HOUSE OF COMMONS

Transport Committee

Oral evidence: Rail technology: signalling and traffic management, HC 67

Monday 13 June 2016

Ordered by the House of Commons to be published on 13 June 2016.

Written evidence from witnesses:

- Arriva
- ASLEF

Watch the meeting

Members present: Mrs Louise Ellman (Chair); Robert Flello; Mary Glindon; Mark Menzies; Huw Merriman; Will Quince; Iain Stewart; Martin Vickers.

Questions 49-132

Witnesses: **Roger Cobbe**, Policy Director, Arriva, **Richard Pierce**, Engineering Development Director, Arriva, and **Christian Roth**, Managing Director, South West Trains; **Nigel Jones**, Rail Freight Group; **Mick Whelan**, General Secretary, ASLEF, and **Mick Cash**, General Secretary, RMT, gave evidence.

Q49 Chair: Good afternoon and welcome to the Transport Select Committee. Could you give us your name and organisation, please?

Roger Cobbe: I am Roger Cobbe. I am policy director of Arriva UK Trains and also the chairman of ATOC's ERTMS steering group.

Richard Pierce: I am Richard Pierce from Arriva Trains, Wales. I was project manager for the implementation of ERTMS on Cambrian coast.

Christian Roth: I am Christian Roth, managing director of South West Trains.

Q50 Chair: Could you tell us how the train operating companies have been involved by Network Rail in looking at plans for the future of rail technology and digital railway? Have the TOCs been involved?

Roger Cobbe: Absolutely. The structure of the Rail Delivery Group, which was set up to bring about closer collaboration between the train operators, both passenger and freight, and Network Rail has had the digital railway and the ERTMS programme as one of its key topics over recent years. There is an extremely complex programme governance structure

set up to enable that debate to take place. Clearly, the aim of the debate has been to move towards a more optimised programme.

Q51 Chair: Do you think the TOCs have been properly involved in the discussions?

Roger Cobbe: The TOCs have been involved very well. There is always scope to make the programme better still. The view, as we said in the Arriva submission, is that the new programme is a significant improvement on the previous programme, but there are still areas in which it can be further optimised. We are very pleased that Network Rail welcomes the debate and has set up the channels through which to carry it out.

Q52 Chair: Mr Pierce, do you agree with that? What do you think the particular concerns of the train operating companies are?

Richard Pierce: The main thing is that the programme is continuous and does not affect operation. As Roger says, the consultation with Network Rail is something that has to happen.

Christian Roth: There is definitely a good level of consultation going on. The digital railway also has an expert panel, on which I sit, so there is a good level of consultation. Occasionally, sometimes decisions are made with too much of a Network Rail focus rather than an industry focus.

Q53 Chair: Arriva sent us some written evidence saying that you were very concerned about Network Rail's roll-out programme. That was before the new programme had been put together. Are the same concerns still there?

Roger Cobbe: The concerns we expressed were primarily about the previous version of the programme, which I believe had reached version 112. We felt that was focused too much on replacing signalling assets when they became life expired. It was both a potentially very expensive route in terms of whole industry costs and one that was very difficult for train operators to cope with. We are really pleased that Network Rail, through the Rail Delivery Group, has now seen value in putting forward a revised programme—their V20 programme. I would not for a moment say we think that is perfect, but we think it is a move in the right direction, and they have offered further discussion. What we would like to see is further integration of the train operators' knowledge and expertise and the issues of cost on our side of the business to create an overall optimum outcome.

Q54 Chair: You say it is a move in the right direction. What else would you like to see?

Roger Cobbe: What I would like to see, Chair, is greater account being taken of the rate of fitment. Certainly our understanding is that the new V20 programme has arisen from the rate at which the infrastructure supply industry can carry it out. We would like to see equal weight for the rate of train fitment and the rate of driver training and operational training, so that all elements of the industry that are necessary to make ERTMS successful really have a part to play in building that optimised programme.

Q55 Chair: Mr Roth, you said that you think some of the approaches are too Network Rail focused. Can you tell us more about that?

Christian Roth: Digital railway has huge potential to increase capacity on the network. If we do that right and in the right sequence, we will enable that capacity to come earlier. If we do it in the wrong sequence, we are investing money in areas but will only see the investment getting benefits and outcomes once we have done the inner London areas. That would then free up capacity. That is something that is equally applicable for the east coast as well as for the Wessex route, so we need to find the right programme for roll-out. We have made some progress on that but we have not reached the optimised position.

Q56 Chair: What is needed now to move that forward in a more constructive way?

Christian Roth: The key thing that is needed is an industry programme. There needs to be an agreement to have it as an industry programme and to put some funding behind it, and then to roll it out and not change the programme once we have reached that agreement. Halfway through roll-out, the railway industry quite often changes its approach too much. We need to finalise the programme and sort out the funding for the programme. Then we just have to roll it out. We have to start from the top priority and work down to the lower priority. We have done a number of trials, like the one in Wales, so we should be comfortable with the technology, and we should be able to move into consolidating the programme.

Q57 Chair: When you say an industry approach, do you think we have the right structure to do that? Who should be taking the lead? Is the Rail Delivery Group appropriate or suitable to do that, or should it be some other structure?

Christian Roth: The RDG definitely has a significant role to play in that regard, because it brings together the operators as well as the infrastructure provider, so RDG could lead in that discussion. What RDG cannot do is provide the funding once the programme has been defined. That is where the DFT comes in, and where we need to have an agreement with the DFT/Treasury about the funding of the programme.

Q58 Iain Stewart: You have made reference to the importance of getting the optimal outcome for digital railway and having things done in the right sequence. One line of evidence that has been given to us is that the capacity gains from level 2 of ETCS are not as great as might be wished for, and you might be able to gain a similar capacity enhancement from a traffic management system while ETCS level 3 is developed. I would be grateful for your views on whether that is your position, or whether you think level 2 would be sufficient.

Christian Roth: From my point of view, there is too much discussion about various types of technology. What we need to get to is what is called automatic train operation, and that could be achieved with level 2 or level 3. An element of automatic train operation could also be provided by traffic management. Traffic management and a connected driver advisory system is already one step towards that kind of additional capacity. Level 2 would definitely give more capacity, but it is not only about providing signalling technology; a number of supporting conventional infrastructure interventions would be required, like de-conflicting junctions, flyovers or freight separation of trains. It is not only about new signalling equipment; it is about a holistic approach and how to get more capacity on the railway.

A conventional driver advisory system plus traffic management could potentially, depending on the routes, increase capacity by 5% or 10%. Level 2 has the potential to go to 20% to 30% additional capacity. For some routes and in some areas, level 2 is the right approach, with a further upgrade to level 3 over time. For other routes, where capacity is not the key constraint, a driver advisory system and traffic management might be the right answer to do that. It is not one size fits all. It comes back to roll-out and prioritising. Where is the capacity constraint the highest? You start in those areas and move forward to level 2, with a potential upgrade to level 3 at some point. For other areas, a driver advisory system and traffic management might be a much cheaper but equally acceptable solution.

Roger Cobbe: The fact is that at the moment, if you look at the supply side of the industry, level 2 is becoming a mainstream product that you can readily order now for an installation project, whereas level 3 remains in development. It would lead to further delay to say, "Well, let's not do anything until we can install level 3." That would be to forgo the benefits that level 2 can provide in a great many places. The key change from level 2 is to move away from what you might call a genuine physical signal, which the driver has to be able to see, to a notional end of the movement authority. They can be made much closer together. They can be put in places where the driver does not have a clear view. The spacing can be altered on parallel lines. There are very large advantages of level 2 over conventional signalling that are well worth having now for a number of years before it is realistically possible to procure level 3 for a complex network as opposed to a pilot line.

Q59 Iain Stewart: One of the questions I am trying to get my mind around is that, although I understand that level 2 replaces conventional signalling, it still requires significant investment in line-side equipment, but level 3 does not, so I would hate to see us invest a huge amount of money in level 2 only for it to be superseded in a relatively short period of time. That is the reason behind my question. Is it better to do a traffic management-type solution initially while level 3 is developed, and then we can implement that completely at the time?

***Christian Roth*: It really depends on the route and the network.** A lot of the lines into London operate at a capacity where a traffic management-only solution would not provide the capacity for the next 10 or 15 years, so a number of lines going into London should be equipped with a level 2 solution with automatic train operation. That would give a similar capacity increase to what we have seen on the Victoria or Jubilee lines. You would get more capacity with a readily available technology. For other areas, which are not necessarily going into London, traffic management might be a solution.

The difference in costs is quite significant and therefore it is a very valid question. My personal view, and from South West Trains, is that traffic management would give us a little bit of capacity, but by the time we have rolled it out we will have more demand; so we need to consider moving to an ERTMS type of technology, and then over the next five to 10 years maybe consider moving to level 3. I do not believe that traffic management only will fix capacity for the next 10 to 15 years.

Q60 Chair: What was Arriva's experience in the Cambrian line trial?

Roger Cobbe: Our experience overall has been very positive. It has turned into a signalling system that is working reliably every day, providing a very good train service for people

on that route. As with any new technology, there were bumps on the way, but, looking back, it is hard to say that they were materially worse than implementing certain other signalling renewal projects that have taken place in the last 10 or 15 years. Some very valuable lessons were learned, and we have been extremely keen to make sure that those are made available to the rest of the industry.

Q61 Chair: What were the most important lessons?

Roger Cobbe: There were a number of important lessons, but we certainly concluded that it was extremely valuable for the train operator to be involved from very early on in the process and to have input not just on the equipment fitted to the train but to the design of the line-side or control centre equipment, to make sure that the overall capability that was being installed was appropriate to run the services desired. I think we realised that it was a very complicated project to implement in terms of operational rules. It is a completely different way of running a railway, and therefore the training needs to be carefully planned and built into recruitment profiles. We need some different skills in the depot. The drivers need to do their job in a different way, and they have adapted to it extremely well. It is all achievable, which is certainly what the ORR concluded when they carried out an independent lessons learned review.

Q62 Chair: Do you have confidence that those lessons are being carried through into the rail industry as a whole?

Roger Cobbe: I think so. It is always very hard to say that until the next project is implemented. We sincerely hope they are. One thing we have tried to do is to be very open, both in attending industry events and in the fact that I continue to chair the industry group long after the implementation of Cambrian. We welcome visitors. We would be delighted if the Committee or some of its members would like to come and visit Cambrian. We and Network Rail would be pleased to show you how it works. We have invited and received delegations from all over Europe, from trade unions and from many other parties. We see our role, as the operator and custodian of the first ERTMS operation, as making sure that those lessons are pushed out for people to learn.

Q63 Chair: Mr Roth, do you think that the lessons are being learned by the industry as a whole? You spoke before about the need to take it forward as a sector. Do you think this is likely to be fed into that?

Christian Roth: The industry is a lot more mature than it was 10 years ago. There is good sharing of information in the industry, especially between the various train operators. When there is a problem, you do not always have to solve the problem by yourself; you talk to somebody who has done it before. The maturity level in the industry is there and I know, if I have a project, that I can get information from another train operator in the country, independent of which owner group that operator belongs to. There is a good level of sharing of that kind of information.

Q64 Chair: What more needs to be done to make ETCS ready for a national roll-out?

Roger Cobbe: There is more work to be done, but not necessarily on the technology, because the technology is being resolved through pan-European structures. The main thing I would recommend is buying things as the supply industry is ready to sell them. There are still elements under development, as we spoke of a moment ago on level 3, but it is entirely possible now to procure level 2 equipment, and mass roll-out is feasible from that perspective. I think the main effort needs to be on designing the areas to be changed over, on the rate of change and how to address complex nodes where different operator services come together. The solution is not always to convert everything at the first opportunity. We need to be wary of suddenly sucking in the requirement to convert a very large number of old trains and train a lot of drivers who will very rarely see ETCS in operation. Most of the effort now is on the more practical stages of conversion. As a future direction, it is pretty clear it is the right thing to do. We are into the detail of timing and how to put the bits together.

Q65 Chair: What has been learned from experience elsewhere in Europe—Denmark, for example?

Roger Cobbe: We keep a close eye on it through ATOC, where there is also an exchange of information with other railways throughout Europe. My perception of this is that people who invested early found that very high retrofit costs have been incurred, as they have installed equipment that is not compatible with later equipment. The most extreme case, frequently quoted, from the Netherlands is that they have, with all the best intentions, managed to procure three sets of ETCS that are incompatible with each other. Clearly they are now having a bit of a pause before continuing with their national programme, to reflect on how to make sure that does not happen again and they move forward in a more logical direction.

There are some other countries that are embarking on mass conversion. You referred to Denmark, and I am aware that Norway and Belgium have national roll-out programmes. Other countries are moving into this field, but there is no doubt that the Great Britain network is among the most complicated. Some of the things we have chosen to do turned out to be cutting edge, as indeed the Cambrian was at the time.

Q66 Chair: Mr Pierce, do you want to add anything?

Richard Pierce: We saw some teething troubles initially in the roll-out of level 2 on the Cambrian, but we worked together with Network Rail and the equipment supplier, and over subsequent years performance has gone back to where it was prior to introducing a complex signalling system, with the added benefits of some additional safety, such as driver monitoring and speed supervision. When you read the specifications initially, the system seems very complex and difficult to comprehend, which is why we have extended an invite to visit the Cambrian. When you actually see it in operation, it is quite straightforward for the driver to use. Once the driver understands the complex rules and gets those in his mind, the system is relatively straightforward to use and very safe. There are real benefits in going to the level 2 operation, as we have seen on the Cambrian.

Q67 Chair: We have had some evidence from people who say that the whole nature of the driver's responsibility will change with this system. Drivers will become much more

responsible for safety and there will perhaps be much greater danger. Do you agree with that? What kind of new training is needed if that is the case?

Roger Cobbe: I would certainly strongly disagree with the idea that it has a negative impact on safety. It has an extremely strong positive impact on safety.

Q68 Chair: Not negative to safety. I was saying that there will be more responsibility for drivers in relation to safety.

Roger Cobbe: I am sorry, Chair, I misunderstood you. My feeling is that this is a system that assists drivers to be even safer, not something that imposes a burden on them. It presents a lot of information. It is very hard to describe, but on the screen on their desk they can see exactly what is coming up on the line for some distance ahead. They can see the speed they are supposed to be going at. They can see any speed change before it is necessary for them to deal with it. All that information is presented to them on a screen right in front of them. Previously that was all information that the driver would have to remember. I am sure you have heard the phrase "route learning". Train drivers for very many years have had to memorise every feature that happens all along the line because, while driving, their responsibility is to look out through the window and watch out for signals. Now they have information presented to them on their planning screen and, effectively, the signal appears as the instructions on their ETCS driver machine interface.

Q69 Chair: Isn't that a major change in responsibility for drivers? Mr Roth, do you have a view on that? Doesn't it mean much greater responsibilities on drivers for safety?

***Christian Roth*: I think that the responsibility the driver has currently—that he or she is in charge of the train—will not change in that regard. It is just a different application of that level of responsibility. Yes, there is more, or different, information provided to the driver, but equally other information is not relevant any more. The fundamental responsibility of the driver for the safety of the train will remain, because there will be situations where the driver has to put emergency braking in—not everything can be foreseen—if there is a line-side accident or whatever. The fundamental responsibility of the driver is not moving away. The technology in itself is not a technology that is moving to a driverless train type of scenario; only that would change fundamentally the type of approach.**

Q70 Chair: Mr Pierce, do you have a view on this from the work you have been involved in? I am looking at the area of added, or perhaps different, responsibility for drivers in relation to safety.

Richard Pierce: At the end of the day, it is just a different signalling system for the driver. He still drives the train as he always does. He may have different profiles along the track, so he has to comply with the speed limit. In that regard, the train is a lot safer. There is no risk of the driver forgetting that there is a temporary speed restriction, because it is all sent ahead and it is all on the screen. The safety responsibility of the driver is exactly the same, but the system just backs up his route knowledge and provides information on the route that he is driving that may or may not be there in a conventional system. For example, if there is a temporary speed restriction applied on part of the route as a result of flooding, normally in today's railway somebody will go there and put up a temporary marker board that tells you the speed limit for that section. Of course, in a storm, that could blow down

and the driver might not be aware of it. Within the ETCS system, it is continually on the screen until he goes through and emerges on the other side. That speed restriction can then be removed back at the signalling centre at the push of a button, rather than somebody jumping in a van and driving 50 or 60 miles to take down a marker board. It helps and improves network safety overall.

Q71 Robert Flello: I have a question on the last couple of points for Mr Pierce and Mr Roth. It sounded to me as if we were moving to a situation where the driver is not really driving the train but almost becomes the back-up, and the system could almost drive the train itself with the driver being there just to say, "Hang on, there's an unforeseen incident," and stop the train. Are we in that territory? You seem to be shaking your head, Mr Pierce, but why do you say we are not?

Richard Pierce: No, because the system is a signalling system that tells the driver the speed he should travel. It is a constant reminder and it protects the driver from going too fast and approaching a junction that might have a conventional red signal where he has to stop. It controls the speed of the train, so it gives speed supervision for the driver to slow the train down to the point at which it needs to stop. There is still the need for the driver to look out of the window. He has to see if things are on the track in front of him. He has to look for people on the track, and at crossings and so forth. I do not think it reduces the responsibility of the driver.

Q72 Robert Flello: Forgive me, I want to probe a bit more. That description you have given me there, Mr Pierce, sounds as though you effectively do not have a driver of a train but a person acting as an observer—almost a safety back-up to the train driving itself. Why am I wrong? What am I not seeing? From the description you have just given, why is the person not acting as a safety back-up to the train running itself?

Richard Pierce: Driving a train is a complex experience. You could look at the varying speed profiles going down through the Cambrian, where speed supervision increases and decreases. I have been in the cab watching the driver and it is a very skilled task. I would not trust that skill to the technology at the moment. I would feel much safer as a passenger and as a member of staff with a driver up front looking ahead, seeing what he is doing and driving to what he sees in front of him. Drivers take into account all sorts of other conditions, such as the weather and visibility. You just can't do that with ETCS.

Q73 Chair: Do drivers need to be retrained?

Richard Pierce: Once drivers have trained, if they drive trains within the defined period, their competence is maintained. However, drivers go through safety briefings and updates on a regular basis to make sure that all new bulletins and information are available to them. Once they have driven the train, unless there is a change in the software on the train that requires them to be retrained, they are deemed competent. It is like me driving my car every day; I do not need any driving lessons to drive my car.

Q74 Chair: How would you describe the retraining that you think is necessary? Is it major in nature or small? Is it something very drastic or very different?

Richard Pierce: At the moment, if there is a competent driver, the conversion to go from competent driver on a normal conventional railway to a level 2 railway is a week's training course and then about two weeks for route learning and driving under supervision. There is three weeks' training just for the conversion, so a refresher is literally just a few days of driving with a driver instructor and refreshing the driver on the rules of the route and making sure that he is still competent in the system.

Q75 Iain Stewart: This is a question for Arriva. Can I take you back to a comment you made in your written evidence? You said that a little slowing down in the introduction of ETCS may be beneficial at the moment while greater benefits are identified. Can you expand on that a little, please?

Roger Cobbe: Yes, certainly. It is similar to the argument I was making a few minutes ago. It is always prudent when procuring complex IT projects to go at the rate the supply industry can provide them. We realised that one of the lessons from Cambrian was that perhaps we were running ahead of the game. It all turned out fine, although it took a little longer than intended. There is certainly a feeling in Arriva, and I believe among some of the other train operators, that perhaps there were elements of Network Rail's old programme, such as the southern end of the east coast main line, that were extremely ambitious in terms of the complexity and the state of the European supply industry now. Nobody else anywhere in Europe has yet done a main line leading into a major terminus. I feel that the idea of moving that back a few years and bringing forward another significant demonstration project, as is now proposed in East Anglia, is a really prudent thing to do. It will give better value for money for the industry as a whole, and ensure that when the east coast main line is done everybody is ready to do it and it is right first time.

Q76 Iain Stewart: You also expressed some concerns about the technical process for installing the new equipment in existing rolling stock, and presumably fitting it in the new rolling stock. Looking at the likely timetable that is being proposed for this in the new Network Rail plan, how do you see the technical and practical side of the implementation being realised without causing untold disruption to existing services?

Roger Cobbe: This is a substantial challenge in several respects. First, technically it is quite complicated and difficult to fit the equipment to the oldest trains. There are things that one might describe as pre-electronic control systems—probably the politest way of putting it. They would broadly equate to trains built in the British Rail years rather than the post-privatisation designs. That is not a perfect way of splitting them in your mind but it is quite close. It has been found that that can be extremely expensive and can lead to consequential other alterations to the train, as well as reliability problems. I would suggest that the prize to be found is to convert the network at a pace that enables a reasonable number of conversions of old trains, but not to do something that triggers hundreds and hundreds of them, which are then rarely used. That would be a burden of cost sitting on the taxpayer and the passenger, however it is done.

It is not that you should never convert old trains—it is feasible and we have proved that it is possible on the Cambrian—but it will gobble up a large amount of money, whereas fitting ETCS from new is now the normal way trains are being built across Europe. The cost increment to a newly delivered train is a very small amount of money and has no disruption. The cost increment to an old train can potentially be quite large, and of course

it has to be out of traffic while the work is done. You immediately say, "Is any other train available?" or do the passengers suffer without it while it is away? That is why I referred earlier to the need to fully optimise the roll-out programme so that conversion of older trains is done in a selective way, where it really adds value to the overall programme.

Q77 Huw Merriman: If this technology was rolled out at the optimal and realistic level that you describe, how much extra capacity would it give to both of your train networks?

Roger Cobbe: The capacity argument is incredibly location specific. There is certainly no doubt that it can give rise to extra capacity. We were talking earlier about the fact that you no longer have fixed signals. That will enable trains to operate closer together. Another key gain is by eliminating the fact that a driver at the moment, once presented with a yellow signal, has to slow down on the assumption that the next one is red. Even if it changes, seconds after he has passed that signal, there is nothing he can do until he can physically get line of sight of the next signal, whereas with ETCS that information is immediately on his desk and he can accelerate again. When we fully understand those capabilities and plug them into timetable planning systems, it will enable more trains per hour to be operated on some of our busier lines. It will enable trains to take junctions faster, and potentially to take restricted curves faster because there is a guarantee against overspeed. There is definitely additional capacity to be got from ETCS. Whether it is needed varies from one line to another. As to whether it will require other infrastructure work as well, as Christian mentioned earlier, sometimes it will and sometimes it won't is all I can say.

Christian Roth: We did quite a bit of work around that kind of area. We mainly have three different zones, routes and lines going into Waterloo. We have the red trains that are the main suburban trains. Currently, they run 18 trains an hour. We have the Windsor trains where we can run up to 20 trains an hour. That is on one single piece of track. For both those service routes, the limiting factor is a lot more about dwell time, meaning how quickly you can get passengers on the train and off the train at various locations like Clapham and Vauxhall. The signalling system in itself is not really the fundamental blocking factor. Even if we rolled out a level 2 solution there, we would not get a significant benefit. However, on the main line trains, where we currently run up to 24 trains into Waterloo, with the level 2 and a number of supporting infrastructure interventions, we believe we could potentially get up to 32 trains per hour—a significant one third increase in capacity. That is potentially, because people are developing the Southampton and Portsmouth areas, one of the key growth areas, and where a relatively high ticket price would justify making that kind of investment. What Roger said is very selective about which routes and which areas, but we believe we could get a third more capacity by using level 2 with ATO and a number of supporting infrastructure interventions, such as a flyover in Woking. We could get that into the system, and that capacity in our area is definitely needed.

Q78 Huw Merriman: Can I ask a supplementary? Using the cost-benefit analysis that you have just outlined, is Network Rail also working on that exact same basis?

Christian Roth: We did a piece of work together with Network Rail. We put a price tag on a conventional network intervention, which would be a fifth track between Clapham and

Surbiton and on what we could do with the digital railway approach. The digital railway approach came out significantly cheaper; it was about a third cheaper than the conventional approach on the railway. Therefore, we believe it is the right technology and the right way to go, but I stress from our side that I am not really too worried which way we go, because we have the capacity problem now and we need an agenda to move in that direction. We would support the digital railway, because that seems to be the cheaper solution and requires less land acquisition—Transport and Works Act—which takes time to resolve in its own right.

Q79 Martin Vickers: In terms of capacity, I can see the logic of closing up the distance between trains and so on. Am I right in saying that, ultimately, there are still pinch points in the system, such as conflicting junctions and terminal capacity when you get to the end of the line? If an express is behind a goods train, until there is an additional track to go on, it is still stuck behind a slow-running train. How will the system cope with that?

Christian Roth: Just talking about Waterloo, by and large we do not have freight trains coming into the London area. During the peak, to free up capacity, every train needs to be in the system to maximise capacity. If there is one train that is not on the level 2 system, you will not free up the capacity. You have to do everything. We considered that in terms of platform capacity at Waterloo as well, so it is not purely about the theoretical value. The theoretical value of the system is higher. You need to factor in those kinds of constraints, like platform capacity and platform reoccupation time, to get the trains out again. Then you end up at that level of 32 trains an hour.

Roger Cobbe: I would add, if I may, that there are a number of situations where, yes, of course there is a fixed period of time for a set of points to change from one position to another, but if the trains can always approach that on the move, they will come closer together than if half the trains draw to a stand and have to accelerate away again. If every train can go through a junction at the optimised speed, because the driver is told precisely the correct speed, again you will get more trains through a pinch point than if trains have to be brought down to a lower speed, as they often are at the moment, to be sure that they are not going too fast. ETCS prevents a train from going too fast, so some of the existing safety requirements can be altered in a way that is beneficial to capacity.

Q80 Martin Vickers: Network Rail has come in for a lot of criticism on various projects and its inability to deliver. Do you have confidence that they can deliver improved signalling systems?

Chair: Mr Roth, you are smiling. Does that mean anything?

Christian Roth: The observation is something everybody in the industry knows; there is difficulty in delivering a number of projects. What we have to do in delivering technology projects going forward is to find the right set-up in the industry, with the supplier, who has the knowledge of the technology, more involved in the projects. We need to have Network Rail as a lead in that. We need to find a structure where the operators and the suppliers are involved. Then I think we can make it work. We cannot make it work by only having a purely Network Rail-led project type of activity. By and large, Network Rail recognises that and wants to have that input from both the supply base and the train operator. We have to move into an alliance or a different contracting model from just the fixed price

approach. We need to find the right set-up and then make it work. It has been made to work in other countries in Europe, so it is possible to do that, but you need the set-up sorted out at the beginning, and then not to change the specification. That is fundamental.

Q81 Martin Vickers: Gentlemen, do you have any further comments?

Roger Cobbe: I do not think I have anything to add to that. I fully agree with that answer.

Q82 Chair: Who was involved in the decision to install the driver advisory system on South West Trains cabs?

Christian Roth: That decision was made jointly between Network Rail, the Department for Transport and South West Trains, and the funding is basically provided from Network Rail. It is part of the journey to the digital railway. It was a decision made between the three parties, on the assumption that we would also get a traffic management system for Wessex during CP5. By combining the driver advisory system with the traffic management system, we believe we could increase the 24 trains an hour on the main line to 26 trains an hour, which would already be a significant step in improving the main line capacity. Unfortunately, the roll-out of the traffic management system was changed afterwards and it is going to happen in CP6, we understand. That means that the benefit of that increased capacity will come a couple of years later, but it is a joined-up programme of work.

Q83 Chair: Who changed the roll-out?

Christian Roth: That was a decision made initially in CP5. Network Rail promised to have traffic management systems for all routes around the network. When the digital railway activity started, there was a review of the business case for the traffic management systems. Subsequently, the framework contracts that were previously in place ran out and therefore it was not feasible or possible to get the traffic management solution for Wessex set up during CP5.

Q84 Chair: Who took the lead in getting that system set up?

Christian Roth: The traffic management system was led by Network Rail. South West Trains took the lead on the driver advisory system. There is an industry steering group in place that defines the interfaces between driver advisory systems and any kind of traffic management, and that is train operators and Network Rail. All the technology supporting element is discussed jointly. Therefore, we took the lead on the connected driver advisory on the train side. We are waiting until we get the traffic management to be able to plug it in, and then to free up the capacity.

Q85 Chair: From your experience of that, what changes would you want to see made in decision making for the future?

Christian Roth: Quite often the decision making is done on a very narrow basis and it does not always factor in all the holistic factors. My view would be that initially it was done in the wrong way, just to say that everybody would get traffic management. There was a lot more work going into it later, but it should have addressed things a lot more

holistically, because capacity has a significant value on the railway, but it is very difficult to factor that into a Network Rail pure business case scenario.

Q86 Chair: Does the use of C-DAS on South West Trains make an argument for deploying traffic management technology separately from ETCS?

Christian Roth: As I said before, it does, because level 2 is not the right intervention for every route or application, and it might be quite expensive to have that as a national roll-out. For a number of routes, a connected driver advisory system and a traffic management system might be sufficient to free up capacity. Traffic management, together with the driver advisory system, improves not only capacity but punctuality, as well as reducing energy consumption. You do not stop the train; you just have the train running at the right speed, so you get those other benefits as well.

There have been trials of driver advisory systems in the industry on Great Western, Southern and Arriva. In the past, they were primarily driven by reducing fuel consumption and that is how the business case was developed. South West Trains took that to the next stage, to look into capacity and punctuality as well. In connection with traffic management, we believe that it will address all those kinds of issues, because on a railway like ours capacity is most important in the morning peak. In the afternoon peak, performance is most important and, in the off-peak, efficient fuel or energy consumption is the most important element. You could set up the system to address all those kinds of areas, but you would need to have the traffic management to support that.

Q87 Chair: What retraining has been required?

Christian Roth: We have done training for all the drivers. It is basically a classroom-type training, because it does not have the safety features of level 2. It was a two-day training course in a classroom with a simulator. One of the reasons why we went with the supplier we have chosen is that they had the best training package and the best simulators for driver training.

Q88 Chair: You mentioned Arriva. Has Arriva looked at the connected driver advisory system?

Roger Cobbe: At the moment. Arriva only has driver advisory systems that are not connected, because there is no traffic management for us to link into at the moment. We have certainly found their benefit in terms of energy saving, and we look forward to when we can move to the next stage and see the potential of using them to assist in performance as well. Clearly it is another way forward, and in some parts of the network that is the right thing to do next, because it is a much lower cost intervention than moving to level 2 ERTMS.

Q89 Chair: You said earlier, Mr Cobbe, that there were some cutting-edge things that you were doing. Can you tell us what any of those are?

Roger Cobbe: What I meant was that at the earlier stage, when we introduced the Cambrian scheme, it was the first time anywhere in Europe that anyone had dealt with terminus stations, depots or trains that split and joined on the way. We have continued to push ETCS as hard as anyone in Europe. Elsewhere in Europe, it has tended to be used for

what you might call simple pipeline scenarios, where trains follow each other down a route with nothing complicated happening, and they revert to conventional signalling when they get to the more complex nodes. Certainly our planning to move into mass area conversion is among the most advanced in Europe. Certain other countries are now doing that, too.

Q90 Mark Menzies: On the Cambrian line where this is up and running, what feedback are you getting from your drivers? How are they finding it?

Richard Pierce: The drivers just find it is business as usual. They enjoy driving trains, as they always have. New drivers coming in don't know any different and the other drivers just get on with it. There is no issue. It is just a different way of controlling the train.

Q91 Mark Menzies: What about your drivers, Mr Roth?

Christian Roth: It is very similar. There is no acceptance problem from a driver's point of view. When a train has new technology, they quite like to use it. There is no difficulty in doing those kinds of step changes.

Chair: Thank you all very much.

Examination of Witness

Witness: **Nigel Jones**, Rail Freight Group, gave evidence.

Q92 Chair: Good afternoon and welcome to the Transport Select Committee. Could we have your name and position, please?

Nigel Jones: My name is Nigel Jones. I am a board member of the Rail Freight Group. I am also DB Cargo's alternate member of the Rail Delivery Group. I chair the group that is putting in place a commercial framework between Network Rail and the freight operating companies for the ETCS project.

Q93 Chair: Thank you very much. What are the specific challenges in improving rail technology for freight?

Nigel Jones: The biggest difference between passenger and freight is that freight does not operate neatly along classic railway lines and routes. We go where our customers want us to go and when our customers want us to go. That means that we cut across the traditional railway routes and railway administrative boundaries. For freight, that means addressing whatever the ETCS, ERTMS or digital railway roll-out programme ends up being. Freight has to be prepared with all its fleets to be able to manage any scenario much quicker than any part of the passenger business. Effectively, we have to be made ready for the digital railway and ETCS faster than any other part of the railway industry.

Q94 Chair: Do you feel that the needs of freight have been considered in developing the rail technology strategy?

Nigel Jones: On the digital railway, yes, certainly. There has been intense involvement and working together between Network Rail, the supply industry and the freight community over the last three to four years for precisely that reason. Network Rail, even as we speak, are towards the end of the procurement process and, hopefully, they will be letting contacts that will allow all the freight locomotive fleet to be retrofitted for ETCS. If everything goes well, that process should begin either later this year or early in 2017.

Q95 Chair: Does that mean that you do not have any concerns? We have often heard in this Committee concerns expressed by the freight sector that their needs are very secondary or are overlooked when the focus is on passenger needs. Do you have no concerns about the way future strategies are being drawn up?

Nigel Jones: When I read the transcript of the evidence that Mr Carne and others gave a few weeks ago, I was interested to see a reference to the Institute of Railway Signalling Engineers, which I did not recognise. Network Rail are very aware that freight is different. They are aware that the solutions that are put in place, whether for digital railway or for the ordinary operation for freight, have to be different from those for the passenger world, and that things that matter to freight customers and operators will be different from things that matter to passenger operators.

Do we have any concerns? Of course we have concerns. Some of the technology is not yet proven, and we are obviously very keen to work with Network Rail and the suppliers to make sure that any concerns we have are addressed as part of the process of designing and then fitting the equipment.

Q96 Robert Flello: As the ability to run more passenger trains with this system becomes a reality, I wonder whether there is a risk that the effect of that is to squeeze freight out. What are you doing in terms of representations to make sure that does not happen?

Nigel Jones: Anyone who knows the freight industry—the freight operators and freight customers—knows that no part of the freight industry would take that situation lying down, and we would do all we could to work with Network Rail and our colleagues in the passenger industry so that everyone's interests could be accommodated. There are conflicts in capacity that arise today. They arose last week and they will arise next week, and we have to find ways within the industry of handling them. We defend our customers' interests as much as we can.

Q97 Robert Flello: Do you feel that the balance is about right at the moment?

Nigel Jones: Yes. There are good processes, and ultimately even regulatory processes, which ensure that a very fair view is taken of the needs of all users, not just passenger TOCs or indeed the primary passenger TOC on a route. That is where the process of access rights and indeed the role of the ORR is very important.

Q98 Chair: The freight sector has often complained about the way timetabling works and that that can be an impediment to developing freight on rail. What are you looking for in this new system that could ease that?

Nigel Jones: We very much hope that the benefits that Network Rail is very confident will be delivered, of greater capacity and indeed greater speed and flexibility, will develop and

come to pass, and that we can take advantage of them. On key parts of the network there is not enough capacity for freight trains today. If there was more capacity, for example, to and from some of the key ports, we could run more trains, but it does not exist. The average speed of a freight train on the network is less than 25 mph. Anything we could do to improve that would be a significant productivity improvement and would be welcomed by freight customers.

One aspect potentially of the digital railway that is not often focused on, but which could be very significant for freight, is that the digital railway solution should make the building and connection of new rail freight terminals and strategic rail freight interchanges much easier and cheaper than hitherto. If you want to build a new terminal for handling containers, for example, it takes a very long time and costs many millions of pounds, particularly on the sections of railway with modern signalling. One thing digital railway ought to do is to make that process much easier and much cheaper. That would be a real win for the freight sector.

Q99 Chair: What would need to be in place to make sure that happened?
Nigel Jones: Implementing the digital railway system in the way we understand it ought to be sufficient.

Q100 Chair: Who should be in charge of doing that?
Nigel Jones: It comes as part of the systems that Network Rail is proposing to introduce over the next 25 years.

Q101 Chair: Do you feel confident, with the structure we have, that it will actually deliver for freight?
Nigel Jones: I very much hope so. We will be intensely—

Q102 Chair: You hope so, but do you think it will?
Nigel Jones: In terms of the connections, I am very confident that will happen, yes. In terms of the greater capacity for a mixed traffic railway, I am less confident, because I have never seen any evidence from anywhere around the world as to a significant capacity benefit for level 2 ETCS in a mixed traffic environment.

Q103 Chair: Is that for freight specifically?
Nigel Jones: It is for freight or slower trains, but primarily the difference between freight and passenger trains.

Q104 Chair: What would have to happen to make that deliver a benefit for the freight sector?
Nigel Jones: Network Rail and some suppliers are very confident that the systems they are offering will deliver that benefit. I was interested to see in the evidence given to you three or four weeks ago reference to the introduction of ETCS level 2 on the Gotthard base tunnel in Switzerland. That is a mixed traffic railway. I have never seen any output from that, but if, as was suggested in that evidence, there is a demonstrable mixed traffic

capacity benefit, it would be very compelling evidence, which would be very good news for the freight sector.

Q105 Chair: How is ETCS cab fitment in freight stock progressing?

Nigel Jones: That is the procurement programme that I referred to earlier. Network Rail is in the middle of that. Obviously there is a limit to what I am aware of, or indeed could say, because of the procurement process that Network Rail is in. Assuming that it proceeds as intended and those contracts are let later this year, it will be, if you like—pardon the pun—the green light for the freight retrofitment ETCS programme to begin. Later this year or early in 2017, we will see the first in class process for the first six freight locomotives begin. That is the process by which the engineers actually work out how the equipment will physically be fitted into different classes of locomotive. That will take us through to the end of the control period. The plan would be that in CP6 not only the first in class programme would continue, but actual freight fitment would continue. Freight operating companies would be releasing locomotives every week for equipment to be retrofitted. If those contracts are let later this year, the freight sector starts to prepare for ETCS in a fairly major way.

Q106 Chair: We have been told there is a lack of enthusiasm for fitting ETCS in freight cabs. Is that right?

Nigel Jones: Yes, I think that is true. We recognise that the railway is changing. We want Network Rail, and we support Network Rail in trying to modernise the control and signalling of the railway system. It is really difficult to offer customers 21st century solutions when the underlying technology of the industry is at best 20th century, and sometimes 19th century. It is not easy. Our customers are quite challenging in their demands, and quite rightly. Our competition in road transport is very quick to adopt new technology, so we are strong supporters of what Network Rail has set out to do.

Q107 Chair: The cab fitment fund has been cut back. What difference is that going to make?

Nigel Jones: Post-Hendy, yes, there were some changes and reductions. The procurement process that Network Rail is going through is still funded to do the first six first in classes for freight by the end of this year, assuming it is authorised and that process concludes. We would then expect the CP6 funding settlement to be able to continue that and to commence the actual fitment of the bulk of the freight locomotive fleet. While there was a reduction, it has not impacted on the cab fitment programme to any significant degree.

Q108 Chair: You are absolutely confident that the funding to do this will carry on as before.

Nigel Jones: I cannot answer that. It is obviously a matter for Government. What will come from the planning process over the next two years that the industry goes through in discussing it with Government will determine the amount of money there is to continue the programme. I am quite sure that the contractual frameworks that will be put in place will be such as to cater for all eventualities.

Q109 Chair: Are there any particular concerns about the programme that you would like to express to us today, or do you feel optimistic?

Nigel Jones: There is a lot to do. Do we feel optimistic? Yes, I think we are broadly optimistic, but there is a tremendous amount to do. This is not just a programme to fit equipment to locomotives, or indeed line-side equipment. As the previous panel explored in some detail, it is a big change to how the whole railway operates, and that applies to freight probably more than it applies to the passenger world. It means that a lot of the operating rules will have to be changed. It means that there will be a training requirement, partly for drivers and also for maintenance staff and operational staff such as shunters. The way freight trains operate and the way heavy freight trains are sometimes helped at the rear by an assisting locomotive may have to change. The way that freight trains are shunted into and out of customers' sidings may have to change as part of the move to the new railway. There is a tremendous amount to do, and the further we get into this and the nearer we get to the next control period, the more the operational elements of the changes that the industry has to encompass will begin to come forward.

Q110 Chair: How is improved timetabling going to be achieved?

Nigel Jones: The key to the improved timetabling and to the traffic management systems, which again were talked about at some length with Mr Cobbe and Mr Roth, really comes down to the assumptions that are made about the acceleration and braking characteristics of trains. Getting those right and making sure they are appropriate is so important, both for traffic management and, flowing through that, for train planning. If the assumptions that are made on the physical performance of trains, particularly freight trains, are very conservative, we could find that the way the algorithms within the systems work means that they allocate more time to the operation of freight trains rather than less time, which was the assumption in my colleagues' evidence just given to you. There is a huge piece of work to be done across the industry in making sure that the physical characteristics of the trains are accurate when they are then planned into the various systems, whether that be traffic management or train planning. If we get that right, the benefits could be very substantial.

Q111 Chair: Is the rail sector working together sufficiently to deliver all those things, including the training needs that you spoke about?

Nigel Jones: Yes. There is almost a hierarchy of needs. One of the previous witnesses talked about the complicated series of industry groupings that were addressing the digital railway. Certainly that is the case for freight. There is a very well organised and very coherent set of groups looking at commercial matters, operational matters and people matters, including training and technical matters. They talk to each other and there are feeds across between passenger and freight, freight and passenger, to and from Network Rail. As different issues are flagged up by those groups, or as they become clearer as work develops, there is a framework by which they can be addressed.

Chair: Thank you very much.

Examination of Witnesses

Witnesses: **Mick Whelan**, General Secretary, ASLEF, and **Mick Cash**, General Secretary, RMT, gave evidence.

Q112 Chair: Good afternoon and welcome to the Transport Select Committee. Could we have your name and organisation, please?

Mick Whelan: I am Mick Whelan, general secretary of the train drivers' union ASLEF.

Mick Cash: I am Mick Cash, general secretary of the RMT.

Q113 Chair: What can you tell us about the experience of train drivers and operators within the European train control system?

Mick Whelan: It is very early days. I heard the previous witness give an awful lot of weight to how the industry is working together. Unfortunately, in our experience at this moment in time that is not quite the case. We are a long way off. The proposed timescales for the introduction of all the systems, whether it be at the quicker rate or the slower rate, will not see any real development for 20 years or so. There seems to be an underlying belief that we will remove the need for training across the industry, when in reality, specifically for train drivers, we will double the need for training; because of the way we currently train drivers, they will have to be trained from scratch.

Q114 Chair: Mr Cash, what can you tell us about experience to date across Europe?

Mick Cash: I would echo Mick's comments. A lot of this seems to be planning technical things and getting stuff put in the ground. I am not so certain that those plans are well advanced. It seems very up in the air and blue-sky thinking. They even keep changing the names these days. I was confused when doing the brief between ETR, ETCS and ERTMS, and now we have the digital railway and GSMR. All those arrangements are about creating a situation where we put a quart into a pint pot, or convert a pint pot into a quart, which is around rail capacity. There is a lot more to communicate about how it operates in practice and what the real impact is going to be. There is a lot more to communicate. It is a very simple system at the end of the day, but we seem to be having a lot of technical debate about what can or cannot be achieved.

Q115 Chair: In your evidence, both of you talk about fragmentation in the industry as an obstacle to moving forward on new technologies to benefit the whole system. This afternoon we have heard—we have also had written evidence—that the industry is working together and has come together to deliver this. Why is that wrong? Why do you think that what is happening is not going to deliver it?

Mick Whelan: The original trial of the ERTMS system on the Cambrian was an abject failure. Every day there were SPADs. It was designed incorrectly. There was lack of investment in it. Originally they were changing the infrastructure to deal with the advent of ERTMS, which is in metric. Then they realised that, if they did the trial in metric on the Cambrian line, they would have to make the whole of the network metric, so they went back to imperial. It comes back to my original thing about how we train drivers. Unfortunately, we have trained drivers for the last 136 years on the basis of Pavlov's dog. If you know the railway and you put the brake in at a certain speed at a certain point, you

will stop at a certain location. Once we go to this new system, all the fixed points that people have been using will no longer exist; it will be a bit like a car driver when they brake. There has been no real dialogue about how we are going to achieve this.

Q116 Chair: Mr Cash, can you give me some evidence as to why fragmentation of the current system is going to be an impediment to moving forward?

Mick Cash: How many people have you got to come in to talk to this Committee about one unified network and ERTMS and ETCS? I see a list of people from different organisations. They are from Network Rail, rail freight and suppliers. That indicates to me that in this one rail network—dare I say it, one British Rail—we seem to have to talk to a whole host of people to get one unified system in place. While I am not saying that what used to happen under British Rail was perfect, because they had their own difficulties about procuring and developing systems, it seems to me that you have to talk to a whole lot of people to get one system in place. If that is your experience, you can imagine our experience and who we have to talk to with the different train operating companies. We do not even have a relationship with the group—is it called the RDG?—that is supposed to oversee what is going on in the industry. With regard to what we call fragmentation, it is still there in the industry. It is about getting big projects in place. It is still one of the core issues that needs to be addressed.

Q117 Chair: We are told that the different sectors of the industry are coming together in moving digital technology forward. You are telling me it is not. Can you show me what is wrong?

Mick Cash: I am just giving you our belief and feeling about how it operates. You might get a lot of people in the room talking about things. If that is people getting together, that is fine. If that gets things delivered, that is fine. I am not certain why in one rail network, if it was structured properly, we would have to have a whole host of different people rather than one management structure delivering what is a very complex and difficult project across different arrangements. Every single one of them by the way, whether it be the TOCs, Network Rail, freight, the suppliers, the ORR or the DFT—I am giving you headlines now—brings its own particular views on life or its own mandates to the table. If you think that makes something like this easy, then fine. Getting everybody in the room talking is fine, but in terms of getting things delivered I just think it adds another layer of complexity.

Q118 Chair: Given the structure there is, are you saying that the Rail Delivery Group is failing in bringing the sector together?

Mick Whelan: I do not think they do. We do not meet with them; we do not engage with them; we have nothing to do with them; they give no leadership or ownership to any stakeholders, whether they be employees of the railway, the travelling public or those who fund the railway. It is a quango that was set up to give a degree of distance between the DFT and certain decisions that are made. We have no engagement with them at all. We deal with each individual TOC and FOC as an individual undertaking. We have up to 32 different training agreements for driver training, which are then subdivided depending upon tractions and routes and other areas. It leads us into the hundreds of agreements that

we have across the industry. We have no overarching agreements nationally and nobody to negotiate with.

Q119 Chair: Are you saying that, whatever the theory of the Rail Delivery Group, in practice you are negotiating or having discussions with each individual section and individual companies?

Mick Whelan: May I give an example?

Chair: Please do.

Mick Whelan: GSM-R is spoken about within the document quite clearly. I have various comments about the adequacy of GSM-R, but the reality was that we agreed a standard training process through Network Rail and the stakeholders. Then it was delivered piecemeal in so many different ways that the original train package in certain parts of the country was unrecognisable to that being delivered in other parts of the country. That was one overarching national agreement reached with the joint trade unions and the rail bodies about how we would deliver it, and then delivery became a problem. It weakened the training packages themselves.

Mick Cash: This is a big infrastructure project. The infrastructure controller, which is Network Rail, obviously needs to take a lead and make sure that matters get delivered. I know that Mark Carne has been here. He says that they need long-term planning and long-term security of finance to be able to do the supply chain. The one thing that is important in all this is that the change in the industry from one type of management system to another is done in a proper fashion. The structure does not help.

There is one example of the difference, which for us is Network Rail. They employ 34,000 people. When they used to manage as Railtrack for different contracts versus themselves, we found the training was very fragmented. As soon as they brought their maintenance in-house they got a grip on training. We started to see proper training and facilities. They started to manage the training and development of the people they employ. I do not think we will get that arrangement in place with the number of different players in place. HS2 for example, another big project, is trying its best to develop a training regime to manage the change going through—we were at one of the presentations recently. To do that you have to make sure that you put arrangements in place and allow people to turn up and get trained. There is sometimes a disconnection between what the plans are and people actually turning up, getting trained and developed.

Q120 Huw Merriman: I am a daily commuter to this place on Southern. My train is an hourly train service, because the capacity is so full on the network. Like most commuters, I am frustrated but stoic and realistic at the same time. When I hear of plans like this and when I heard the managing director from South West Trains say that this could potentially add 30% on certain networks, I am quite excited by it. I am struck that you seem quite negative about it and not optimistic about what it can deliver. Why is that the case?

Mick Whelan: I have vast experience on the adoption of this in Europe. In a different role, I dealt with the Channel tunnel and other areas. When you do it on a new railway and you openly do it, not on the make-do-and-mend basis that we traditionally operate in the UK, it is a different proposition. If you look at the timescales for this, we are in the 21st century,

still running semaphore signals in certain areas of the UK. We have two-light colour signals, three-light colour signals, four-light colour signals, RETB and half a dozen other various things. We have a non-standard network. We want now to introduce a standard process on a railway system that was not designed for it. Given our previous experience about how we have adopted these processes in the past, we are quite naturally reticent.

Again, we welcome the investment. We want a thriving, green railway that is good for passengers and freight and generates for the railway and our members. We do not have a problem with that, or with the travelling public or the taxpayer. The problem we have is that we have already seen it slip from control period 5 to control period 6, whether it be a 20-year adoption period or a 25-year adoption period. Over that period of time the people who work on the railway will be going for two or three different systems of signalling at one time. The training requirement and the maintenance of knowledge will be massive, so we are reticent but not against.

Mick Cash: If I could make a particular point about the two people you are asking questions of, Mick is a former train driver and I am a former signalling technician. I spent 23 and a half years as a signalling technician. We also have a lot of experience of dealing with the industry. We support increasing capacity. We know how these things work and how they end up getting implemented. We have concerns about the ability of the industry per se to do it. It needs to have the right capacity to do it. It needs to have the right structure to do it. It needs to have the right finance to do it. The capacity is the people and the strategy to do it. The structure is making sure you get all those people to work together. The finance is cash, and it has to be cash over a period of time. We support increasing capacity, but we are just a bit sanguine about it based on our long experience of how the industry operates.

Q121 Huw Merriman: I use Southern, and I am certainly struck that there is currently a dispute between the unions and Southern. Part of that has come off the back of new technology that is being rolled out. Thinking ahead with this, and I will not go into that particular one—

Mick Cash: It is not new technology.

Q122 Huw Merriman: Okay—the ability to open and close doors by the driver using CCTV.

Mick Cash: It is not new technology.

Q123 Huw Merriman: Okay. None the less, is there a possibility, which commuters would love, for the unions and the rail companies to work together from the earliest stages to deliver this technology and believe in it, rather than always being at loggerheads? Ultimately, it is the commuters who are left to pick up the pieces.

Mick Whelan: May I correct you? There has not been a change in the industry when we have not worked in partnership, whether it be the moving block that was going to happen on the west coast but was stopped in the end by a lack of investment, or the introduction of new trains and new technology. The ATO through the core of St Pancras would not be in place without the assistance, flexibility and willingness of the trade unions working in partnership. What we are now seeing—I will choose my words very carefully having spent

most of the last three weeks in the High Court—is the fact that the Government are now writing changes into the ITTs that circumvent the ability for us to negotiate or discuss these things. People are bidding for things and being forced to put them in place without the dialogue that you would like to see taking place.

Q124 Chair: In terms of the digital railway and the plans and ambitions we have heard about, do you see yourselves as unions working with the railway sector to implement them?

Mick Whelan: I can only speak on behalf of my own trade union for a moment and be parochial. If how Southern seeks to do business is the template for future negotiations within the industry, I would not hold out great hope that we can work in partnership.

Mick Cash: My experience of dealing with Network Rail and people like Mark Carne is that they won't go to war on their own employees to get change introduced. The concept of the digital railway, which is another phrase being used but is basically ERTMS, ETCS and a communications strategy, means that there are as many opportunities there for work as there are threats. When you threaten people, as Southern have done, and if that is the standard we are going to face as the representatives of the workers, and what the workers are going to face, we are going to have a hard time. I am hopeful that with Network Rail and companies like that we see the better side of the industry rather than some of the arrangements we have seen in Southern—forced upon them by other people, I have to say.

Q125 Robert Flello: One of the things we have heard about is the systems possibly making life easier for drivers in terms of not having to learn routes so much. There are two parts to my question. First, do you think that is right? Secondly, if it were right—you have already shaken your head on that one—what would be the impact of a driver on a passenger service versus the impact on training for a driver on a freight service? How would that work in practice?

Mick Whelan: The impact for a passenger driver is quite obvious. He has far more fixed braking points in relation to an intra-urban service or something that stops every two minutes. An intercity driver has to be able to pick out a point at 3 o'clock in the morning in the pouring rain to stop at Milton Keynes or Coventry at 100-odd mph. Freight drivers have the same problem, but it is more generalised because they tend to be the people doing infrastructure work. They have to know various locations quite intensively for when they do the lower speed and more intensive infrastructure work. They are not doing the day-to-day movement of inter-modal or heavy construction.

The reality is that we have a problem that I alluded to earlier. Every train driver in the UK, including myself, has been trained on a system that is location based. If you have this signal, it will take you in a certain direction. Well, signals will not exist in future. If you put the brake on at a certain point, you will stop at that certain point. The first problem will be the intensive training of drivers in a new way for a new system that does not exist. That will be from scratch for all 19,000-plus train drivers in the country, which I would imagine is going to be incredibly difficult to deliver while we are still running the system, without some sort of agreement on flexibility.

At the same time, in the future it is even more frightening, because you do not have those fixed points when the system goes into a degraded mode. The driver has to know the

geography far more intensively than he does now, particularly at times of snow, rain, heavy showers and all the worst-case scenarios we always give you. Therein lies the difficulty. When I have been talking to stakeholders about ERTMS, part of the problem is that they talk arrant nonsense. No train driver in the history of the railway has ever self-authorised when we have had a degraded or emergency situation. Somebody somewhere has to make the decision remotely that it is safe to continue. Some very high-ranking people within the industry have said to me, offline, "What do you think about self-authorisation of train drivers?" I say, "Where?" They say, "In ERTMS." I say, "At what point?" They say, "At the block markers." The system itself is just an enhanced electronic moving block. The transponder sends a signal to the train so that you do a speed that does not catch up with the train in front. If the system degrades and you do not know what is in front of you, what speed would you expect to go at? What would you expect to find around the corner unless somebody told you that the next five, 10 or 15 miles were clear? When we asked, "Where would we be asked to self-authorise past?" they were talking about the block markers. I asked, "How big is a block marker?" bearing in mind that the average driver sits about six and a half feet to eight feet off the floor. They are about "this" big. I would not expect a car driver to pick those out remotely at any form of distance, and I do not think you could expect somebody driving a freight train of up to 1,000 tonnes at 75 mph, or more if the new system allows it, to do so either.

Q126 Robert Flello: You have probably answered the other question I was going to ask. Is this potentially a move towards driverless trains? From the answer you have just given, it would be lethal to have driverless trains in those circumstances.

Mick Whelan: We have one of the most intensive railway systems in the world. The opportunity and technology is there for driverless trains, but with the greatest of respect I do not think we will see it in my lifetime. As we go towards the 20 or 25-year period that people are talking about for the introduction of this system, we are a long way away from it. Even then in degraded circumstances and given the vagaries of our railway, and whether at some point somebody says that the investment is being made for the main line only and not for other areas, it will be very interesting. While it might facilitate it in the future, it is not one of our worries currently.

Mick Cash: You should also recognise that Network Rail is moving towards concentrating its signalling staff—the staff who oversee the movement of trains; whether you get traffic management in is another matter—into 12 or 13 rail operating centres. At the moment there are about 400 or 500 signal boxes. There will be a concentration and they will be more remote from the track as such. The skillset of the drivers and on-train staff is going to be crucial in those circumstances. They may change because of ERTMS, digital railway, ETCS or whatever. They may have to adapt and there will be different challenges, but there is still going to be a need to have people on board those trains looking after the safety of the trains and the passengers, looking after the safety of the equipment and the railway, because in the middle of the night on whatever line you are you could be 100 miles away from the signaller. Somebody has to be there on site doing stuff, so some of this stuff is pie in the sky.

Q127 Martin Vickers: I asked our first panel if they had confidence in Network Rail's ability to deliver on these new signalling systems. Can I take it from your earlier comments that you would not have any confidence in them?

Mick Whelan: The Peter Hendy report was alluded to earlier by other witnesses, when I was not here. If we cannot even do the day-to-day stuff that we are doing in control period 5 on a major project like this—bearing in mind that we are in the first year or two of control period 5 and the five-year period is slipping into control period 6—given the history of major projects in the past, from experience I do not have a great deal of confidence that there will be any delivery on time. I think there will be slippage.

Mick Cash: Do I have confidence in Network Rail? I have confidence in Network Rail, because what else are you going to replace it with? The Government had a choice of replacing it with something else and decided not to do so because we would get back to those bad old days of Railtrack. Having said that, I made the point earlier that we need the capacity, the structure and the finance to do these big projects. My big concern now, with CP6 coming, is that the ORR is starting to fragment Network Rail in terms of the routes. A lot of these plans are going to be delivered by the routes, although it is a major rail network project.

There have been pressures on them to deliver at least two or three key tasks; to operate the railway, maintain the railway and build some really big projects. The criticisms about some of the big projects are right, because they have been focusing on the other two, but you need one controlling mind and one overseeing arrangement in place to ensure that that capacity is being built in and delivered, and that there is a structure to bring all these things together. The finance is crucial. If it was not Network Rail, who else would you have? If you had somebody else in place, you would have to have somebody like Network Rail to be a key part of it. They oversee, maintain and renew 20,000 miles of train track, and they have the skillset to do it. It is not perfect, but what is the alternative?

Q128 Martin Vickers: We heard from Mr Jones, the previous witness, that the average speed of a freight train is 25 mph, which I think we would probably all agree is rather pathetic. If we are going to attract more business on to the network, we need to improve on that. Do you think that the proposals before us will help to achieve a better average speed?

Mick Whelan: I would hope they would. The reality is that he hinted that we would have to change the way we look at the braking curve of trains and to have greater face. When you have trains of up to 2,000 tonnes with one engine, the real problem with freight trains is getting them up to speed. If they brake for any reason, getting them back up to speed is where the time lapse and time loss is. The reality is that the braking curves on the type of wagons we have, with the age they are and the type of locomotives we currently have, does not lend itself to that proposition. Unless there is wholesale investment across the industry in new wagons and newer engines to pull them, there will be great difficulty in delivering his aspirations.

Mick Cash: I would not know what they are comparing it with. Is that good or bad? I do not know if it is the same in America or in Europe in terms of the speed. One of the other factors Mick alluded to is the lines they operate on. It is not the west coast or east coast lines, where they can get going as long as there is capacity. They will perhaps be slowed down by a train. I was caught behind a freight train yesterday morning coming into Euston, because it was too long. It was going on the North London line but it blocked the line so I could not get into Euston. The lines that they operate on are by definition sometimes at slower speeds. If you wanted not to spend money on HS2 but to create high

speed lines for freight networks in and out of Felixstowe or on the North London line—which I do not think you will ever be able to do because physically it is not possible—you could increase the line speed. Some of it you will not physically be able to do because of the lines you naturally operate on.

Q129 Martin Vickers: I have one last point. Mr Whelan, you said earlier that you do not meet the Rail Delivery Group at all. Is that because they do not invite you to be part of the set-up or by choice of your union?

Mick Whelan: Originally, we sought to engage. We were not consulted, as were no stakeholders in the industry by the way, about the set-up of the Rail Delivery Group. Apparently, Mick's predecessor and I were associate members by default. We turned up at the first AGM. We sought to speak and were not allowed to do so. We have not engaged with them since. We went with a willingness to engage and it was destroyed quite quickly.

Q130 Mary Glindon: Mr Cash, you mentioned in response to my colleague's question that you think there is a long-term future for staff being on trains rather than going straight through to driverless trains. In relation to your members, how do you see their career prospects and the prospects for new people coming into the industry? Is wanting to get into the rail industry and working on trains as drivers or whatever a long-term prospect for young people? Is it one that you can sell to young people and your members for future career development in light of these proposals?

Mick Whelan: In relation to HS2, we have both done a vast amount of work. It is one area where diversity—young people and the broad spectrum of all our community—is engaged and they are looking to do it. In TfL and one or two other companies, they actually comply with the legal requirements and look at what you need to do. I conducted an internal independent review of my own trade union in 2012 in response to the McNulty report. The average age of a train driver coming into the industry is 36. We have 4.2% women and 6.3% black and ethnic minorities, to our eternal shame. I have 95% density of train drivers in the UK but I can only get my membership from whom the employers recruit.

Since then we have mounted jointly and singly campaigns with the employers to try to change the attitude. We have tried to work on getting railway apprenticeships back into the system and sought a way forward to get young people into the industry. It is partly for our own benefit. If we want to protect the pension systems that currently exist, we need young blood coming in to fund those pension systems. The reality is that we work incredibly hard to try to get young people into the industry and career-map them, move them through and get a more overarching and more diverse pool of labour within the industry itself. We are not always successful.

Mick Cash: I often make the point to employers, particularly modern employers, that we have been in the rail industry since 1871—longer than Mick's union, by the way. Our union has been around for as long as the FA Cup, and that was founded in 1871. The point about that is that I say to them that our DNA is in the industry and the industry's DNA is in us. The trade unions were here before they came along and we will be here after they have gone. We want to make sure that there is a sustainable future for the industry and make sure that employees' work is going forward. That is why we get classed as Luddites or people who oppose stuff, but if we don't fight for the workers and for the employment

industry I cannot see the employers doing it, particularly if you are talking about new technology and driverless trains. We are here not as Luddites trying to stop progress; we have seen progress and we want to make sure that progress is for the benefit of our members, for workers and for the industry. The only way we can do that is to make sure that we have an agenda that still allows us to negotiate and to protect workers.

There is one thing I have noticed. I joined the railway in 1978. Certainly, since privatisation, employment practices have changed. These are some of the battles going on currently at this moment in time. More and more we see the dumbing down, deskilling and casualisation of the workforce. I do not think any young person will want to get into that sort of industry. That is why we fight the fights we do, particularly on Southern.

Q131 Chair: Are you optimistic that digital railway can transform the sector for the public good?

Mick Whelan: I believe so, if we do it in a way which represents the needs of the travelling public. Partly in response to a previous question, and to answer your question, there seems to be a perception in the industry that, if you remove the second person from trains and the driver operates the doors, it reduces dwell times. When we talk about some of the problems we currently have in the industry, there is absolutely nothing to do with a visible presence, safety, economics or anything else; there is purely this overarching vision to make the digital railway work, and if the driver operates the trains, the dwell times on the platforms are shorter. Therein lies our problem. It will not be the case when you have a 12-car 700 on the Thameslink route with 1,100 passengers in the peak. We have recently been told about three major incidents that happened on the railway in the last year. If we can no longer rely on the underpinning technology that tells us that DOO can operate, we are going to have a problem going forward. It is not the cameras and the doors that make a train safe; it is the traction interlock. Basically, when we were sold DOO, on a far less used railway in BR times, it was on the basis that if you had a DOO train and the doors came open, the brakes came on; or if you went to leave a platform and somebody had a walking stick or their backpack stuck in the doors, you could not get power and that train could not move. We are now being told by several reports that have come out recently, particularly in relation to Hayes, Wickham and Croydon South, that we can no longer rely on that technology. If that is the founding base for the reduction in dwell times, that is going to allow more longer and shorter trains to move more effectively in the digital railway, I think we are going to have problems in the short term, never mind the medium term.

Q132 Chair: Mr Cash, are you optimistic about the prospects of this major investment?

Mick Cash: I think the railway over its whole history has embraced change and new technology, and made it work for itself. As trade unions we have had to deal with that, but the industry in all of this has also sought to bring along with it the workers and the employees. If we have the right process for doing it, I will be optimistic that it is not only for the benefit of the industry but for the passengers and the workers rather than just for some shareholders. I am not convinced at this moment in time that everybody in the industry has convinced us that the digital railway is the way forward. There needs to be a bit more work and they need to communicate a bit better.

Chair: Thank you very much, gentlemen.