



Transport Committee

Oral evidence: [Reforming public transport after the pandemic](#), HC 676

Wednesday 20 January 2021

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Members present: Huw Merriman (Chair); Ruth Cadbury; Lilian Greenwood; Robert Langan; Chris Loder; Karl McCartney; Gavin Newlands; Greg Smith.

Questions 71–129

Witnesses

I: Roger Vahnberg, Senior Vice President, Västtrafik and President, UITP Organising Authorities Division, Sweden; Jeremy Yap, Deputy Chief Executive, Land Transport Authority, Singapore; and Yves Crozet, Emeritus Professor, Institute of Political Studies, University of Lyon Urban Planning Transport Economics Laboratory (LAET).



Examination of Witnesses

Witnesses: Roger Vahnberg, Jeremy Yap and Yves Crozet.

Q71 **Chair:** This is the Transport Select Committee's second evidence session in the Committee's inquiry on reforming public transport after the pandemic. The Committee has set up this seven-part inquiry to explore how public transport is changing as a result of the pandemic, and what the challenges and opportunities will be in reforming it.

This second session is an opportunity to hear from international witnesses about how the pandemic has impacted their countries and their transport systems. The purpose of the session is to examine what lessons the UK Government can learn from international comparisons, and generate ideas from the reforms to public transport that those international countries are themselves generating and perhaps could be adopted in the UK as well.

We have one panel. Without further ado, I ask the panel members to introduce themselves, going first to France with Monsieur Crozet.

Yves Crozet: Thank you for inviting me. I am an academic and an economist. I am emeritus professor at the University of Lyon, working on transport economics. I am a member of a Brussels think tank called CERRE, the Centre on Regulation in Europe. Just to show you that I know something about the rail system, some years ago I was a member of the executive board of the French rail infrastructure manager.

Q72 **Chair:** Thank you, and good morning Monsieur Crozet.

Let's head to Sweden and Mr Vahnberg.

Roger Vahnberg: Good morning. Thank you very much for inviting me. I am looking forward to the inquiry. My name is Roger Vahnberg. I am senior vice president and deputy CEO of Västtrafik. I have been very active in UITP, the world organisation for public transport. Since 2011, I have been on the board, first the policy board and, after 2015, also the executive board. Right now, I am responsible for chairing Prescom, the president's committee in charge of the integrated global work programme for the whole UITP.

Q73 **Chair:** Thank you very much indeed, Mr Vahnberg.

Let's leave our continent of Europe and head further afield to Mr Yap over in Singapore.

Jeremy Yap: Thank you, and good morning to members of the Select Committee. Thank you for this invitation. It is certainly a privilege and an honour. My name is Jeremy Yap. I am the deputy chief executive of the Land Transport Authority. We are a statutory board that reports to the parent ministry, the Ministry of Transport.

My role is to oversee public transport policy and planning, and also the active and new mobility areas. Like Roger, I hold a portfolio in the



International Association of Public Transport, the UITP. I am the chair of the organising authorities division. I am also part of the policy board and the executive committee. Thank you. It is very nice to be here this morning.

Q74 Chair: Thank you, Mr Yap. Thank you, all three. The aim of this inquiry is to provide a report and a series of recommendations that the Government are required to either accept or reject with evidence. We very much hope that we will have the weight to be able to take your good ideas forward.

I will open up. It will be really interesting to get an idea of the challenges that you face with your public transport system. Perhaps, with that in mind, I could ask you to give us a little insight into the restrictions you have had to put on public transport usage, and what that has done in terms of passenger numbers across your public transport system. We will stay with Mr Yap, with regard to Singapore.

Jeremy Yap: Thank you for the question. We see this as a period where there are challenges, of course, but, in a nutshell, there are also many opportunities. Let me touch on the challenges first.

In terms of restrictions on boarding public transport, we have never made any express restrictions; nor are there any in substance. From day one, we have never said that it is unsafe to take public transport. Even when we had 25% of pre-Covid ridership, and right now at 70% recovery, the message has been consistent. Public transport is safe physically and psychologically. Of course, there are challenges, with elevated levels of hygiene and cleaning, and the costs of doing that. The other challenge is the ridership challenge, which translates to a revenue crisis, in terms of the farebox, and how we recover from that.

On the flip side, there are opportunities. We will be asked questions on that front as well, but I would like to touch on it briefly. We can build back better, both in quality and optimisation and in reviewing funding and financing. Those are opportunities that Covid has brought.

We do not always look at it from the viewpoint of challenges. We look at how we can take advantage and validate some of our long-term planning strategies.

Q75 Chair: Mr Vahnberg, Mr Yap stated that in Singapore they did not put out the message that public transport should not be used, whereas in the UK—certainly in the first lockdown—the message was the complete opposite and was for people not to use public transport. How does that relate and compare with the message that was put out in Sweden?

Roger Vahnberg: The message was quite similar to the UK. When the pandemic hit us in the third week of March, we had recommendations. We did not have a hard lockdown. We have never had that in Sweden. We had what you might call a soft lockdown. It was mostly recommendations, although in the last couple of weeks it is a little more



like binding law. Mostly, it was recommendations—the same as in all other countries—to wash your hands, keep your distance and so on. Also, it was not to travel if not necessary. That was both on public transport and on long-distance rail and so on.

Our first challenge was to uphold our service. When the pandemic hit, and it was proclaimed that we had Covid in society, ridership immediately dropped by 50% and sick leave for drivers tripled. One of the recommendations was to stay at home if you had any little symptoms. It is still that, actually. Of course, a lot of drivers were worried. That was our first big challenge, because in our region—our owner—we as an authority had the task of upholding the service as much as normal so that people who had to go to work could do so safely.

That was the first big challenge. To meet that, we closed the front door on both buses and trams. That was not because there was any scientific evidence that there was more risk to drivers, but to meet the worry that the drivers had. That was very successful because gradually we got the drivers back, and we could uphold almost all our services. We have done so the whole time.

The second challenge was after the spring, when cases decreased. We still had the recommendation to keep a distance. More people started to go to work again. More people did other things; when it gets to summer, we in Sweden want to be out enjoying the sun. That meant that our ridership went up to about 65%, but we still had to keep distance, and that meant that we had to run more services than normal during that time. Those have been the two big challenges during the last year.

Q76 Chair: Finally, Monsieur Crozet, we have just heard about recommendations and that public transport was not shut down in Singapore. How does that compare with the policy in France?

Yves Crozet: In France, it is close to what you have had in the UK. During the first lockdown, public transit was fully stopped, especially for high-speed rail. You may know that the main rail traffic in France is high-speed rail; there are close to 60 billion passenger kilometres. If you look at the regional trains, it is only 13 billion passenger kilometres in Paris and Île-de-France. Earlier, during the first lockdown, high-speed rail traffic was almost closed, not completely, but maybe at 5%, and regional trains were very low in comparison with the previous semester.

What is interesting is to look at what happened after the first lockdown, during the summer and in September and October. We observed a global reduction of mobility, even when there was no more lockdown. For example, we looked at the Paris region and we observed about 20% less car mobility, but more than 30% less rail mobility and public transit mobility; we observed a shift away from public transport in favour of cycling, walking and the car. Now we have a second lockdown, and we are observing almost the same thing, but with big differences according to the kind of customers.



HOUSE OF COMMONS

You probably know that in Paris we have a Metro line going from the north to the south—No. 13—and in the peak period in the morning the traffic is the same today as a year ago, because it is people who cannot do home working. On the west-east line—line No. 1—traffic during the peak hour is only 50% of the traffic before the pandemic, because it serves La Défense, where a lot of people are able to do home working. Clearly, we have a big decrease in ridership on public transit, especially for people who are home working.

Q77 Chair: That sounds very familiar to us in the UK in terms of the challenge you have ahead. Perhaps, because you have answered part of the question that I was going to raise next, I will focus the question on Mr Yap and Mr Vahnberg. Could you give me one critical challenge, looking ahead, for your public transport system? What do you have to overcome?

Yves Crozet: In France, the rail system is heavily subsidised. For regional trains, 75% of the cost is paid by local and national Government. For high-speed rail, the level of public subsidy is only 2% of the cost. Now, it may be necessary to transform the high-speed rail system into a non-market good with a much higher level of public subsidy—for instance, in the case of Eurostar, which is close to bankruptcy because there is almost no traffic. As you probably know, public money is not an issue in France. We are fond of public subsidies. Maybe it is an issue for German people, but not for French people.

As an economist, I fear the risk will be increasing public subsidies for the system but not increasing the modal share of rail. We have to deal with a shift away from rail. The result could only be more public subsidies. That is my main issue.

Q78 Chair: That is a really interesting insight. We recognise some of those challenges over here.

Going back to Singapore, Mr Yap, what would you say is the key challenge that keeps you and other transport leaders awake at night?

Jeremy Yap: In terms of recovery from the pandemic, I think the key challenge will be the recovery of ridership. Currently, we are at 70% of pre-Covid, but I must provide a bit of context.

Low volume is an issue for any financing model that is revenue and ridership driven. We need to look at optimisation, and how ridership is built back is also important. Initially, we saw our off-peak ridership grow when the ridership was building back. At one point, we were at 25% of pre-Covid. Like many cities, we exercised safe distancing and mapped out seats where you could sit and could not sit. Gradually, ridership recovered. We are at an average of about 70% in the morning peak right now. That is quite a good thing, but of course we are still some way from where ridership was.

We are also watching off-peak ridership to ensure that we build back better. As transport planners, we are always chasing after the peak in



HOUSE OF COMMONS

terms of injecting supply. That is not a very good thing. Even though we want to recover ridership, we want it to be recovered in off-peak areas, with more levelling of the peak so that resources are not wasted trying to address only the peak or even the peak of peaks. That is where we have looked at the situation; trying to get the workforce back remains a challenge.

At the same time, travelling off-peak is something that the Government have actively encouraged. If a certain percentage of people who have been telecommuting are coming back to the office—say 50%—can they travel after 10 o'clock? That would mean public sector organisations taking the lead, organising meetings after 10, and introducing flexible hours so that it is not just a block shift where you come in at 10 and go back late at 8 pm. It is introducing staggered hours together with flexible hours, and trying to make the best of a challenge.

We are trying to build back better in terms of trying to optimise the system, so that you can calibrate supply to better meet demand.

Q79 **Chair:** Finally, I will put the same point to Mr Vahnberg. Can you give me one key challenge that you have to grapple with in Sweden?

Roger Vahnberg: You ask what keeps me awake at night. It is the consequences of the pandemic and low ridership, with 50% in the spring, 65% in the fall and now 50% again. We get a lot less revenue. Revenue and ridership are connected. When we look post pandemic, when we don't have any restrictions, our focus will be to get ridership back, as Jeremy spoke about. When we talk about getting ridership back, we will focus on people who have turned to cars. Our market share has decreased because car usage is almost as it was before the pandemic. That will be our focus.

There are other measures to increase revenue and make sure that we get the revenue that we are supposed to have. Fare evasion has increased during the pandemic. We have to meet that, and we do that already. Basically, we need the revenue to support the service. We have about 50% subsidy from the region, and the rest is from tickets and fares. That is very important.

With ridership, we have goals and ambitions; we are focused on having a sustainable city and region. People using cars more than before is not positive. We have to focus on getting ridership back, where it is negative, for a sustainable society. Other things like home working and so on are positive. We are focusing on things that will give us a better and more sustainable society.

Chair: Thank you very much. We are now going to drill into some of the sectors and the issues in a bit more detail. You have touched on the challenges, and indeed the benefits, of home working. I am going to hand over to my colleague Greg Smith to focus on that area.

Q80 **Greg Smith:** Good morning to all our witnesses. On the point about



home working, in the United Kingdom people have been told to stay at home and to work at home unless they absolutely cannot. That clearly has had a massive impact on the use of public transport.

To what extent have you seen the same sharp rise in home working over the course of the pandemic? In each of your respective countries, how big a challenge will it be to maintain the levels of public transportation if we do not see, across the globe, a return to offices and workplaces?

We all have to accept that a lot of people have decided that they quite like working at home. They find it fits their lifestyle a lot better. What happens if we do not get a return to office-based working or workplace-based working?

Yves Crozet: Perhaps we should make a distinction between a big agglomeration like Paris and elsewhere in France, where there is low density of public transit and inhabitants. Almost 13% of workers in the Paris region were able to adopt home working. The main result is the reduction of rail traffic; the biggest reduction is between the second outskirts of the Paris region and downtown. White collar workers mainly live in the suburbs of Paris, and it is very comfortable for them to do home working. In coming years, if, as we hope, we have no more pandemics, the change could be not 100% home working, but one or two days a week.

The result will be, as has been explained in a lot of research over 20 or 30 years, reduced usage of public transit, but increased usage of cars at the weekend. There will be fewer trips during the week but more trips at the weekend. Even if you are at home for one day, you could use your car to go to the shops, for sport or to visit relatives. We are facing a structural problem for public transit. The more you develop home working, the more you can adapt your agenda and change the optimisation of your trips, using the car more often, or the bike or walking.

That is why, in my view, for big agglomerations, there is a big issue for the financing of the system. There may be a possibility of reducing the overcrowding effect in the morning and reducing the density of traffic. A study in France showed that it would be possible to reduce congestion on public transit in the morning after the pandemic because of home working.

It is totally different in the rural regions of France. If we have fewer people on the rail system or the public transit system in small cities, the result will be more public subsidy. As you know, in France, more than 30 cities have free access to public transit. As I explained, public money is not an issue in France. Paradoxically, we will have a financing crisis, so why not free access to public transit as in Luxembourg?

Q81 **Greg Smith:** That is very helpful. In the United Kingdom, it is estimated that over a third of the workforce are now exclusively working from home, who would ordinarily have gone into an office or a workplace.



There has been speculation in a lot of our media that perhaps up to a fifth of rail services could end as a result of that pattern. Are those figures comparable with what you are seeing? I accept your point that perhaps in France it will just get subsidised even more, and that, therefore, nothing potentially will be cut, but are those trends similar in France, or is France in a very different place from the United Kingdom?

Yves Crozet: As you know, there are more than 30 km between France and Great Britain. My view is that it is probably not the same in France. From just a mathematical calculation, if you reduce demand, you have to reduce supply. It is the figure you mentioned. We have to reduce train kilometres by 20% or 25%.

It is not the same, because in the Paris region density of traffic is very high. Ridership is also high. It is not possible to reduce the traffic; only maybe for some micro sub-part of the service. In other regions, even close to Lyon, Marseilles or Bordeaux, ridership is already low in the rail system. It is already subsidised at between 75% and 80% by public authorities. If we have to go to 85%, why not? We might have less public transit supply on some very small lines, but it would be marginal, and we would keep the supply around the big cities.

Q82 **Greg Smith:** That is very helpful, thank you. Mr Vahnberg, is the experience in Sweden comparable to what I have described in the United Kingdom or in France? Where do you see the impact of home working taking public subsidy or, potentially, the whole future of public transport in your country? What is the impact?

Roger Vahnberg: The impact is basically the same as in the UK. We have had strong recommendations to work at home. They varied a little as to how strong they were, but both in spring last year and right now we have similar figures to yours, with about 30% working from home.

In the long run, surveys we have done here in Sweden indicate, as you also mentioned, that a lot of people think that working from home, part time at any rate, is desirable. There is a better balance of life and so on. Most people do not want to work from home 100%; surveys indicate that they want to work at home half the time or two days a week, or something like that.

We believe that will be a trend after the pandemic. We believe that, especially to attract competent young people and people with small kids, it will be a necessity to offer part-time home working. Of course, there will be an impact on our ridership, as you mentioned. We believe that the impact will be around 10% or 15%. With the 30%, it is around that.

There is then the question of whether it is bad or good. We think it is good. As an authority, our responsibility is not only public transport but all sustainability in the transport system. If people do not travel, that is of course very sustainable. From a sustainability point of view, we think



HOUSE OF COMMONS

that is good. It is true that ridership will decrease with those figures, and we will have to adjust our service accordingly, but very carefully.

At the same time, we have the same underlying trends as before, both globally and regionally, which means that we foresee that our ridership will increase as it has before. Our ridership has increased by about 3% or 4% per year, so we are talking about a few years and then we will be back to the same level as now. It will impact but, in the long run, it will not impact the service that we offer.

In rural areas it is very subsidised. There are not many people travelling. It is mostly schoolkids and so on, so it will not affect our revenue a lot. On the other hand, as was mentioned before, we cannot decrease the service. Maybe we can change the service somewhere, but we cannot decrease it.

If you look at the overall picture, we are a big country. We are very heavily urbanised—over 80%—and rural areas are always losing people. We see a small trend in that people may want to live in a rural area and maybe work only one day a week in an office. There are a lot of possibilities if you look at the whole country and sustainable living.

Q83 **Greg Smith:** That is extremely helpful. Mr Yap, the geography of Singapore is very different from the UK, France and Sweden. What is the impact of home working in your country? Have you seen similar figures to the UK, Sweden and France? Are they higher or lower, and what is going to be the impact on your public transport networks going forward if home working numbers either do not go down very much or pretty much stay where they are?

Jeremy Yap: I do not think it is binary, in the sense that it is up or down on either front. I think patterns will change. We have seen the intensity of local travel. Reflecting on what Roger said, I share a similar perspective. It depends on the transport strategy. As transport planners, we do not want crowding on the system. Pre-Covid, there was crowding at various places, especially during the peak. I spoke a little bit about that and chasing after the peak in terms of injecting supply. It is sometimes a waste of resources because it requires huge resources and is optimised only for the peak.

Telecommuting has shaved off the ridership. If we do not return to 100%, I think it is still fine. If it is at 85%, sure, the farebox will take a hit, but, as I said earlier, in terms of the financing system I think we need to look at diversified sources of funding. The non-farebox type of funding may be something we need to look at, but from a sustainable point of view I agree with Roger. We can build back better, in the sense that the network becomes optimised even though it is 85% overall now. During the off-peak, if people travel 65% of the time it is fine. Not everybody will like to work a full week at home. They will like to mix it up. Companies are seeing that as well.



Flexi-arrangements can be the order of the day in the new normal. That promotes and allows us to calibrate a lot of the supply. In local areas, it lends itself to our wider strategy in Singapore. We believe that the central business district is a big draw for radial travel. That is not a very good thing because in the mornings it is all one-directional; it is tidal. What is really optimised from a land-use transport point of view is to have polycentric developments where you bring work closer to where people live. That supports land use and transport strategies, because, as people do not need to travel so much, we could have hubs and co-working spaces there. They do not have to come into offices. They could have flexible work arrangements.

Reduced mobility is not a bad thing. It is a bad thing from the farebox point of view, but if it recovers to a certain extent, we can look at how to refinance and look at the whole financing model again. Certainly, from a strategy and sustainable transport point of view, it is a good thing. It gives us opportunities to calibrate and fine tune the system.

Greg Smith: Those are incredibly helpful insights from all three of you. Thank you very much.

Q84 **Lilian Greenwood:** Roger, you were saying that an increase in home working is a good thing and will probably reduce people's five days a week commuting, which has been a long-term trend in the UK.

Do you think we could see an increase, or do you anticipate an increase, in longer-distance travel? If people are only going into the office perhaps once or twice a week, they may live further from their workplace and therefore be prepared to travel further but less often. Is that something you are anticipating?

Roger Vahnberg: Yes, there is such a trend already. I do not think it is going to be a huge trend, but rural areas that are fairly close to a big rail line can benefit, and we have exactly what you say. People can move out there, especially younger people. We see that trend in Stockholm already, for example. It is more popular now to move out from the Stockholm area, but if you look at the whole mobility pattern overall, I do not think there is going to be a huge impact. For the small villages, it would be a benefit. It could be a very good trend.

Q85 **Lilian Greenwood:** Yves is nodding. Is that something you anticipate you might see in France, Yves, with people commuting further but less often?

Yves Crozet: Yes, you are right. It is already the case. Last week, we received a letter from the UK Department for Transport explaining that the more you develop home working, the further you travel. You travel a longer distance to go from home to work, and a longer distance at the weekend. It is why I mentioned that home working is good news for people because you can optimise your agenda. You can have a longer distance between home and work, and maybe a longer distance at the weekend because you have more time. It was explained in 1991 in a



study published in an academic journal that home working increases the total distance area.

Lilian Greenwood: That is really interesting. Thank you so much.

Chair: We are going to look at some of the specific transport sectors now. We will start with rail, light rail and trams. My colleague, Chris Loder, will take us through this section.

Q86 **Chris Loder:** Good morning, everybody, and thank you for joining us. I would like, first, to ask you about the rail sector. Yesterday, at an all-party group in Parliament we had a presentation that said that, in our current lockdown, certain parts of the rail network are now at just 12% of the overall passenger numbers we saw pre-March last year.

In the highest terms, could you tell me from your perspective how much overall passenger numbers have reduced compared with where they were before? I would also be interested in how the profile during the day has changed, whether people have decided to travel earlier or not at all, or have deferred their travel to later in the day.

Jeremy Yap: I must contextualise this because in Singapore we are 720 square kilometres, so we do not have commuter rail. When I speak of rail, I am referring to our metro system. We have about 230 km of metro system. We have seen a change in ridership numbers. Of course, going into the lockdown period—what we term here as the circuit breaker—we were 25% down on average from pre-Covid. That accounts for rail as well.

Gradually, through the various phases of opening—we had a phase one opening, a phase two and, finally, now we are in phase three—we have seen ridership return. On an average basis, the metro system has recovered to almost 70%. It is at about 69%, looking at the average morning ridership, which is conventionally the highest point in the metro system.

We have also seen an interesting shift, in the sense that off-peak travel has increased. After 9.30 or 9 o'clock, we have seen ridership climb from 50% to 60%. That is also a dynamic situation as we gradually open the economy. In phase three, more people are returning to offices, so there is a bit of a shaving off there as well. By and large, the trend has been an increase in off-peak ridership.

We were talking about working from home and all the factors that have generated those changes. It is not a bad thing. It optimises itself. Of course, we are not stopping there. We want to recover ridership. If we hit 85%, it would be good. If we can recover all the way back to pre-Covid levels it would be great, but we need the levers to do so. On the private transport front, Singapore is renowned for some of the hardest levels of car pricing, car quotas and electronic road pricing. We maintained that throughout the period, with different forms of intensity. We still try to ensure that the mode shift to public transport is kept from sliding. Those



HOUSE OF COMMONS

are the push and pull levers that we have. I hope I have made myself clear.

Roger Vahnberg: During the whole pandemic, rail has been hit harder than, for example, buses. We are now at about 50% pre-pandemic ridership, only 45% on rail but 55% on buses. Rail is harder hit. That is probably because people who commute by rail have more possibility of working from home, compared with the overall group that go by bus in the city, for example.

It is not only rail; it is similar on the whole system. The morning peak is getting less sharp than before. If people have to go to work, they go a little later, so we see the morning peak getting a little lower. That is good, of course, because we have recommendations and a task from the health authority that everybody should be able to keep their distance.

It is like you have in the UK, but we do not have a hard lockdown. We have a soft lockdown, so we have another situation. On the subject of home working, if it is at 10% or 15%, rail might be hit a little harder than buses post pandemic. At the same time, we have very ambitious goals for taking market share from cars to rail, to make our region more sustainable and more attractive. There is a similar situation for the whole system, and it will impact ridership in the coming years, but not in the long run.

Yves Crozet: It is close to what was just presented. In the Paris region, in September—after the first lockdown, with no big pandemic in this case—data show that the peak for car traffic in the morning was exactly the same as one year before, but the peak traffic for public transit was about 80% of one year before. As I explained, it was totally different between the Metro or the train lines going to the blue collar part of the region and those going to the white collar part of the region. Clearly, we have lower peak travel in the morning on public transit.

It is the same for the Metro, buses and the tramway in Paris. It is mostly the same in big cities like Lyon, Marseilles or Toulouse. We have almost the same car traffic during the peak period, and less car traffic in the off-peak period, but we have 20%, 30% or 40% less traffic on public transit during the peak period.

Q87 **Chris Loder:** In normal times in the UK, or certainly in England, the model we have is that the operational costs of the railways are, almost in entirety, covered by those who pay for tickets to travel on board. Our fares system is such that if you travel in the peak time the fares are higher, and if you travel in the off-peak time the fares are lower.

From your perspective, do you believe that the fares system you have has pushed demand one way or the other, whereby people have re-evaluated their decisions, as they have done now, as to whether they work from home or not? Do you think that has affected demand in any way?



HOUSE OF COMMONS

Jeremy Yap: Structurally, I would like to explain that we have built some sort of demand-management system by way of incentives—discounts—for travelling peak and off-peak. For example, on our metro, if you tap in with your card before 7.45 am, you get a 50-cent discount. It encourages people to travel pre-peak. During the peak, it is normal fare. That was pre-Covid.

We believe in demand management, not just supply management. Before Covid, we believed that we should optimise the system and encourage people to travel off-peak rather than during the congested peak. With Covid, of course, the levelling became quite automatic. The peak experienced quite a levelling, a flattening. As I explained earlier, the off-peak saw a gradual rise. That is not a bad thing. The incentives worked for us in steady state, but now with Covid it has proven even more optimal in terms of the shift.

Q88 **Chris Loder:** So that I am clear, Mr Yap, you are saying that the yield management approach you have taken has been effective in encouraging people to travel at different times of the day. Is that right?

Jeremy Yap: Yes.

Q89 **Chris Loder:** Thank you. Mr Vahnberg, could I ask you the same question, please?

Roger Vahnberg: Our fare system is not dependent on the time, basically. We made a big change to our fare system in November, when we went from 72 zones to three zones. That is a big change. We decided to do that despite Covid. At this time, it is too early to say what impact it will have. For most people, the impact is that it is either the same price or a cheaper price, and every ticket is valid in a larger zone than before.

Post pandemic, we might introduce something like having different prices for some tickets in low and high peak. We have free fares for elderly people. We can steer that more to low peak. It is low peak in Gothenburg. For the rest of the region, it is the whole day, but in Gothenburg it is only at low peak. When we introduced that many years ago, we saw a shift; elderly people used public transport in the low peak, which was good. It is an opportunity to use that kind of incentive.

Q90 **Chris Loder:** Have you found that some people decide to travel earlier in the morning at the moment? From what you were saying earlier, your network, of all the three we are talking about, has been most affected in terms of overall passenger numbers, other than the United Kingdom's of course. Do you see people travelling earlier in the morning?

Roger Vahnberg: Not really early in the morning. It is more later in the morning. That is the trend.

Q91 **Chris Loder:** Thank you very much. Monsieur Crozet?

Yves Crozet: We have no such incentives in France in peak and off-peak periods, but we have some kind of disincentives. For instance, in the



Paris region since 2014, you pay each month for a season ticket—the pass Navigo—the same price whatever the time and whatever the distance. It is €72 per month and half is paid by your company, so you pay only €36 per month. You can travel any distance you want. You can live in the second outskirt and pay the same as if you live in downtown Paris. Clearly, we have a disincentive in Paris and in big cities like Bordeaux, Lyon and so on; there is no incentive differentiating the peak period and the off-peak period.

Q92 Chris Loder: Is that the same for your longer-distance networks, the TGV and so on?

Yves Crozet: No. For long distance, you pay according to the distance because it is a market good. It is commercial traffic. For high-speed rail, you pay according to distance. There are two very simple figures. If you take a regional train in France, you pay about 4 cents per kilometre as a passenger. If you take high-speed rail, you pay between 10 and 20 cents. For high-speed rail, we have incentives for peak and off-peak. For high-speed rail, it is between 10 and 20 cents per kilometre, but if you take what we call a Ouigo—low-cost high-speed rail—you pay between 3 and 5 cents per kilometre.

Q93 Chris Loder: Finally on the rail section, in the event that passenger numbers do not return to pre-Covid numbers, clearly a level of capacity will still be available. Would your networks choose either to reduce that capacity, maybe reducing the frequency of the service or the length of trains, or to have additional public subsidy?

Jeremy Yap: The two are not mutually exclusive. I think you are referring to a post-Covid state whereby ridership does not return. That definitely allows us to calibrate the supply, because you must keep supply in tandem with demand.

In terms of subsidies making up for the shortfall in revenue because of the fall in ridership, that is not unique to Singapore. Other Governments are looking at that. On a sustainable basis, it is very difficult to do, but certainly during this recovery year it is something that we are studying as well, to ensure that the operators are not haemorrhaging or bleeding by virtue of the farebox.

Q94 Chris Loder: Are you planning to undertake that recalibration exercise?

Jeremy Yap: To the first question, if it does not return after Covid is behind us, we will definitely calibrate then. In terms of revenue during the interim period, where ridership has not recovered and we are not yet out of the woods, we will need to look at grants and subsidies.

Q95 Chris Loder: Thank you. Mr Vahnberg?

Roger Vahnberg: It is a similar situation. Of course, if we are coming into post pandemic, there will be some recovery time, but after that, if we have 85% or 90% of our ridership, we will adjust capacity. We will do



that very carefully so that we do not lose ridership because of it. As I said, the overall trends are the same. The overall trends of climate change, urbanisation, health issues and so on are the same. All our goals on sustainability, ridership, climate and emissions are the same. Therefore, it will be just temporary, and later on it will pick up again and gradually increase. All our long-term investments are the same, and they are still going on as planned.

Q96 Chris Loder: Is the recalibration exercise that we just talked about with Mr Yap something that is happening on your network, in thinking about the future?

Roger Vahnberg: Yes. We have already started work to calibrate with different scenarios if we have 10% or 15% lower. We will do that in a careful manner when it is needed.

Q97 Chris Loder: Monsieur Crozet, could I finally ask you?

Yves Crozet: On the commercial traffic—the high-speed rail traffic—SNCF started recalibration two or three years ago. In 2018, we had 6% fewer train kilometres on high-speed rail, but almost the same percentage of traffic, so they reduced the frequency to some small cities with low traffic, and they reduced the number of links to small cities. They started to recalibrate the system, but clearly with the pandemic it is necessary to continue to reduce. For instance, today, if you want to go on high-speed rail from Lyon to Toulouse, it is no longer possible to make the return trip on the same day, because of the lockdown. Clearly, we will have a recalibration.

As you know, 2020-21 is the European Year of Rail. Some people are advocating a rail renaissance or renewal. My view is that we are entering a little ice age of rail because of ridership, financing, less competition and governance issues.

Q98 Chris Loder: On your suburban networks around the cities, which we talked about earlier, if there is a reduction in demand, would you just see an increase in subsidy, or would the service be reduced on your suburban networks?

Yves Crozet: We will have both. It depends on the situation. Close to big cities like Lyon, Marseilles or Lille, we will keep the same service and have more public subsidies.

Q99 Chris Loder: Finally, Monsieur Crozet, you run a number of joint services with Deutsche Bahn into Germany and other parts of Europe. Do you have any views that you can share with us in terms of your cross-continent services in that respect? Of course we have Eurostar coming into London, which, as you probably know, is of increasing concern to us.

Yves Crozet: Yes. It is difficult because we do not have a lot of cross-border traffic between France and Germany. For instance, there is some high-speed rail between Strasbourg and Munich, but there is not a lot of



traffic between France and Italy, or between Spain and France. We have something like a border effect. For instance, if you take the train between Lyon and Barcelona, the train is almost empty in the tunnel between France and Spain because all the passengers are travelling within France or within Spain, but between the two there is almost no traffic. The border effect is very important. Maybe the channel is an exception. There is also an exception between Paris and Brussels, with Thalys. We have a lot of traffic between the two, but cross-border rail traffic is not very important.

Chris Loder: Monsieur Crozet and the other panellists, thank you very much.

Q100 **Chair:** Can I finish on rail? Monsieur Crozet, you touched on Eurostar. Eurostar is not just a means of connectivity between France and the UK. It is also quite a symbolic example of our more modern partnership.

There is a perception in this country that the French will bail out Eurostar. Can you give us your view from the other side of the channel as to what support the French Government are going to give Eurostar?

Yves Crozet: I don't know. Clearly, it is not possible to stop the Eurostar supply. We need Eurostar. It is why I mentioned before that the main issue with the rail system is that it is becoming more and more heavily subsidised. Even high-speed rail is transforming into a non-commercial good. If you want to keep Eurostar today, you will have to give a lot of public subsidy. Even if it is strange, we will subsidise that exactly as we subsidise in France some local air traffic links between small cities and Paris.

As an economist, I think the main consequence of the pandemic is that the sectors needing public money to survive will be more and more important. For example, we have restaurants, Eurostar, hotels and so on. It is exactly the same consequence as after a war.

Q101 **Chair:** Perhaps I could interrupt. Keeping it on Eurostar, because I am conscious of time, numbers have dropped to about 1% of normal. There is just one service returning from Paris to London. Eurostar has been unable to tap into any Bank of England financing. Our aviation industry has been decimated, but even the airlines have been able to get funding.

Can you give us the view from France? Is it just a feeling that, because Eurostar is 55% owned indirectly by the French Government, the French Government will stand by it, or are we being too laid back in the UK and we need to give some financial support from London?

Yves Crozet: I suppose the French Government will support Eurostar, but not alone. There will probably be arm wrestling between the UK and France about that, but Eurostar is a subsidiary of SNCF, and SNCF holds the majority of the capital. Clearly, a very important part of the money will come from France, but maybe France will ask the UK to give some help to the system.



Chair: Thank you. We have gone through the first hour, and we have covered only a third of our evidence, in the finest traditions of this Committee. I am going to ask members to interrupt in the way that I just did, and perhaps ask the witnesses to be succinct as well, and indulge us in that.

Let us move on to another important transport sector—bus services. I will hand over to Robert Largan.

Q102 **Robert Largan:** Thank you, Chair, and good morning to all the witnesses. Thank you very much for joining us. The UK Government are expected to publish a national bus strategy very shortly. In light of the pandemic I would like to ask, if you were in the UK Government's position, what package of measures would you include in a national bus strategy, and why?

Roger Vahnberg: I would suggest that you have a model similar to the one you have in London, meaning that you have a procurement strategy. Of course, in general, it depends on what the goals are for the bus industry. What do you want to do with it, so to speak?

In Sweden, our focus is that public transport and buses are a means to reach our goals of sustainability and so on. Therefore, we do not see price as the single most important issue. There are other issues; for example, how do you meet the goals most efficiently?

If you have similar goals and ambitions for your public transport and buses, I suggest that you have procurement laws for bus operation. Under those laws, you could permit quite long contracts. In Sweden, we have 10 years, and, if I could choose, I would have a couple more years, because in our operation a bus can be 10 years in city traffic, but in regional traffic it can be 12 or 13 years. When you procure, you basically pay for the bus during the contract period. Having a couple more years, in some contracts anyway, would make it cheaper.

In those procurement laws—I do not know exactly what kind of procurement law you have in the UK—I would make sure that the authority can use quality as an important criterion. It is very easy just to have price. If it goes to court, you always win if you have not screwed up somewhere else. Price is a number, but, if you only focus on price, quality will go down. We saw that when we had mostly price 10 or 15 years ago. We have had a procurement model for a long time. It is important to have quality and that the law permits that. You get high quality, and you can steer towards the goals that you have with the industry. That is the most important thing.

Yves Crozet: In France, buses are mainly the responsibility of public bodies. You have local buses at the agglomeration level, and regional buses are the responsibility of regional public authorities. Clearly, there is no specific bus strategy.



HOUSE OF COMMONS

To give you the figures, total traffic passenger kilometres for buses are 44 billion, but it is only 3 billion passenger kilometres for private, long-distance coaches. Competition was only opened in 2015, five years ago. We have mainly tourist buses, national and foreign; more than 50% of total traffic on buses is for tourism, national and foreign. We have only 6 billion passenger kilometres on buses in the Paris region, and 8 billion passenger kilometres in rural regions of France under public responsibility.

In France, we have a public transit strategy with buses, tramway and rail. As I indicated, it is already heavily subsidised, so it is difficult for us to give you an insight into what could be a national bus strategy.

Jeremy Yap: In Singapore, the strategy is about building a contestable bus market, in the sense that it is sustainable because of competitive pressure. We tender bus packages. I know that UK bus routes and services are largely unregulated. In fact, we took lessons from London, as well as Australia, in our learnings. Since 2016, when we began this journey, our bus satisfaction levels have really climbed. It is almost a 9 percentage point jump, from 91% up to 99% in terms of customer satisfaction. That is because we are able to be more responsive. We prescribe standards as an authority. We take the asset risk as well as the revenue risk. It is a gross cost contract, so we take the revenue risk. We take the asset risk because the depots are owned by the Government. We also take the bus asset risk, because the buses are also owned by the Government.

It is a competition based on services. We had about six rounds of competitive tender by geographical package, usually about 500 buses, in and around those numbers. We had very good offerings from the operators. Four of them were won by foreign operators and two of them by local incumbents. It is a very competitive bus market.

If you look at both bus and rail, because we are best placed to take the revenue risk in terms of bus, I think operators were a bit more insulated from this round of Covid. Of course, there were cost pressures because of the hygiene levels and the cleaning, but basically they were insulated from the revenue risk because the Government took all the risk.

I would advocate that the strategy should have a very contestable bus market, resulting in a sustainable model. That is the way to go. We have even seen the service kilometre rates come down, not just the satisfaction levels going up. Each time we tender, the rates have come down.

Roger touched on how you structure a tender. We look at quality and price as well, almost evenly in terms of the way it is pitched. It is important that you pay a premium for quality, but the price must be right. When you do that and structure it properly, it gives you longer-term sustainability. That would be my recommendation for the UK market.



Q103 **Robert Largan:** Thank you, Mr Yap. That is very helpful and very interesting. As you said, the bus market in England outside London is deregulated, although regional Mayors have the power to franchise services and take on that revenue risk. For now, they seem very reluctant to do so.

Mr Yap and Mr Vahnberg, you have given some interesting insights into your experience of regulation. Monsieur Crozet, is there anything you would like to add from a French perspective? I would be interested to hear your thoughts on the regulation and deregulation argument, and what you look for in tendering.

Yves Crozet: The problem is that we had deregulation of the bus market in France five years ago, but now we have only two bus companies because of consolidation of the system, and the two companies are close to bankruptcy. We will probably only have the German company FlixBus operating next year because the second company is BlaBlaBus, which is a subsidiary of BlaBlaCar, and traffic is very low. As explained by the transport authority, the break-even point was not reached by the two companies in France. I think deregulation is not at a good point.

Don't forget that for local bus services we have competition. We have a tendering system from the region and from the agglomeration to some companies. Deregulation has been done. We will probably not have a lot of change during the coming years.

Robert Largan: Thank you very much. Those are very useful answers from all three witnesses.

Chair: Thank you, Robert. You are absolutely right that those are fascinating examples for our bus market. We will move on to rebuilding public confidence in the safety of public transport and your experiences on that front.

Q104 **Lilian Greenwood:** A study by the French Institute for Public Health Surveillance found that transport accounted for a very small percentage of Covid-19 cases, but in the UK many people still perceive travelling on public transport as unsafe, particularly relative to being in other public places. I think you have different experiences, from what you have said.

First of all, Jeremy, you said that in Singapore you never advised people not to use public transport, or that public transport was unsafe, but you have seen a significant reduction in the number of people travelling on public transport. Do you feel that you need to take steps to reassure people that it is safe, or to convince people that it is safe, or is a different approach needed to encourage a resumption of ridership?

Jeremy Yap: Let me contextualise the question a little. When ridership was at 25% of pre-Covid, it was because we had a version of lockdown. We encouraged people to stay home, but we never said that the public transport system was not safe. We said, "If you need to make essential travel, please use the train system."



HOUSE OF COMMONS

At the back of our mind, we thought that once we went down the path of saying it was not safe it would be very hard to recover in communications. That was very much our mindset, so from day one we never went down that path. We took pains to see, physically and psychologically, what factors would influence people when we built back ridership. After lockdown, people saw that levels of hygiene were very high. We employed microbial technology. We employed very intensive cleaning. We had mandatory mask wearing on the system, and we enforced it. Even today, we do not encourage people to talk much because droplets could be propelled by them speaking on their cell phones. That is also being enforced. There are sanitisers throughout the system.

Your opening was correct, Lilian. The most important message is that our experience medically is that not many infections were traced back to the public transport system. The reason is that it is a transient space. People do not stay on the metro for very long. It is a low-infection, transient space. With the inclusion of mandatory mask wearing, it becomes even lower.

We had studies done on airflow on the metro. With the wearing of masks, infection possibilities are quite low. By and large, we have built on that narrative. We polled people. It is important to poll your commuters. We did that when we had a reopening in phase three. We went to 1,200 commuters travelling in different timeframe periods, and representing the demographics of the system in terms of the young and the old. We asked them several questions like, "Are you confident?" Three quarters of them expressed a high degree of confidence and said that they would also be confident about fellow passengers observing social behaviours. We can build on that confidence.

That is important and gives us, as the authority and the operator, something to think about. Has our messaging—our materials, the paraphernalia that we put out and our announcements on trains—been effective? If not, can we look at other areas to try to build back confidence?

Q105 Lilian Greenwood: Did you poll people who had previously used public transport but were currently avoiding it? One of the things we have found in the UK is that those who are using public transport feel safer than those who are not using it. If they have not been on a train in a while, they are worried about it, whereas if they have they feel reassured. Have you seen a difference between those two groups in Singapore?

Jeremy Yap: We have not seen strong differentiation. Of course, we polled people who were regular users and even people who were non-users. We did not see that there was a big difference. By and large, the results seemed to point to a certain level of reasonable confidence in the measures that we have taken. That was very comforting for us and is something that we will continue to build on.



Of course, we are at 70% of pre-Covid ridership but, as we have seen with the last phase of reopening, ridership is climbing back quite a bit. We are also looking at whether we could inject supply and put out messages about travelling off-peak, and managing the demand side now. It is good that it is recovering, but recovering at which place? If it recovers at the peak, again it is about confidence levels and about being too close to someone, even if they are wearing a mask. Crowded places do not really inspire confidence. That is the kind of calibration that we need to do right now.

Q106 **Lilian Greenwood:** Roger, I do not know whether you covered people feeling unsafe, and that is why they are avoiding public transport, but you said you wanted to try to build back, not by targeting people who are working from home but by targeting people who have substituted travelling by car, rather than travelling by public transport. Can you tell us what specific steps you are taking to build confidence about travelling on public transport, and how you are targeting measures at those who are using their car rather than home working?

Roger Vahnberg: Certainly. First, I totally agree with what you said. It is perceived that it is dangerous to go on public transport, but when we look at the scientific results, the risk is very low. UITP published a report in October that said public transport is Covid safe. We have looked at different scientific studies—some from the UK—and they show there is very little risk on public transport.

We used the report because we had the same situation in Sweden. First, we had the recommendation, as I said before, but, as soon as there was some kind of press conference and we said something, very often the media put public transport as the headline, even if it was not really the main issue. We spoke to the national health authorities and used the report to show them that it is important how they speak, and they have changed. Now they are more focused on where people are going. If they are going to work or to social gatherings, that is the big problem, and not public transport, as perceived.

As you say, there will be a big challenge after the pandemic. We have to do a lot of things. For example, we have experience of doing a lot of free trials. We usually do that every year, targeting different groups with a 14-day free trial. We have done it for eight years, targeting people who go by car, and our experience is that normally 20% continue to travel with us. That will be a good thing to help people to try it. Pre-pandemic, people who usually went by car thought, for example, that it was faster to go by car than it actually is, and slower to go by public transport than it is. It is very important to get people to try it.

Then we have to work on what people perceive. We have to clean more than we did pre-pandemic, even after the pandemic. We have to shift the peak more, so that we can help people to take a vehicle that does not have so many people on it. We think people will like to have a little more



HOUSE OF COMMONS

space than before. We need to help them and make sure the system can do that.

Q107 Lilian Greenwood: Are you encouraging them to travel off-peak by providing a price incentive, or are you encouraging them through communications? How are you encouraging that change in behaviour?

Roger Vahnberg: We will probably, first, go with communication. We have made such a big change in the fare system that I do not think we would like to do that right now. In the trial I spoke about, it is important to target young people up to 35 or 40. They feel less risk from Covid, and they will be more likely to come back to us. That is the area we will concentrate on.

Q108 Lilian Greenwood: When do you think you will start to introduce those free trial periods to encourage people to try out public transport? Is that something you would do in the spring or the summer? Are you even thinking of starting it now?

Roger Vahnberg: No, it will be after all the restrictions. As long as we have restrictions, we cannot communicate that we want more people on board. Right now, we run everything we can, more than normal, and that will continue. This is the recovery period. We would like the recovery period to be as short as possible to come to the new normal, which maybe is 10% or 15% lower. There is a path to get to that time. For example, in Changshu in China, which had a very hard lockdown for five weeks, it took them half a year to come back to 85% or 90%. We want to get there as fast as possible.

Q109 Lilian Greenwood: Yves Crozet, what has been the experience in France? Are people worried about going on public transport because of the health risk, and what steps are you taking to overcome those fears and to encourage them back on to public transport? Even if you are not doing it immediately, what are your future plans?

Yves Crozet: I fully agree with Roger and Jeremy. The main issue is not public transit, individually speaking. The main issue is the activity programme. For instance, a year ago I was going to Paris from Lyon once a week. During the last four months, I have been to Paris only once. That was not because of unsafe high-speed rail, but because I changed my activity programme. We have had a lot of meetings via Zoom or Teams. The risk may be more during the meetings than during the travel.

We have to make a distinction, as mentioned by Roger and Jeremy; we have the pandemic and the recovery after the pandemic. It will take one or two years. Even when we have no pandemic, the problem will be the change in people's activity programme, and the fact that it may be easier to take the car or a bike instead of a bus.

Q110 Lilian Greenwood: It sounds like you are saying that it is not that you need to convince people that it is safe, but that the way they are working has changed. Will you be taking specific steps to encourage people back



HOUSE OF COMMONS

on to public transport? I presume you would not want to encourage them off the bike and on to public transport, but perhaps for those who are choosing to take the car now, will you be taking active steps to encourage them back on to public transport, for sustainability reasons as much as for the farebox issues?

Yves Crozet: Yes. The best option is to reduce the attractiveness of the car; that is to say, to reduce speeds or the number of parking places, or to ban diesel vehicles and so on. Just before Christmas, in France the level of ridership on trains and aeroplanes was very high because the attractiveness of visiting family for Christmas was important. We were okay about taking the risk of travelling by high-speed rail or by plane. Clearly, the problem is the difference between the cost of travelling, including the safety cost, and the attractiveness of the activity at your destination.

Jeremy Yap: Perhaps I could build on what the other speakers have been saying. I agree that this is the time for us to shape travel patterns. I think it is important to actively shape them. There has been a quicker recovery for car traffic in Singapore than for public transport, so we do not like that at all. It is something we desperately want to avoid. The current public transport mode share, including what we all want, the walk/cycle/ride mode share, is about 74%. We do not want to regress from that position.

Fortunately for us, we have certain levers in terms of road pricing and vehicle ownership tariffs. Our vehicle quota system is at 0% growth, so you cannot grow your ownership, even if you want to. You need to return to the market after a number of years to get a permit to own a car. Those are things that we continue to hold in place so that we do not regress.

I totally agree, Monsieur Crozet, that we should not let it regress. We cannot let the private transport experience be good. Even if psychologically people feel safer on private transport, the experience cannot be good. If we allow it to be too good, it is certainly something that will take away from public transport ridership.

Q111 **Lilian Greenwood:** Quite a lot of stick rather than carrot?

Jeremy Yap: Yes, you are absolutely right, but at the same time we need to look at the offerings. When we build back better, it is about the elevated levels of hygiene in the public transport system that, as Roger says, we will not withdraw. It is the quality that we are building back. That has to be the carrot as well. For us, fortunately, we have had levers in place for a long time. That helps to keep the system in balance.

Lilian Greenwood: Thank you so much; it is really interesting.

Chair: We have touched on this, but let's drill in a little more detail on the fares and ticketing structure.



Q112 **Robert Largan:** The first question is a quick one. Given the huge extra cost to public transport as a result of the pandemic, do you expect ticket prices to rise, and by how much?

Jeremy Yap: Our public transport fares are regulated by the Public Transport Council. It is pretty formulaic. We look at the consumer price index, the wage index, the energy index and at something called the network capacity factor. Then we derive a value. The beauty of the formula is that it allows us a mechanism whereby we can roll over a particular increase.

For example, in 2020 we were supposed to have a fare increase of 4.4%. We were able to roll that over to the next fare adjustment exercise, for 2021. That flexibility allows us not to lose that revenue or forgo it forever. It is just held for a year. Of course, we have our concession groups as well, all the way from students and seniors to people in low-income groups who are looking for work, and people with disabilities. The system becomes affordable but, at the same time, sustainable. We need the increases to keep the system viable, and that is a fact. Having a fairly formulaic domestic fare formula, together with a flexible mechanism that allows us to roll over an increase, helps to preserve that somewhat.

Q113 **Robert Largan:** You talked about your concessions. To follow up on that before I go to Mr Vahnberg and Monsieur Crozet, I understand that a few years ago Singapore introduced a 15% discount for low-wage workers and free travel for children.

Jeremy Yap: Yes.

Robert Largan: I would be interested to know what the cost of those concessions has been and what you think the outcome has been. What have been the benefits?

Jeremy Yap: The cost is redistributed. It is borne by the adult paying commuters. That is a fact of the system. The concessionary groups pay less, but when we have fare increases, it is how we load the increases across the groups. We try to keep the system sustainable but, at the same time, affordable. It is a very delicate exercise. It is largely borne by other adult fare-paying commuters. Not all of our system is based on gross cost, so some of the operators are operating net-cost systems. They bear a share of the revenue impact because of the concessions, but by and large we have tried to keep it intact.

The 15% that you mentioned is borne by the Government. A certain part of the concessions is fully borne by the Government. There are certain parts that are borne by adult fare-paying commuters. You mentioned 15% for persons with disability. That part is borne by the Government, so it is a subsidy to the system because we recognise that those are special groups.

Q114 **Robert Largan:** Returning to the original question, Mr Vahnberg, what about ticket price rises?



HOUSE OF COMMONS

Roger Vahnberg: To give you some background, we usually increase fares every January. In the last couple of years, it has been around 2.5%. Of course, it depends on inflation, but we suggest and the regional parliament decides.

As I said before, we had a large reform of our fares structure in November. It had nothing to do with the pandemic. The question was whether we should do it because of the pandemic, but we decided to go ahead. That is a huge difference compared with before. Even if only very few people would have a price increase, we decided in that package not to increase prices this year, but it has nothing to do with the pandemic.

In coming years, we do not foresee that the pandemic in itself will increase fares. Of course, it is possible, but it is not the first thing we will do. We will do other things, as I mentioned before, first, to recover as fast as possible, and then to adjust the service in a careful manner. We have no plans to increase fares because of the pandemic.

Yves Crozet: In this field, France is very different from other countries. Until the pandemic, we had what we call the *versement transport*, which is a special tax on wages earmarked for the public transit authorities. For instance, in Paris the total cost per year of operating the public transit system is a little more than €10 billion. Less than €3 billion comes from fares—it is exactly €2.8 billion—so 70% of the cost is covered by public subsidies and mainly through the *versement transport*, the tax on wages. At the end of June, we will probably have an election for the Paris regional authorities. One candidate from the left is already proposing free access to public transit. The passenger already pays less than 30%, so why not 0%? The new mayor of the city of Montpellier in the south of France, with more than 400,000 inhabitants, decided to create free access to tramway and buses next year.

It is like a very strange over-auctioning—the simplistic idea that if you have free access to public transit you will increase ridership. You probably know that ridership depends on quality and frequency, and so on, and not on price. It is very strange, because in France we are going in for free access instead of good incentives to differentiate peak hour, off-peak hour and so on. It is totally a pity.

Q115 **Robert Largan:** It will be interesting to see how that turns out in Montpellier.

Moving away from fares and on to ticketing, one of the things we have been trying to look at is rolling out smart ticketing, or integrated ticketing, between different transport modes such as rail, bus and metro. It would be interesting to know the experiences that you have had in your country, and what lessons we might be able to apply in cities in the United Kingdom.

Roger Vahnberg: For many years—20, 30 or 40 years—we have had integrated transport and integrated ticketing. It is the same system for



HOUSE OF COMMONS

the whole of our responsibility. It is very important to have both integrated transport and an integrated ticketing system, and integrated fares, in order to meet the goals, if you have goals. To increase market share for sustainable travel and sustainable modes, it is important to have integrated systems.

Our experience is very good. As I said before, we have a procurement model that means that we, as an authority, get the revenue. We take all the revenue risk, as Jeremy was talking about, which means that we do not have the problem of sharing revenue between different operators. We have incentives, but they are more for how much ridership there is. That makes it easier to have an integrated system, but it is essential.

A lot of people are changing between modes. Around a third of our travellers are changing between modes, and without an integrated ticketing system and integrated fares, our ridership would be a lot lower than it is today.

Yves Crozet: We have integrated ticketing in the Paris region, but only for season tickets and not for day tickets. We also have it in Lyon but not in other cities. We have no ticket integration between rail and local public transit in a lot of cities in France. It is a big issue, and we are trying to adopt the German or the Swedish system in that field.

We have two main challenges. The first is the opening of ticketing. It is the law now in France, as in Europe, that we have to open the ticketing system to competitors. It is an ongoing process. The second challenge is mass mobility as a service—integration not only of bus and metro tickets but of self-service bikes, rental cars, car sharing or ride sharing with the same mass application. It is a major challenge.

Jeremy Yap: I can speak in support of integrated ticketing as well. In Singapore, we have a single card, so you are able to go right through from a bus transfer to a metro and vice versa, without incurring a boarding charge for the next mode. Unique to us, I think, is the integrated distance fare. If you travel the same distance, but via different modes, you pay the same fare. A lot of European cities, as Roger mentioned, including London, use a system of zonal fares. Ours is integrated distance fares. It serves us very well. It lowers the entry barrier for people who want to use the system, because it is convenient.

If you will allow me to add one more dimension, we are moving to an account-based ticketing system. The current single-card integrated system is a stored-value single card. That is a burden on the top-up system, because you need to top up the card and you need infrastructure to support that. Sometimes cash is used to top up those cards.

We are moving to account-based ticketing using the EMV card. Basically, it is your Mastercard or Visa, meaning that you can use your credit card on our bus and train systems. If you are a foreigner, or even if you are a local and you do not have a single card, you can whip out your credit card



HOUSE OF COMMONS

and use it. You can load it on to a mobile phone and use it. That is something we are embarking on. I am sure you have heard of it in London as well. I think it is called contactless there. It has been serving us well. It is something we are moving into because, primarily, it saves the cost of cash handling. It moves people away from having to constantly top up; it frees them from that. Lastly, it saves the infrastructure surrounding the ecosystem.

Contactless ticketing is something we should accelerate if we want to build back better in the future. You do not want too much cash in the system, whether it is a top-up or the transaction itself, because from a pandemic point of view the contact points are a burden, in terms of cleaning. We are already seriously building back not just to an integrated system but to a more cashless system.

Robert Largan: Thank you, Mr Yap. I hope that we can see smart ticketing in more places than just London in future. I am conscious of time, so I will hand back to the Chair. I thank the witnesses for all their responses; it is very interesting.

Chair: Let's move to another mode of transport: the car, and a car-led recovery. We are also going to ask you about road pricing, certainly in Singapore. We have just opened a call for evidence on the potential for road pricing in this country. Over to Karl McCartney and then Gavin Newlands.

Q116 **Karl McCartney:** Thank you, Chair. For your benefit and that of the witnesses, I will ask one main question and then pass over to Gavin because I am conscious of the time.

Thank you all for attending today and for the information you have imparted, which has been very interesting. I want to take you back. Mr Yap, you were talking earlier about the way of working changing, and there being nodes outside the central business district that people might transport themselves to. Professor Crozet mentioned increasing subsidies to 85% on rail lines. Mr Vahnberg talked about the differences between urban and rural transport.

In that respect, do you think the prospects for a car-led recovery from the pandemic are likely? Would you accept that? Although, having listened to some of your answers, maybe you wouldn't. Do you think your politicians would accept a car-led recovery from the pandemic?

Yves Crozet: As you know, in France we have road pricing on motorways and highways. We have 10,000 km of tolled motorways in France, but we have no road pricing or congestion charging in big cities. French politicians are very reluctant to adopt the idea of road pricing or congestion charging.

For instance, in 2018, as part of a transport project, there was the possibility to create road pricing in urban areas. You will remember the yellow vest protests and demonstrations. The Government withdrew the idea that it could be possible in France to have road pricing in new urban



areas. In France, local and national politicians are very reluctant to have road pricing systems, except on motorways.

Q117 Karl McCartney: In some of your evidence earlier, you mentioned people changing their work patterns. If people had to do a five-day commute, with an hour-and-a-half or a two-hour drive every day, they would probably be more likely to look at public transport and go on a train to do that journey if they had to do it every day. However, if they only had to do it once a week or four or five times a month, it is very likely that they would go in their own personal car. Do you accept that?

Yves Crozet: I don't think so. Each time we have a demonstration in France, people go to the toll station on the motorway and destroy the toll station. The idea of having a toll on the road is not in French culture, even though, if you are using the motorway each day to go from home to work, you can reduce the tax you pay at the end of the year because you can increase the travel cost of going to work. Due to that, you can reduce your income tax at the end of the year.

It is obvious that we should set up a distance road pricing system on the whole road network in France—everywhere—but it is a very difficult political issue.

Q118 Karl McCartney: It is. No one likes paying more taxes, of course. Mr Yap, I think you have already hinted that you might have a carrot and stick approach, with lots of very big sticks to try to keep people out of their cars in Singapore. Do you accept a car-led recovery?

Jeremy Yap: I do not think we would accept that. The short answer is, no, we would not accept a recovery that is car led. Nationally, we are committed to a car-lite society. Different areas in Singapore right now are designated car-lite zones. There are 10 of them already.

I must emphasise that we price only for congestion. It does not mean that every car trip is priced. It is only across a certain segment where it is below a certain optimal speed, whether for arterial roads or expressways, that we start kicking in the charges. It is reviewed every quarter, so it is dynamic, because we look at patterns. It is something we have invested in heavily because we believe in congestion pricing. We believe in pricing the externality. It is a social cost for congestion.

We have invested in a satellite-based system. Currently, it is very heavy on infrastructure. There is a physical gantry. It has enforcement cameras and antennae, but in future it will be satellite based. It will allow us to be more flexible in where we want to price. It will serve us well going into the future, especially with changing travel patterns.

We still subscribe to a form of charging for congestion. That is something that we will work into the new system. It has helped us to keep congestion in check. In fact, we have kicked the reviews to a higher frequency because we saw the patterns changing a lot during the Covid season. Apart from a quarterly review, we shortened the periods of



HOUSE OF COMMONS

review for pricing rates. We do a form of cordon pricing around the central business district. We also have point pricing at certain segments of the expressway or arterial roads.

Q119 Karl McCartney: What you have just told us is quite interesting. You mentioned the congestion side of charging. Before Covid—prior to the last year—certainly in London at weekends, on Saturdays and Sundays, we found that certain areas were a lot busier than during the week. Do you charge people in Singapore at the weekends as well? Is it a full 24/7 system or just the five working days?

Jeremy Yap: We do not differentiate, because it is based on congestion. If congestion kicks in over a particular day for a sustained period, it will be monitored over three months, so we are a bit agnostic as to where the congestion is. Of course, we also take into consideration economic hours. Are people going there during economic hours?

Orchard Road is our busiest shopping district, and we have electronic road pricing there, even on the weekends, on Saturdays, but not during the Covid period. That is not because there is an amnesty but because the congestion level has fallen. It is deterministic. We look purely at the speeds and we decide whether to charge or not based on something that is quite formulaic. If the speed increases, we lift the charges. If it falls below an optimal level, we price.

Roger Vahnberg: On a car-led recovery, if we look at how it is right now and how it has been during the pandemic, I think car usage for commuting has not gone down as much as public transport. I think it is the same in Britain. It has gone down a little but not a lot.

After the pandemic, will we accept a car-led recovery? No, I don't think so. We have the same goals as before, both as a region and as a nation. We have very tough climate goals that we have to meet. The challenges are exactly the same, regardless of the pandemic. For example, we have the goal nationwide to reduce carbon dioxide by 70% in 2030. My organisation, Västtrafik—the public transport authority—has already reached that, and our goal is 90% by 2035. That will go ahead as planned.

We will not accept lightly that cars pick up or take market share. We have to do a lot of action on that. We already have road pricing or congestion charges; in both Gothenburg and Stockholm, we have congestion charges. They are the same now as before the pandemic and will be the same after the pandemic. In the spring, some organisations and politicians wanted to take them away, but fortunately they were not taken away. They are exactly the same. We do not foresee any change.

If we look at more road pricing all over Sweden, it is a sensitive issue to have more than we have. It is very political and very sensitive. A couple of suggestions have been made. One was that we should have more road pricing in order to get more funding for public transport. If you are asking



HOUSE OF COMMONS

me whether that will happen in the short run in Sweden, I do not think so. It is too political, even if it is a good way.

As an authority, we have very good experience of congestion charging. It is a way both to finance and to steer public transport investments. It is very good. Congestion charges are good in many ways to fulfil and meet the goals that you have for transport.

Karl McCartney: I echo what you have just said. I think many politicians are conscious that many drivers of cars and vehicles of all sorts see themselves as cash or tax cows. Unfortunately, they have been used by various Governments in that way. I am going to hand back to the Chairman, as I am conscious that we are short of time. I am sure he will pass over to Gavin, who will ask you some more questions on the same subject.

Chair: Thank you, Karl. I'll do exactly that. Over to Gavin.

Q120 **Gavin Newlands:** Thanks, Chair, and thanks, Karl. There is quite a bit of context for a road pricing culture in the UK. The concept of tolls has been around for hundreds of years in the UK; in recent decades, we have paid tolls on bridges, but very few. I think there is only one main road in the UK that currently has a toll.

Mr Yap, given the many facts that you have put across to us about your road pricing system, what advice would you give to the UK if, indeed, they wanted to implement such a system?

Jeremy Yap: There needs to be political will to do it. It is not easy. In Singapore's experience, we are fortunate that our forefathers were very determined, so we had a previous version in a paper licensing system. Then we graduated to electronic form. Whether you call it toll pricing or road pricing, it is something that was already in our consciousness. We paid the political price much earlier, when it was less divisive in Singapore's history. Right now, if we were to implement road pricing, I dare say it would be rather difficult. We have built on what we had already laid as a foundation. It is more about the modes of charging, whether you go to physical charging by gantries or by satellite. It has more or less been accepted.

I think Roger will tell you that, even in the midst of a reformation exercise for congestion pricing in Gothenburg, they pushed through. Sometimes the politics may go one way, but if you are determined that it is a sustainable way for society, you should not stop pursuing toll pricing or road pricing. In many societies like the UK, I am sure, it will be hypothecated and pay for some of the public transport infrastructure. In our case, it does not, because our funds are not earmarked. Anyhow, we spend much more on public transport infrastructure than we collect from the private transport side, so it does not balance out. I dare say it is something that you should pursue, whether for air quality or for other reasons. It is something that you should pursue.



Q121 **Gavin Newlands:** Are there any disadvantages in your road pricing system? Is there anything at all that we can learn from your system, perhaps about what not to implement?

Jeremy Yap: I think it is in the communications. Nobody likes a congestion pricing system. Even in our transition to a gantry-based system, we had to explain publicly what the new on-board unit would look like. We received a fair bit of criticism on how it was designed. We had to think through the communication exercise, even though our foot was through the door in established road or toll pricing. We still need to be very careful in looking at the design and how we communicate.

I must qualify that. In Singapore, road pricing is not revenue generating. In the whole scheme of things, it collects very little, as opposed to other up-front taxes that we impose, like our legal quota system. Those are really the revenue generators. Road pricing has never been positioned as revenue generating. In some ways, that has helped, because people then believe it is congestion based and is not just a price for moving your car. It is that kind of a scenario.

To pick up on one or two lessons, it is how you communicate. Be very careful in the communication exercise and how you shape the narrative. I think that is our lesson. Take nothing for granted, because it is something that many would like to criticise.

Q122 **Gavin Newlands:** Thank you very much; that is very interesting. Monsieur Crozet, you have said that “the ‘polluter pays’ principle is not implemented in the field of mobility.” How could a polluter pays principle be better applied in transport? Are there any countries that have already implemented the principle successfully?

Yves Crozet: My view, as I indicated before, is that it is a very difficult issue. The problem is that car mobility is dominant. It is 80% of passenger kilometres everywhere—in France, Germany, the UK and so on. Car mobility is the origin of a lot of external cost.

The idea is that motorised mobility should pay for mobility. The rule in France is that the water is paying for the water; the waste is paying for the waste; and the electricity is paying for the electricity. There is no tax going to water, waste or electricity. The users are the payers.

It is not the case for mobility. If we look at the European Union green deal, and the commitment of the UK to the decarbonisation of mobility, it is not possible to reach the goal if we do not say, “Okay, motorised mobility has to pay for motorised mobility. You have to pay when you use the train. You have to pay when you use the car.” There is a long way to go to change the mentality about that, but the idea is not just to have payment for congestion, a bridge or a tunnel. You have a distance payment when you use a motorised mobility system. Due to the fact that all the cars are now connected, it is not very difficult to do that. It is now possible to know exactly the distance a car is travelling during one month



HOUSE OF COMMONS

or one day. I think the objective for the next 10 years should be to develop a distance road pricing system at the whole network level.

Q123 **Gavin Newlands:** Thank you very much for that. Thanks to both of you for understanding my accent, perhaps better than some of my colleagues do at times. Mr Vahnberg, do you want to say something?

Roger Vahnberg: As Jeremy was saying, communication is essential. We experienced a situation here where there was a deal between the mayor and the Government in late 2007, without any communication with the public, to have congestion charges. It is very sensitive.

To add to what Jeremy said, we saw a lack of communication, which meant that we had a lot of resistance to congestion charges. You have to communicate the whole picture. For the driver, it seems like it is a tax: "Somebody is taking my money." For us, there are three reasons for congestion charges. Money is only one of them, and it is actually not the main one. The main one is to reduce emissions and congestion. Then we need to get money to finance infrastructure investments for public transport.

Why do we want that? The larger picture, of course, is how we want Gothenburg, the Gothenburg region and the whole region to evolve. We have a vision for a better life, a good life. We need to communicate the big picture, so that people see why we need congestion charges.

Jeremy Yap: Another point that comes to mind is transparency and the integrity of the system. Apart from communications, the substance of how you charge and the rates, how you put it out there and your process of review is important. In our experience, when people are able to attack the integrity of how you price, and there is a lack of transparency, the whole system erodes. People starting off on road pricing, in addition to the communications, should ensure it is a system that cannot be challenged in terms of the pricing method and its integrity. If people can challenge that, it is very hard to continue to sustain a road pricing system.

Gavin Newlands: Thanks to all of you for your excellent evidence this morning.

Chair: Thank you, Gavin and Karl. Thanks to the witnesses, because you have given us evidence on road pricing before we have finished the call for evidence. I am really delighted. The reason we are doing that is that the commitment by the UK to phase out the sale of petrol and diesel cars and other vehicles by 2030 will mean there is a £40 billion black hole for the Treasury. Petrol and diesel give the fuel duty and vehicle excise duty that pay for the roads. Something is going to have to be done in this country, and we are very pleased to have heard your ideas already.

We will move from the car to walking, cycling and active travel. I will hand over to Ruth Cadbury.



Q124 **Ruth Cadbury:** Mr Yap, thank you for your comments about road pricing. You seem to be using it to reduce congestion in a very fine-grained way. I will ask Mr Yap first—but this is to all of you—what are the strategies in your countries for managing a finite amount of road space, particularly as there is a risk that more people will use their cars as we come out of Covid?

Jeremy Yap: The strategy is on both the push and the pull side. On the pull side, we are very zealous in ensuring during Covid that we sustain the value proposition, and post Covid we will improve the value proposition of public transport—it is safer, better quality, and so on.

On the push side, we have a permit system. We have a vehicle growth rate that we review every couple of years. Right now, it is at zero. We allow a bit of growth for commercial vehicles, but it is only at about 0.25%. The rest of the vehicle population is at zero growth. You cannot get a car unless one goes out of the market and you replace it. You have to auction for a permit every 10 years. That is the ownership side, including some of the taxes that you have to pay.

It is quite exorbitant to own a car in Singapore. In some ways, I am ashamed to say that, but I am not ashamed in other ways because of the overall strategy. We believe that in 2040, just as Transport for London believes in its strategy, walking, cycling and riding public transport will be the predominant modes of journey for a more sustainable future. We see that nine in 10 trips will be taken by walking, cycling or riding on public transport rather than by private transport. That is something we are keen to pursue.

Q125 **Ruth Cadbury:** The second part of my question, which I should have asked at the beginning, is, how are you giving more priority to cyclists and pedestrians? Has it changed as a result of the pandemic?

Jeremy Yap: We are in the process of restricting car usage in certain zones. I mentioned that certain zones have been designated car-lite. We have restrictions on car use. Car parking standards are very restrictive for new developments; we allow people to provide a range-based system, which is very low. In some cases, we only have fringe parking, so there is no parking within the particular attraction. We expect people to walk and cycle.

Of course, in tropical Singapore, it is humid and we have to build covered linkways to facilitate walking. We are in the process of heavily investing in cycle lanes. We are growing them from 400 km to 1,300 km in a couple of years, going to 2030. Those are things we are investing heavily in. There are some roads that we are repurposing for cycling use, giving them back to the community for liveable space. There are a number of projects on which we are working concurrently right now, where we are trying to look at how we can use space more efficiently, giving it back to the community rather than having a very car-centric orientation in our towns and suburban areas.



Q126 **Ruth Cadbury:** I was in Singapore last February and saw that, pre the main part of the pandemic.

Monsieur Crozet, what is France doing to deal with a finite amount of road space? Specifically, what initiatives are there to encourage cycling and walking?

Yves Crozet: Maybe I can explain it by looking at the cost of a trip. As you know, you have the monetary cost and the time cost. In France, local politicians decided to increase the time cost of car mobility by reducing the space given to cars.

It is as if a commuter were discussing it with a local politician. The commuter says, "Okay, my time is the rarest resource. It is the key resource for me, I do not have a lot of time." The local politician says, "Okay, but the rarest resource for me is space. I do not have a lot of public space." At the end of the dialogue, the local politician decides—it is very clear when you visit a French city—that the objective is now to reduce the space given to cars, especially during the pandemic and the lockdown. In Lyon and Paris, they reduced a lot of the space given to cars, and increased the space given to bikes and pedestrians.

It is a way to avoid the debate about road charging and the monetary cost. Instead of increasing the monetary cost of car mobility, they increase the time cost of car mobility. If you want to go to downtown Paris in your car, the average speed will be less than 10 kph. If you take the Metro or the tramway, maybe it will be a better average speed.

Q127 **Ruth Cadbury:** That is a very interesting way of looking at it. We have a lot of political pushback in some towns and suburbs against creating, as Mr Yap would call them, car-lite areas.

Mr Vahnberg, how is space being reoriented in Sweden, and what provision is being made for walking and cycling?

Roger Vahnberg: We have a situation in Gothenburg, whereby in the last few years we have major infrastructure projects. They became more intense in 2020 and will do so again in coming years. Because of them, space in the downtown area has been reduced. That is not because of the pandemic but because of our projects.

We had already decided a few years ago, before the pandemic, that when all these infrastructure projects were going on, the region and the city, together with the national traffic association, would prioritise sustainable modes, meaning public transport, walking and cycling. Additional to that was cargo to stores. Driving a car was not prioritised, which means that when we have those big infrastructure projects we will be building a couple of tunnels and bridges. The car is not prioritised, and we lead cars from those areas. We have already done that, so there is no difference due to the pandemic. It is the same focus, and it has not changed.



HOUSE OF COMMONS

Regarding promoting cycling and walking in addition to that, we have seen that cycling and walking increased during the pandemic. We have goals for increasing walking and cycling, meaning that we will build more cycle paths and we will build cycle garages at our big public transport hubs, to make it more secure to leave your bike. We want to encourage people to combine cycling and public transport.

Ruth Cadbury: Thank you.

Chair: Thank you very much indeed. In the final section for our witnesses today, we want to touch on some of the technological innovation and advances that you may have seen for future travel and transport. I hand back to Greg Smith.

Q128 **Greg Smith:** We have talked a lot over the last couple of hours about more traditional views of public transport—buses and trains—as well as private transport. I would like to get a sense from all of you, before we finish, as to where you think technological advancement is going to transform the public transport of the future. We have seen things like autonomous vehicles coming on. Not too far from the constituency I represent, and in the news today, Milton Keynes is piloting a 10-seater self-driving bus. Likewise, we have taken evidence as a Committee on the growth of things like e-scooters and e-bikes.

Where do you think new technology is going to overtake traditional forms of public transport? Do you think the pandemic will accelerate that? Perhaps we can start with Mr Yap, because Singapore is very much ahead of the curve on some of these things.

Jeremy Yap: The conventional forms of public transport, because of their ability to carry lots of people, will remain. The metro is already an electric system. It will continue to be the backbone of many cities, notwithstanding the development of new mobilities, along with technological areas. In autonomous driving, as you mentioned, there is scope for us to look at how public transport itself can be transformed, meaning 12-metre public buses.

If you look at the finances, a lot of the operating costs for buses are in manpower; almost 60% goes into manpower costs. If we are able to graduate to a self-driving scenario, it will transform the financial models for public bus provision. That is something we have invested in, alongside private car autonomous driving, because we believe that technological advancements will help to improve the public transport offering. If you can have autonomous driving, it will lower costs at the end of the day, because manpower costs will come down. On a lifecycle basis, it may be cheaper when you have fleet operations; because it is fleet operated, you are able to exercise more control. In terms of efficiency, that is something we are also looking into.

It is also important to transition the industry into the future. Alongside some of the areas that we are trying on an individual car basis or individual vehicle basis, the next phase for us is going into pilot towns



HOUSE OF COMMONS

where we will experiment on a fleet basis for a revenue service, a series of paths and 12-metre fixed bus routes. We are keen to see the public transport side of the house transformed.

On personalised mobility, the e-scooter has come to Singapore. It has been a little delayed because we had certain externalities. We allowed it on our footpaths because we saw the growth and we embraced the technology. We are having a review because our footpaths are quite narrow, and they are shared. That is why I explained about cycle paths and expanding them. I think that has a role to play.

Electric scooters or power-assisted bicycles will help in the first and last mile. They are certainly something in the new mobility offering. As Roger put it, I think we need to look at combined mobility. It could be heavy rail on one leg, but also car sharing or electric vehicles. It could be the first and last mile by individualised scooter or even shared scooters.

Roger Vahnberg: I totally agree with Jeremy. I believe that, even in the future, mass transit has to be the backbone. That is the most efficient way spacewise to move people for work and so on. Of course, new mobility, as we see with e-scooters, can be an important complement to mass transit. It can also replace some public transport, not the heavy mass transit but feeder buses and such things.

It is crucial that it is integrated. Jeremy talked about combined mobility; another name is mobility as a service. It has the same platform for all mobility. In that way, society, an authority, the city or whatever, can steer to sustainable modes. It is not certain that all new mobility, without any steering, will lead to more sustainable travel. For example, if we have e-scooters that are not at all connected with public transport, a lot of people using e-scooters might not be car drivers but are replacing cycling and walking. That is not good. If it is a complement to public transport, it is good.

It is very similar for autonomous vehicles. Of course, autonomous vehicles will come, even if it takes some time. First, there were a lot of technological issues, but there are a lot of other issues, such as how they will work with normal cars and other autonomous cars. What is very important is how you steer things. If the autonomous vehicle comes without any steer from authority, Government or Parliament, it is a big risk. At UITP, we are working on different scenarios. If everybody is using an autonomous vehicle in the same way as they use their own car today, so "I have changed my Volvo as it is now to a Volvo that is autonomous"—though not me, because I use public transport to get to work—they will go to work in their car, but they will not park the car there because that is expensive. They will send the car somewhere else to park it for free, maybe at our park and ride places. Later on, they will drive their kids to football instead of cycling. Later on, the car will actually shop for you.



HOUSE OF COMMONS

There are a lot of studies that show that, if you do not steer it, there will be a doubling of traffic. The best scenario is that we make sure, when the small autonomous vehicles come, there is a fleet of vehicles that complement public transport. They will feed mass transit and, where there is no mass transit, they can increase mobility. We will get a lot less traffic but, at the same time, much better mobility. The key is that society has to steer it, otherwise it could be very bad.

Q129 **Greg Smith:** That is a really helpful insight. Monsieur Crozet, do you have anything to add?

Yves Crozet: I fully agree with Roger and Jeremy. Clearly, when we put the focus only on technology, the risk is that we forget something. For instance, as Roger explained, the key issue of autonomy is very good. It is to transform the car and to turn it from an individual mode to a collective mode. That is very difficult because it is the collectivisation of the car, and the car is typically a private good. With an autonomous vehicle, you have the possibility to transform the car into a public good, but it is very difficult. It is very important to underline the fact that, the more you develop electrification and the more you develop micro mobility and so on with autonomous vehicles, the more you will increase pressure on commuters to avoid the bad behaviours.

Jeremy Yap: A carless driver is preferred to a driverless car. I echo the view that an electric traffic jam or an autonomous traffic jam is still a traffic jam.

At the end of the day, fleet-based autonomous vehicles that will largely be electric, I believe, will have to be organised. They will have to be integrated. There is no better way of doing that than with an enlightened transport authority working together with the industry to try to make sure that there are enough levers over the platform, rather than allowing the automobile industry just to develop autonomous cars. I think you will lose control, because if you leave it to individual appetites, we will go back to a very car-heavy, albeit autonomous car-heavy, society.

Greg Smith: Thank you very much to all three.

Chair: We have pretty much run out of time, and we have covered all of the matters that we wanted to cover with you. On behalf of all the members, I thank you so much, Monsieur Crozet, Mr Vahnberg and Mr Yap, for giving us your experience, your insights and your ideas. We very much look forward, as we continue with the remainder of our inquiry, to building on some of the matters that you have brought to our attention.

Mr Yap, I wish you a very good rest of your evening. I know it is 8 o'clock over in Singapore. To Mr Vahnberg and Monsieur Crozet, good afternoon as it is 1 o'clock. We hope to hear from you again. We wish you and all of those in your organisations well at this challenging time. Thank you again.