only thing that pushed me back was Covid. I bought a car early on in Covid, because nobody wanted to use public transport and so on. I have kept that since.

I live in fairly central London. In those three years, I had no problems at all. I went to the bus, I used the Tube, I joined a car club. Although I did not use it very much, I did use it. I used Boris bikes when it was convenient. It all worked more or less fine. I suppose my app was my

Oyster card. It did not cover the Boris bikes or the car club, but you see what I mean. Most of the time I had my Oyster card.

What is mobility as a service on top of that? I can appreciate that if I were frail and I had a distance to go, I might need a taxi from the front door. I used taxis or Ubers as well sometimes, because they were also available. I appreciate that I might need that as well if I were frail and needed something to connect. What is mobility as a service? Is that not mobility as a service?

Martin Howell: If I could just answer before Sampo, who I know has an answer he would like to give you, the situation in London is somewhat artificial. You mentioned the Oyster card. It is not available at the moment in the areas that you as a committee are looking at. By TfL's express intention, it creates ease of use across multiple modes. That is what it was supposed to do. That does not necessarily exist elsewhere.

From my perspective and from Worldline's perspective, mobility as a service is the ability to state your departure point and your arrival point, and then to find the simplest journey plan to do that with the simplest means of paying for it. We will come back to the question of the unbanked and those who do not necessarily have either a mobile phone or a credit card, or who may be financially disadvantaged. We have to take account of those people.

Lord Moylan: We do not need Oyster cards now. Oyster cards are now an embarrassment for TfL. They would rather you used contactless, because the cost of collection is lower. We would just have contactless.

Martin Howell: Not everybody has a contactless card.

Lord Moylan: That is absolutely true, but the people who do not have a contactless card are hardly the ideal market for a new app involving a degree of technology and challenge that Lady Bakewell struggled with yesterday evening and perhaps succeeded or failed at. I do not know how she estimates her experience with it.

I am struggling to understand what mobility as a service is that could not be supplied otherwise. I appreciate that Oyster cards do not exist elsewhere. I appreciate that Citymapper and the other things that have spun out of the TfL data, which has been made freely available, do not cover the whole of the country, but contactless does. If those things also did, would you not have created mobility as a service?

Sampo Hietanen: For someone tech savvy like you, that is Mobility as a Service. You do not need any other aggregators for it. For some others, to have all-inclusive application increases convenience. I have more than 50 apps of mobility on my phone. Just to get around London, I would need well over 20 apps to have access to everything. The average ride for people is around 15 minutes. If we look a bit further into the future, do you really want to open all those 20 apps?

What the Mobility as a Service layer can offer—this is definitely not for all, because many will still use the different apps or will have access with their Visa or Mastercard, and that is good enough—is the opportunity to create a package that is priced at a service level. For example, we have said, “For this price, we will never make you walk in the rain, we will never make you walk more than two minutes”, and so on. Let us worry about the 20, 50 or however many services. The number of transport services is rising; it is not going down. Let us worry about how you get where you want to go. Our job is to get you there.

As a short example, a journalist, a 50-plus man, in Helsinki called me to say that he had always been a petrolhead but now with his wife he had given up the car. I almost had a heart attack. I asked him, “Why on earth did you do that? You’re not in the target group”. He said that just last night he went to see tennis with his wife. They took a taxi to a commuter train and then walked to the tennis. They stayed there for a couple of white wines and then they took a taxi back.

I still had to insist: “I don’t get it, because all those services existed before we (Whim application) came”. He said something that I think describes mobility as a service. He said, “Yes, but before you guys came along there was no one on my side trying to pick what is right”. Since we are independent and we get our money from the consumers, we are trying to pick the right solutions out of the jungle for these people. That definitely does not take away from the fact that for many people a Mastercard is good enough.

Lord Berkeley: Leaving aside London and whether you have a car, going back to Birmingham, what stopped you getting more information and more data from the operators that you could not include? That seems to me to be the big problem of open-source data. If you had been able to get that, it would have been much more successful, I would have thought.

Sampo Hietanen: Yes, it is as simple as that. Access to data and services is what enables paying and doing everything in one app, as well as pricing it. That is the key.

Q49 **Lord Haselhurst:** I grow increasingly sceptical when I hear all I have heard, with your help, this morning. I will say something that the committee has heard me say before; I hope they will excuse the repetition. The car is the great liberator. It provides you with choice. When I first had a car, I said, “I’m not going to abandon the walk to my place of work”. The first wet day, I did. Then it became a habit. You keep things in the car when you are moving from one point to the other.

Then you can imagine the family scene, with two small children. If you have to take them over more than one link in a chain, you can be in difficulty. I can think of all sorts of places where you might be changing mode of transport, in the picture that is painted by this, and they want to go to the loo so you miss the connection. Can you really manage with the dog and the basket, and all the apparatus that the children will want you

to take with you? That is very difficult in any other form of transport.

Can a system like this really be afforded by hard-pressed transport operators, however tempting it might seem? Is it not also open to hacking? Somebody is bound to try to wreck it out of pure spite, let alone politics. There is a 13 year-old working away in an attic bedroom, who is very clever and who would delight in bringing the whole system to a halt. It seems to me that there are very considerable concerns about it. The advantages that might be thought to exist from it could be cancelled if we have cheaper or smaller cars, which there is talk of. I referred to that in the committee last week. Citroën is producing a car that goes a very short distance on very little fuel. That might become a form of mass transport for individuals in the future.

If I may make one further point in trying to assess the knowledge and whether that will tell us what we need to do next, was that the predominant factor—Lord Moylan is the expert here—in determining that we needed something called Crossrail and, equally, when plans were produced for a Crossrail 2, which has sadly now been kicked very much into the future? It is a simple point, but in Nottingham the number of passenger journeys with the tram shot up from 8 million to more than double that—18 million—before Covid intervened. Was that because people were making more journeys or because there were more people shunning other forms of transport and finding the tram convenient? In Manchester, if City are playing at home, I am sure the best way to get to the Etihad Stadium is by tram.

If you have to think about more than one link in a chain, are you not exposing yourself to all sorts of weaknesses in that system? The first mass breakdown will persuade people that it is not for them.

Professor Susan Grant-Muller: Can I loop back quickly to the question about what MaaS is? There may be something that we are not being quite explicit about, which is the opportunity of this as a financial package. You pay your energy supplier a certain amount per month, which comprises your gas and electricity. That could come from wind power or from various sources, but you know that so much per month of your budget is going out. That is the opportunity that MaaS gives. Say a package is on offer for £150, £50 or £200 per month. You can choose as an individual or as a family to pay a certain amount per month, for which services will be provided. That could be a combination of taxis, shared vehicles, bus, train, tube or whatever is appropriate to your local circumstances.

The distinctive feature is that you know that you are paying for a certain amount of travel. It could also include twice yearly use of a private car to go on a long-distance holiday, a camping holiday or whatever. You can determine what type of transport you want, and then you get a package that you pay for on a monthly basis and it is all provided. That might not have come out quite as strongly as we needed it to.

To come back to the issue of data security and the opportunity for bright young things to hack into the MaaS system, that is absolutely the case, but we face the same problem with all kinds of transport services already.

There is an opportunity for people to hack into the motorway signalling service that says that you should be travelling at 50 miles per hour or 40 miles per hour. That could also be seriously disrupted. The idea of data security and digital security is across all sectors. It must be taken on board with MaaS as much as with other kinds of transport supply.

The point is well made that, for some individuals, the car is an extension of their home. It is a place of security. It is familiar. They know their stuff is in there, and they can access it. They have all their emergency food supplies, the shovel for the snow and all the rest of it. For some people in some circumstances, that is really what they need. To echo what has been said, nobody is suggesting that that choice can or should be completely taken away from everybody.

Martin Howell: Unfortunately, as a society, we are looking at things generally through our own prism. They are not children any more, but I have two kids in their 30s. Neither of them has ever aspired to a car. They make choices based on their environmental responsibilities, and they are serious about that. They do not see car ownership as being a responsible choice for them to make. They are not alone. There are hundreds of thousands, if not millions, of them making the same choices.

There is an undue focus on the inconvenience of multiple legs in a journey in our thinking about this. For many of these journeys, it will be getting in the car, going to where you want and getting out of the car. You will not always have to take five journeys whereas previously you would have taken one. If you look at it that way, of course it will be a difficult and irksome thing to have to do. It will not always be like that. I would argue that most often it is not.

Sampo Hietanen: To that point, we did a study on cities in Europe. One of them was Birmingham. One-third of people said, "Never, ever will I give up my car". We should let them have that. That is freedom of choice. Across the field, roughly 38% of urban people are actively seeking an alternative to car ownership, but they find that they are underserved. There are not really these convenient or easy options for them. It is about giving people at least an opportunity; it is often the young ones who think about it as a hassle to own a car or have environmental desires. Let us remember that mobility will be responsible for about 40% of carbon emissions by 2030, at least according to the European Commission at the moment.

Replacing a private car is also a big opportunity as a market. Like I said, mobility is about 20% of household costs. If we believe that there will be digital disruption of one or another kind, it tends to be the markets at the forefront that benefit most from this. It will go across different sectors. It is not just public transport, cars and such; it also goes across people's lives. In Tokyo, with Mitsui Fudosan, which is one of the biggest real estate developers, we are combining rent with mobility. If you live in a big apartment site, instead of owning your own car you have the visibility of cars, bikes and everything else, because we can guarantee that all the modes of transportation are always available. They

can save the non-profitable part of real estate development, which is the parking spaces, where you run at a loss. These cross-benefits are enabled once you get a bit further in the market development.

The Chair: Perhaps you would be kind enough to send us that report, particularly as it relates to Birmingham. If you could share that with the committee, Sampo, that would be incredibly helpful. Lord Moylan?

Lord Moylan: My question was about the future of the future. We have had a number of questions about the future, so perhaps I could skip that.

Q50 **The Chair:** I have a linked question. Is this market sufficiently competitive? Clearly you have managed to come in in various cities and towns. Before we move on to regulation, which is our final area of debate, does anybody have a view on competition and whether we are getting enough innovation through competition?

Sampo Hietanen: There is not enough competition. We are at a point where there is a lot of debate. In a way, we are shadow fighting a bit, because the biggest hurdle in creating a good Mobility as a Service offering lies in the access to supply, the variety of transport services. That is also the biggest blocker to commercial investments. Will we have this access? If I take an example, we are dependent on third-party service providers. If there is a risk that somebody will take that access away, the investment also goes away. That is why there is not a good enough competitive climate at the moment.

The Chair: That leads us on naturally to the next question.

Q51 **Baroness Cohen of Pimlico:** I would like to make a couple of observations before I ask my final question. Thanks, Susan, very much for reminding us that this is about saving money, or could be. That is terribly important. It is also to do with environmental issues. We are the classic oldies. We gave up one car as soon as somebody else stopped paying for it and we retained one car, which is now 20 years old. We will keep it until the wheels fall off and it dies, because that turns out to be the environmentally correct thing to do, at which point the good Lord alone knows what we will do. I shall probably end up dependent on a taxi service, which you can be in a small city such as Cambridge.

Sticking out of all this is the question that I have been given to ask. The second half of it is the point. How should public policy be shaped to adapt to these innovations, both to help and, if need be, to make them fairer and stand on top of them? The second half of the question goes the other way round. What are the challenges in regulating transport apps? What do you need? What ought we to be regulating?

Professor Susan Grant-Muller: It is a difficult question, because the question, "What is a transport app?", is pretty open. There are lots of different definitions of an app. There are some very utilitarian apps that literally just give information: "This is when a bus is coming", et cetera. There are apps that are behavioural change and incentivisation type

tools. Then there are integrated apps and so on. It is difficult to make an overarching point about the regulation of them.

Data should be increasingly recognised as an important part of the infrastructure. We have placed a lot of emphasis on financing, regulating and improving the quality of more physical types of infrastructure. Although data is coming up and is increasingly recognised, it is not sufficiently recognised as a core part of the infrastructure for all local authorities, suppliers and so on. Recognising that would mean that there would be support and policies to encourage organisations to have good data practices. This is separate to GDPR, but, in the same way as there are things such as the clear communication symbol or the Investors in People award, there ought to be the good data award that makes it clear that an organisation is storing, curating and sharing its data in a way that is for public benefit and makes it easy to create good public services. I would like to suggest that.

Support could and should also be given to organisations wanting to improve their data infrastructure, so that they know where to go for advice and support. It is not always clear where they should be going and how that can be resourced.

Martin Howell: I agree entirely with what Susan said. I have also heard it said repeatedly that what we want to replicate in towns and cities outside London is a London-style transport network. In order to do that, you need to replicate the powers that prevail in TfL and in the mayor, which we do not necessarily have outside London. TfL has been described as a local transport authority on steroids. You could argue that in order to share the benefit that Londoners feel they have of being able to travel seamlessly between modes, you should give local authorities and maybe regional mayors the powers that exist in London, and enable them to commission their bus services and join those modes up. That would be a step in the right direction.

New modes are being carefully trialled at the moment. E-scooters are an obvious one that comes to mind. There are 17,000 e-scooters out there at the moment in a number of trials. The number of trials is in its 20s. We are very slow at regulating. The lack of regulation means that there is a cowboy environment out there. People's biggest fear about e-scooters—74%—is pedestrian accidents. We have to regulate those. If you are walking down a one-way street and you are expecting the traffic to come towards you, you might step out because there is no traffic coming, and there could be someone on an e-scooter with no helmet coming at 30 miles per hour behind you. We have to regulate that.

Then it becomes a more acceptable mode, fits into the overall picture and becomes less of a concern for people. E-scooters could be a game-changer, particularly among the young. There are thousands of scooters out there that are being used illegally. Let us make them legal. They will help us with all sorts of issues—environment and congestion to start with.

The Chair: Some of us have been asking questions about this for some

months. It has been very interesting to hear your objective comments.

Sampo Hietanen: I would echo this. I will quote an American colleague, who said that the digital disruptions that one company or even a group of companies can make are all done. We have now come to disrupting these bigger items in the physical world. That takes political leadership. I would argue that we need a vision of what the market will look like so that it is sustainable and we know that we will stand by this type of market. There are a lot of power games going on, of course. For example, the belief that everybody integrates to me and I integrate to no one. Or the belief that you have to be in this bottleneck position. To overcome these power games, we need strong regulation and, as I know from my home country, for it to be enforced. It does not help if the regulation exists but nobody needs to follow it.

How I see the markets, at least personally, is that people deserve to have that access to mobility services from a one-stop shop. It makes it easier and more convenient, or at least it enables that. They need to have a choice as to where they get that access from. If we have only one provider, it will never be as good as owning a car. It should be roaming so that it is not just a one-city approach. If those principles are met, there are enough investments and market forces. Let us face it: a lot of investment is going into mobility at the moment.

Then it comes to the authorities and the kinds of solutions they have for transportation issues. It tends to be that we put a tender out, pick the winner and then pave asphalt. There was a really good example in Rotterdam where they used a multitude of services by incentivising good behaviour. They had really good results. As an example, they paid a shadow toll, and somebody made a service that said that, if you do not come with your car to work, you get a free personal trainer in your gym. As part of your personal training, you take a bike to work. It worked. It is about having this innovation in how we solve the products. It is not always just the asphalt.

The Chair: Thank you for that. I hope you will give us a bit more detail on that. We are planning to take evidence from some employers. Maybe we will get more examples of that kind of thing. Employers can play a part. I am conscious that two of our committee members, Lord Grocott and Lord Lytton, are at home, isolating because of Covid. I do not know whether they want to ask a question, as we have five minutes.

Q52 **Lord Grocott:** It is very interesting to listen when you are not expected to contribute. I absorbed more of that than when I am actually in the room. I still do not understand the economics of it. The question I had written was partly answered. Part of the information that we had was that the West Midlands got a grant of £24 million in 2018 towards the kind of service that we are talking about. We heard another piece of evidence that West Yorkshire Combined Authority found that £200 million, which was the sum being considered in its case, was not adequate to do the job. They were talking about two things, and I may have misunderstood something somewhere, but what are the costs of setting up a viable

service of the sort that we have described? What are the economics of it?

Sampo Hietanen: More important than the money is the ingredients to bake the cake. Putting hundreds of millions into this does not help if we cannot access the means of transportation and so on. I would consider that opening up the ingredients of mobility as a service comes first and incentivisation follows.

Across the world, there are a lot of pilots within the realm of MaaS. Most of them have the issue that we still go about it with the old tactic of putting a tender out and then picking the winner. When I advise any cities or Governments in the world, I say, "If you really want to mess it up, you put a tender out". Where pilots are good, they are innovative and you choose it. Trying to make a pilot with one provider is really hard. It is more about market pilots. If I were to go about it, I would say that we need first to make sure the ingredients for building these services exist. You need to have access to the different modes of transportation. If you want to speed up the market adoption, it is better to give money to the end users rather than anyone like us or any other company. Then you can see if the market adoption is there.

Lord Berkeley: You mentioned scooters just now, and I entirely agree with what you said, Martin. If I want to make a journey from A to B where one of the options is taking a scooter to a bus stop, one of the criteria must be whether I am allowed to take the scooter on the bus. We were in Leeds last week with our committee, and my electric bike was not allowed on the electric bus. It was allowed on a tram, but not on the bus. Similar things will happen with bikes on trains. The option of taking a scooter to a bus is conditional on the bus being able to accept it, whether it is a bicycle or anything else.

There are many other examples. Of course, it also affects the time it will take you on each leg of the journey. Is that the kind of information that can be provided to people, or will there be issues of confidentiality or some other rubbish?

Martin Howell: I completely understand. It is extremely frustrating. It calls to mind the old joke: "How do I get to Dublin?" "Well, I wouldn't start from here". We are not in a brilliant position right now, because there are changes coming that were never envisaged. The whole industry's strategic plan for rail is looking at what we need to be considering in 30 years' time. I have no idea, because 30 years ago you could not have predicted the world right now. You could not have predicted swipe to buy, Amazon, Netflix and Spotify. We need to make these choices gradually.

Buses will need to be able to accommodate micro-mobility assets such as scooters. Changes will need to be made. It will not happen overnight. There will be inconveniences along the way. Your point is well made; we need to be more joined up. Planning your journey and paying for it in a simple and easy-to-use way, in the same way as the retail experience is

for everybody, is the start. Then the infrastructure has to follow. It will not be cheap; it will be expensive.

Lord Berkeley: I want confidence that I can get from A to B by that particular mix of modes and nothing will go wrong. Is that right?

Martin Howell: Yes.

The Chair: There are lots of nods, but we have to get there.

Q53 **The Earl of Lytton:** Lord Moylan has partly asked the question I wanted to ask. If the whole model is pitched against the alternative cost of car usage, where does that stand with people such as my three children, all of whom live in London and none of whom has a car? There is not that opportunity cost. They are looking at something totally different. They are looking at a car-free situation. Going on from that, if you have a subscription to mobility as a service, what does that buy you? How much does it require you to predict what your journey requirements will be? If you do not happen to use up your credits, does that get carried forward to the next quarter in some way?

I can see that people would find that rather rigid, in the same way that we have identified with certain types of season ticket arrangement. I wonder whether our witnesses could comment on those.

Professor Susan Grant-Muller: This is absolutely the case. There is flexibility in the system and the way the packages are designed, but knowing your own transport requirements in advance is important. As for motivation, for younger people the environmental issues are high on the agenda, but financial constraint is also often an issue for younger people, which is why a MaaS package might be of interest to them.

Sampo Hietanen: Like with cars, there will be a multitude of packages. There is also evolution in the market. Netflix now lets you watch everything that you could ever want. Let us remember that Netflix started by sending you six DVDs per month, and then it was X hours of streaming and so on. The most likely scenario is that the production cost and the price in the first days will be shared somehow with the end user. Once we go over the critical mass, it is easier to say, "Just use it all". There is one good thing about mobility: we can predict, over a mass of people, the number of trips travelled. It will not change with this, and we will have an idea of how long those trips are.

Martin Howell: I cannot add anything to that. We are in an interim period, and a number of things will change for all of us. The generation that is growing up at the moment sees life very differently from the way we do. I understand the scepticism, but there are people for whom this will become quite normal.

The Chair: On that note, we should wind up proceedings and thank you for your time. It has been an exceptionally interesting session. You have kindly offered us one or two points of follow-up. We will be considering this subject for a few months. If things come to light that you think are

relevant to the conclusions we should be reaching, we would be very happy to have them from you.