COMMISSION SPÉCIALE CHARGÉE D'EXAMINER LES CONDITIONS DE SÉCURITÉ DU RAIL EN BELGIQUE À LA SUITE DU DRAMATIQUE ACCIDENT SURVENU À BUIZINGEN

du

LUNDI 17 JANVIER 2011

Après-midi

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BIJZONDERE COMMISSIE BELAST MET HET ONDERZOEK NAAR DE VEILIGHEID VAN HET SPOORWEGENNET IN BELGIË NAAR AANLEIDING VAN HET DRAMATISCH TREINONGEVAL IN BUIZINGEN

van

MAANDAG 17 JANUARI 2011

Namiddag

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De vergadering wordt geopend om 14.25 uur en voorgezeten door de heer David Geerts.
La séance est ouverte à 14.25 heures et présidée par M. David Geerts.

Hoorzitting met de heer Morten Sondergaard, directeur van het signalisatieprogramma bij de Deense spoorwegmaatschappij Banedanmark, onder meer over het gevoerde beleid van de Deense spoorwegmaatschappij inzake veiligheid
Audition de M. Morten Sondergaard, directeur du programme de signalisation auprès de Banedanmark, société des chemins de fer danoise, notamment sur la politique menée par les chemins de fer danois en matière de sécurité

De **voorzitter**: Collega's, ik stel voor dat wij onze werkzaamheden voor vandaag beginnen.

I will welcome Mr. Morten Sondergaard to discuss the Danish case about railway protection. I suggest that you start immediately the presentation, so that the members of the Parliament may ask questions after your slideshow.

Collega's, houd u daarna zeker en vast niet in!

Morten Sondergaard: Thank you for giving me the opportunity to come here.

I am sorry to only speak English, no Dutch, no French (a little bit French, but you would not want me to do the presentation in French).
This is at the ??? I will speak to. I will shortly introduce you to Banedanmark, our Rail Net in Denmark. I will talk about the background for the rollout of the new signalling programme in Danemark. I will talk about how we did the analysis. Understanding where you are, there could be some interest in doing a similar analysis : how we did that, what are the principles, the rollout plans, how we procure it and also the costs.

So Railway Denmark or Banedanmark is the equivalent of Infrabel in Belgium. We basically own and manage the railway network. We are purely public-financed; I am a civil servant. We are 2 200 employees. Most of the work we do we plan and then contract out, though we control the trains on ourselves (I mean all the control of the trains, we do ourselves). Then, the under-railway operates us as a public-owned or private-owned operator.

So this is what we do: we monitor and operate the trains, we maintain railway, we extend the railway (if something new is going to be built, we are doing it), we provide all passenger information, and, of course, we also do all the planning. The decisions are normally taken by the Parliament or the ministers.

So this was a very short introduction to what Banedanmark is about.

This is Denmark, small country, 5 million inhabitants, and some of the data which explain how big the railway is. If you look at the slide, you can see what I have done is… that I… Can you see this one? Here you can see how many trains we have per day, and here I wrote “B”, which means “Belgium”. On the internet, I found, a year report from Infrabel with data from 2009. So, just for comparison sake, you can see the difference

between the Belgian network and the Danish network. If I look at it, the Belgian network is a little bit bigger, but probably more heavily… you have a more heavy production. First of all, you have a lot more freight, but also a lot more trains to control. One of the other things you can see is that, in Belgium, you do not have as much central control in the railway system as we do. We did that 15 or 20 years ago. We took the opportunity to control a lot of our interlockings with central management. So there are some differences in the infrastructure, but from the size perspective, it is more or less the same.

I also thought about telling your experts that the Belgian network is a more star-type network where you have a lot of concentration around Brussels. In Denmark, the concentration is, of course, in Copenhagen, where we have an S-train network into a completely independent network, with a S-bane, which is a system that brings people to work, and the main line in Denmark is this one here, it goes all the way up here. Some of these lines are more regional.

The situation in Denmark is that all our signalling is very very old: 80 % of all our signalling has a technology that goes back to the 50's and the 60's, called relay technology. Most of this is very well maintained, but we are getting to a situation now where we cannot procure anymore. The oldest people who know about this technology are retiring, but there are a number of other problems with it.

We, in Denmark, actually did a fairly advanced train protection system in the 80's, which is equivalent to ETCS level 1. We did that on the main line here. That has now existed for nearly 20-30 years and it is now getting obsolete. So the whole situation we had in 2005 was that we had very old systems, so something needed to be done.

We also saw that half of the delays we had on the network were due to signalling. So, no matter what, the Danish railway was in front of huge investments in signalling. This is what you have to remember.

What we did not have were safety problems. A lot of the irregularities, the unpunctuality we had, were due to the fact that, for safety reasons, we had to slower down the traffic speed. So you could say that we had a very well functioning safety system, the ATP/ATC system we had was very well functioning, but we had a punctuality problem. So this was the situation. You can see here on the graph that what I tried to do was to look, 10-15 years ahead, how many of these systems would be completely obsolete for the next ten years. You can see a lot of these are actually on the main line, and more on some of the most heavily charged lines.

So this was the challenge that we submitted to our Parliament.

The challenge is, if I show you some of the maps, there is a very long list, I won't go through all of it. It is old signalling, we had many different types of signalling equipments, so when we put them together, the performance was not very good. We had a decline in punctuality. And, as I already told you, half of the delays were due to signalling.

We had very unique Danish signalling rules, as you have unique signalling rules in Belgium, and they have unique signalling rules in Germany and so forth. This meant that, when we went out in the market, we could only buy our equipment from two suppliers : Bombardier for the interlockings and Siemens for the ATP. So our commercial situation was very very bad. We had far too high prices. We had expensive maintenance costs. It was very expensive to change punctuality, our staff was getting too old, nobody knew about the technology and so forth.

Many of these things, you may observe them on many of the big railway companies. If you go to Norway, if you go to Germany, probably if you go to Infrabel, you will see that these are things that most of the railway companies are fighting with.

So, at some point, somebody came up with an idea saying: "What if we do things differently ? How about changing everything ?". We don't take one line, one station or ten stations, we just take everything and change it. As I normally say, this is not an uncommon project to man, because most people change their whole car at the same time. But it costs a lot of money ! The point in changing everything is that it gives you a number of possibilities: it gives you the opportunity to make a step change in technology, to get through competition, you can change your rules, you can change everything. But it also means that some of the things you have implemented recently, you will have to throw them away.

What I am going to do is to make you a timeline to show you what happened. In 2004, the Danish Parliament agreed on an investment plan for five years, including some signalling investments. At some point, during 2004, this idea came up,

because it showed up that the investment plan we had would not solve our general problem of punctuality. 2005 was a terrible year in the railway in Denmark.

There was a lot of “dyspunctuality”, a lot of problems in maintaining our system, basically both our tracks and our signaling was getting to the point where we could not operate the railway anymore. There was a lot of public debates, there was a lot of debates with the Parliament about whose fault it was. And we could show, from the infrastructure management, that there had been an under-spending in reinvestment in Denmark.

So it was decided that we would do a study. The Parliament agreed to do that study, a sort of strategic analysis for us to get back on tracks with the Railway Denmark. When Denmark was set in front of that study, we had an independent company called Booz Allen Hamilton to help us doing it. In more or less five months, we did a strategic analysis, analyzing different strategies of how to do this. I will come back to that, and I will also come back to the next point here.

After that analysis was done, we took a strategic decision of what strategy to adopt for the next 25 years in signaling in Denmark. That lead to the next phase where we actually took that strategy, refined it and finally we had a political decision in January, when we got the full funding. I will come back to this last point here. I will just elaborate on those.

So, the signaling strategy in itself was an independent assessment of the whole signaling. What we did is to adopt different strategies that were all build around two main strategies. One strategy is : “What if we change everything the normal way?” (i.e. : line by line or station by station) or “What if we change everything as a total replacement?”. Then, we did some modeling, actual modeling of some different strategies. It was a very Business Case life’s strategy ; it was very much focused on what the costs were and the risks. There are some technical discussions, but not a lot.

We had to tender out Booz Allen Hamilton – because it was a big job – through EU tender. We paid them around two million euros for it and we used some staff ourselves, and it took us five months to build the strategy. I promised the experts that I could get them the study. Everything is done in English, the whole project, so you can find the study on our webpage.

We have to remember that the outset was different than the outset here in Belgium. We did not have a safety problem, it was a replacement problem we had to deal with.

The results of the study were, in short terms, that no matter what, we were in front of a major investment ; that we would have to invest a lot for the next ten years. So there was no sort of way the Parliament could say “No, we don’t want to invest”. If they wanted the railway, they needed to invest.

It showed out that the cost of what was actually implemented was comparable. There was some savings on the modern system, but there were also savings on the more advanced one. What it also showed is that the risks of the total replacement were less, and it showed all the extra benefits we would get by going with the total replacement way.

In Denmark, you always look at the net present value. You calculate back to the year you are deciding how much cost it is. And the total replacement strategy is what we call “frontloaded”. It means you have to use a lot of money in a short time rather than using a lot of money on the long run. It is always cheaper to delay your investment, but nevertheless, this strategy was still the best option.

The political system then followed this very closely. We had a steering group with the Ministry of Transport and the Ministry of Finance and we had regular meetings with the transport speakers at the Parliament. Everyone was very determined to invest in the railway. They were very curious about the risks of ERTMS being mature enough, the risk of the project being very big. They were very interested in the timeplan but basically they wanted the investment earlier rather than later. They were very cautious about the impacts on other projects. There were some technology questions: “How mature is the technology ?”. It was very important for the Danish politicians not to buy a development project. They wanted to buy a mature project, a mature technology in the sense that it would not be mature as meaning “very old”, but that it should be new. I always say they wanted to buy an iPhone 4, I guess, not 3 at that point of time, or an iPhone 5, if it exists. And there was also a lot of interest in how Banedanmark, as a company, would manage a problem this size of complexity, because it is a very complex project.
Nevertheless, they took the decision of replacing everything. And funded it fully. But, at that point in time, in Denmark, it always takes some time to

find the money when you are doing big projects like this, and nobody finds such money in five months. So they sent us back and said : “What you do is, you now showed us the strategy, now go back and derive the precise plan for this strategy. Tell us what the cost break down is precisely. Give us different rollout timeplans. Tell us how you are going to organize it, how you are going to have the safety approved”, and so forth. So you could say the first phase of the project.

Then the final figure of cost came up and they then decided in January 2009 to take the decision for a full funding of replacing everything.

So what is it that we are doing? Basically, we have taken the whole network and here you have to learn a Danish word called "fyiden", it cannot be translated in the mainline, because it also includes some more rural lines but it everything that is not the network around Copenhagen.

It basically means that we changed all signalling on the whole railway in the whole country. We changed the interlockings, the train control, the point machines, the track detection, the traffic control centres, everything. We also did this on the S-train, which is the local network. Here we did not choose an ERTMS type assistant because the ERTMS system is not used for Danish networks. We chose a more metro type system called CBTC. Many of the principles and components are the same.

We chose to go for ERTMS-2, which as you probably know is the system where the signal is inside in the trains, you don’t have any daylight signals. We chose not to have a fallback system. After visiting Switzerland and other countries we were sure that the maturity of the system would be good enough. Then we did a very, very important thing, by renewing everything we renewed all of the operational rules.

One of the reasons to do that was that we wanted to get the competition from more than two companies and only two companies already knew the Danish rules. We needed to make completely new rules to make it transparent to everyone.

If you look at the investment compared to the benefit you get it will never be a business case because this is a replacement.

I normally say, it is probably the most unsexy project in Denmark as it is like changing the roof on your house because what do you get, it’s more interesting to buy a new kitchen.

But we get something, what we get is a big reduction in interlace (?), we get a higher capacity on the most interesting lines, we get a better basis for informing our passengers about how the traffic is.
In Denmark, the important thing is not only punctuality but perceived punctuality, how to perceive how punctual the trains are. Perceived punctuality is very often governed by the information you give the passengers.

Unfortunately the situation we have in Denmark is that when the train organization goes wrong and trains are delayed everybody focuses on getting them back on time and do not inform the passengers. What we want to do with this system is to make a lot more information automatic and this system will help us do this

What is the logic for a total renewal? This is a concept, it is very different from the Danish way of thinking or to the way we have been thinking previously, it is not a technical thinking but more of an economical thinking. What we wanted was competition. What we realised was that in Europe or in the world there is no real uniform standard. To get cheaper prices the only true standard where we could get cheaper prices was through economy of scale, making sure that we had enough competition from the market to get cheaper prices.

Everything we have done we have done to create competition between the signal suppliers. We have changed the operational rules. Everything in the project is international, we make it in English.

We have told the suppliers that we are very interested in having the same type of equipment, that we should benefit from the rollout, that they have to roll out the same thing. It is only one safety approval but they roll out the same system, station after station, line after line. The whole thinking is based on this.

Of course there will also be a reduction in maintenance costs and similar rules give safer rules. It is important to underline that our strategy does not say we should raise the safety level, the safety level in Denmark is good and we should just replace the same safety level. This also gives us some freedom.

So this is the time schedule. Here it is divided by the mainline system and the S-train system. What you can see is that we have procured; we are in the middle of that now. For the moment we have

received bids on most of our contracts and we are negotiating them.

There is a fairly long design period. The whole point with the design and the test period is that we do a lot of design and a lot of testing before we start rolling it out. The idea is that when we start rolling out we want to be sure that the system works to make the rollout as a manufacturer.

You can see we will finish in 2021 for the main line and for the S-train in 2020. In fact we hope that the S-bane can be done quicker.

So how are we going to roll it out?

For the main line we have invented something called the early deployment line. The early deployment line is this one up here in the west part of Denmark and this one down here in the east part of Denmark.

The reason we chose the early deployment line is early deployment is a normal line, it's typically a line with some traffic but not very close to the main sender of Copenhagen because if there is a failure on the early deployment line we wouldn't want it to affect the rest of the traffic.

The important thing is that the early deployment line, which you can call a sort of test line is within the package to the supplier.

We think that a lot of railways do the wrong thing by making a test line, then they make a test line and they let one supplier to make a test line and who learnt from the test line? That supplier? And then you want to roll it out and then you tender it out again and some other supplier comes in and you don't have the experience.

We want not only us to learn about the ERTMS but the supplier to learn about the ERTMS. It is the supplier who needs all of the skills to roll it out, not me necessarily. So the test line is part of the package. Contractually, it is done in a way that if the test line is done, and it gets the safety approval and it meets the requirements for punctuality then he can go on. If he doesn't then we can lift the contract.

The idea is that we do a lot of testing on the test line or the early deployment line and then we roll it out bit by bit towards Copenhagen. The idea is that we equip all trains, the strategy is that we equip trains, we equip trains with the new system and then we put a technical box underneath. So when the system runs on the new system, the new train runs on the new system, when the new train gets to the old system it runs through the box. It's called an STM. If you are going to do this you need to develop an STM.
We do it on the mainline to get the benefit and then afterwards we implement all of the more rural lines. The idea is that this will happen in the next 4 to 6 years. Hopefully, the supplier at this point will have a simpler version of the ERTMS 2 and we can save some money.

But what they are bidding on now is the full system.

The contract strategy: originally we had three contracts, we had one contract for the S-bane which was a special system and I will just leave that and then we had a contract for all of the on-board equipment.
And this is a very important point because in many countries the on-board equipment is not part of the financing for the ERTMS. Typically the decision taker says that the private operators should do this.

This is holding back a lot of the roll out of the ERTMS because the private operators do not have that money. We have that money in our budget, we actually have the money for the on-board equipment. So there will be a separate on-board contract for the on-board equipment.

Originally the idea was that we would have a contract for the whole country but when we looked at the industry we could see that no one entity or one company in the industry was big enough to handle the whole country. Instead we came up with another strategy where we said we had two contracts. So one contractor will have all signalling in this part of the country called Jutland, and that's everything, it's train detection, control sender, switch machines, everything, everything from bottom up. And the other contractor would have everything on these two islands.

The idea is, and our political sister liked this a lot, is that we have said that if one of the contractors fails to deliver (we asked all of the contractors to bid for both the East and West contract so the winner of the East contract will have the West contract as an option and the winner of the West contract will have the East contract as an option), i.e. if the East contract is performing well and the West contract is not performing well then we can cancel the West contract and ask the East contract to do the work.

We think this will help them to behave, of course

this is only in extreme cases. Unfortunately in Denmark, we had projects that were delayed for years. This is a way to try to prevent delays.

And there is of course the rolling stock contract.

On this drawing you can also see one of the challenges and the complexity of the project. If you look here you can see that there is one big contract to here and one big contract to here and one rolling stock and they all have to interface here. And I'm sitting in the middle of it. This will be a challenge. System-integration, I don't say this is easy but it wouldn't be easy anyway.

We chose ERTMS, you have to remember ERTMS is only the train control part of the signalling. Most of the investment, if you look at our budget, is in interlocking and point machines, which have nothing to do with the ERTMS. But we chose the ERTMS baseline 3. We know that this baseline is not finished, it is not mature. We told all of our politicians it is not mature. But we know the plan for it and we are sure it will be mature and we will be part of maturing it. It would be silly not to do it because baseline 3 is the only standard that includes things we need in Denmark anyway. So, we had to do it either by baseline 3 or we had to invent something that was Danish. We are going with baseline 3.

The biggest stations, here they are called the "Laagnodes", are handled by what is called GPRS, this is what you have on your phone, this is DSMA, this is data traffic on a DSMA phone. This is something that exists but it doesn't exist yet in an ERTMS-2 configuration. We are using this to handle the very big stations because we didn't want the signals on the stations because if you had signals on the stations it would be an extra cost and we would have to do two rule books, one for signals and one for the ERTMS. This is the way we handle the big nodes.

As I said we have the funding for the on-board equipment and to renew all operational rules.

One of the things when you have suppliers like this is the right to use what you buy. We had a big discussion about this with the suppliers. They are holding on to the system they are delivering in order to be sure that they have that right and so that they can offer me components at twice the price later on.

We are trying to get away with this by having a fixed price list in our bid and also the right to use some of the interfaces. This is a very difficult area.

This is the S-bane. I won't go into it in detail. It is basically the same strategy. It is a fairly big network. It is half the size of the Paris network in length. It is half the number of stations. We are going to completely renew that as one contract. It is only for one type of trains, i.e. the CBG trains. It is more metro like and I won't go into that.

These are our financial figures: here you have the total investment in Euros, in million Euros.

A new thing is that there is a Central Government reserve in Denmark, in fact this reserve is divided in two: a 10 % reserve which I have the control of and a 20 % reserve which the Minister of Transport or Finance has control of, I think they are debating who has the control.

This is in the total cost.

Just to give you an indication of the contract size: normally in Denmark when we go out and buy something on the signalling we buy one station or 5 stations or 25 point machines and of course we expect completely different prices when we are buying this amount. We clearly told the suppliers that we want to see the effect of economy of scale. This is what this slide is about.

And that concludes my presentation.

De **voorzitter**: Thank you, do you want to ask the first question?

Steven Vandeput (N-VA): Mr. Sondergaard, I thank you for your presentation. I must say I am quite overwhelmed with the speed and the action oriented type of the plans you are presenting here.

Just to make a little comparison with what we are doing here in Belgium I have a few small questions.

First of all, when you say 'we had a unique Danish system of security' that's something we say in Belgium too, I mean everything in Belgium is a little bit special. That was one of the things, for you it was more like an incentive to go for total renewal.

How did the Trade Unions react to total renewal? Because this might have been a problem. Or how did the 2 200 persons you are employing react to the big project of change you were implementing throughout the whole company at that time?

Morten Sondergaard: In fact they were all for it.

And the reason is, if you look at Denmark here, as I said nearly all of the lines have interlockings and the major lines have a fairly advanced train protection system. But there also lines that do not have this but they have very infrequent traffic. Part of having a lower risk there is also that you have slower speed and lower traffic. (…) (?) All railways have them.

And of course the trade unions were very interested in having the same high level on these lines as on the main lines. There had never been a business case for that but they could see that coming here. Sure they had to get through new operational rules but they will all be educated and they will be paid while being educated. Now they say they need to be educated for 13 or 14 weeks and I say they can be educated in two weeks. Yes we will have a discussion. The point is they were basically all for it.

When you go back to the organization of Banedanmark yes there was a lot of scepticism. All signalmen in the world, not only in Belgium, not only in Denmark, were a little bit worried about this, what about this issue and what about this issue? We had a lot of talks with them. The thing is a lot of the points they were talking about, a lot of the problems they had were the exact same for the small projects and for the big projects. The issues are the same.

They would come up and say how can you be sure about this and this and we would say that's true but if you buy for five stations don't you have the same problem here? To which they answered, yes that's true. So basically, they accepted it.

One of the big risks was that the signallers, the people who control the trains everyday are people who are very good at operations. They were very worried about their jobs. Today we have 16 control centres and we are going to reduce that to 2. So somebody sitting up in the control centre knew that the control centre would be down here later on and therefore questioned their job?

This is a problem for us because if they leave their job too early then I don't have anyone. I have to run the trains everyday.

Part of my programme, first of all my programme inside Banedanmark is organised as a separate programme. Everybody working with a signalling programme works for me and only for me. So I don't give the signalling department this bit or the operation department this bit because then they don't do it. They run to solve some problem on the railway and it's not done.

We are organised as a private company within the company, but we have the same CEO.

I have a whole project that solely deals with how all the stakeholders are managed. We are doing a lot of work to manage the stakeholders, how do we inform them, how the strategies are prepared and so forth.

We informed the signallers who were very worried about their jobs about what changes would take place. Last Summer, we told everyone that there would be one control centre here and the other would be in Copenhagen. Normally this was a big risk as there could have been uproar. We carefully showed them where people were living, how many people would be moving, how old the people are sitting up there. They could see that they were so old that by the time the system came into place they would be ready to go on pension.

We actually made some extra spaces up here for controlling. These are immediate control points where the people can work until their pension and then we will close them.

So that went very well. Everybody is happy. We have turned it around so everybody is looking forward to getting it now. It is all about involvement. You shouldn't leave that to the technology guys.

They only look at the project. You should leave that to guys who only manage this. So we managed this, this is a project in itself. And probably the most risky project we have.

Sorry it was a long answer.

Steven Vandeput (N-VA): On the technical point of view and in the last part of your presentation you talked about the big nodes (?), the big stations where you would use the GPR-S system.

Does that mean that you will use the commercial GSM lines or are you developing rolling out your own GPR-S system in the range of the big stations?

Morten Sondergaard: The thing is that Denmark is lacking when it comes to DSMA. Belgium, I think, has a DSMA system in the whole of Belgium so has Norway and other countries.

We are just now rolling out our (?) system. When we contracted that we put an option for a data

system on top of this. If you look at it technology wise, it is the same technology. This is why your phone can use it, it is the same boxes and signals. So you could do that on your system as well.

The point here is that ERTMS as the standard it is now, ERTMS-2, is not configured so that it can package switch,

sending the message in data packages. This has to be developed. It is not rocket science but it has to be developed and it has to be agreed upon by the EU railways.

And the difficult thing is actually the last part, it is not the technical part that is difficult, it is getting all of the railways to agree that is difficult. This is what I cannot control.

So the strategy was, if I get a train that is interoperable, it comes from Germany, Belgium, Sweden it can go on the normal GSM system because the system can do both things then for the trains I have that only run in Denmark I can make my own solution. That is not in conflict with the interoperable directive. It is a development but it is a development I can make.

What we then said was we will try to develop this and we will try to do it with our colleagues in Europe and if they accept it as a European solution fine but if they cannot accept it and it delays us then it will be a Danish solution. But it is not in conflict with interoperable directives. In that sense this is how we are going to handle it. This will save us a lot of money and a lot of signals in the station.

One of the benefits we have derived from this is by rewriting our total operational rules set we have set out on a mission where we are trying to get away with shunting.

I don't know if you understand what shunting is. I mean moving freight wagons and trains around on a manual basis in the stations. And normally you have special small signals like this one here, dwarf signals to do that which leads to more cost.

We are trying to get away from this so that all train movement is within the system which reduces the rule set and the risk and greatly enhances the safety. So our rule set has gone from this big to this big.
Did that answer your question?

Linda Musin (PS): Monsieur le président, monsieur Sondergaard, je vous remercie pour votre exposé qui montre à la fois combien, en comparaison avec le Danemark,…

(M. Sondergaard met ses écouteurs)

Morten Sondergaard: Just a second! I am sorry about my French!

Linda Musin (PS): Je vous remercie pour votre exposé très clair qui permet de voir combien le Danemark et la Belgique peuvent avoir des points communs, notamment en termes de problèmes de ponctualité. Nous sommes aussi réunis ici en commission pour des problèmes de sécurité sur le rail. Or, si je vous ai bien entendu, il semblerait qu'il n'y ait pas de problèmes de sécurité au Danemark. Cela signifie-t-il que vous avez le bonheur de ne pas avoir d'accident ou plutôt que vous disposez d'un système qui vous met à l'abri de tout accident? Ce système est-il proche de l'ERTMS ou de l'ETCS, système qui, à long terme, devra être placé en Belgique?

En outre, au travers des chiffres que vous avez communiqués, on se rend compte que le réseau belge est plus dense. C'est un système en étoile qui compte beaucoup plus de trains et de voyageurs. N'y a-t-il pas, à ce niveau-là aussi, un aspect plus simple ou plus évident du réseau danois? Pourriez-vous nous donner votre sentiment à cet égard?

Morten Sondergaard: It's true that we didn't have a safety issue. You have to remember that there is nothing in the world that is completely safe. We have been lucky. We haven't had any serious safety accidents in the last three years. We have had people who have been killed during crossovers because they ducked under the barriers or fell onto stations but we haven't had any serious train accidents in the last three years.
There's no such thing as a completely safe system. But we generally have a fairly high safety level. So safety was not an issue in the replacement strategy. The issue was punctuality and that the system was very old and we needed to invest.
The system we had, there was a question about technology, the system we had is based on technology from the 70's. Its functionality is very, very close to an ETCS-1 system. It is point based and so forth. There are some Danish enhancements to it which makes it special of course and more costly. From a safety perspective it worked perfectly.
When it comes to comparing the Belgian network to the Danish network I must say that I am not very familiar with the Belgian network. I had a little

talk with your experts and some of my own experts and it's my belief that you have denser traffic and also some capacity challenges.

You have to remember that if you implement a traditional signal ETCS system it reduces your capacity. It also reduced our capacity. We had to invest greatly in infrastructure to get the capacity up on our special lines.

If you invest in ERTMS-2 as a train protection system more capacity is released.

I don't have knowledge to guide you in what way to go in that respect.

Five years ago when we were discussing the railway authorities there was a big discussion about ERTMS-1 and ERTMS-2 mostly because people were worried about whether ERTMS-2 was mature enough. If you go around to the railway organizations today everybody is saying of course you want to go with ERTMS-2.

You have to remember that the technology where you send the signal of whether you are supposed to drive or not drive and the protection into the cab of the train driver is not a new thing.

You can find it on the Paris Metro from the 60's. It just developed in the metro community more than in the mainland community. So this is not a new thing.

Looking ahead, I would certainly look at the ERTMS-2 for a punctuality strategy and a capacity strategy.

When it comes to a safety point of view and you have an immediate safety concern then I would look at rolling out whatever you have got in order to get it fixed.

Because, it takes a long time to procure this, to get it in, to get the right steps and so forth.

Steven Vandeput (N-VA): Mr. Sondergaard, I don't know if I understand correctly. Your company is in charge of everything that is railway and interlockings and so on. You have one or two or more operators in Denmark, how many do you have, one or more operators?

Morten Sondergaard: Basically what we have is, we have one very big operator who used to be the national operator and they are still state owned but operating under private conditions. The Danish politicians are eager to tender out lines and so forth. There are also talks about totally privatising Danish state railways. But they have 85-95% of all traffic.

Steven Vandeput (N-VA): When you look into the development of these plans and the project as a whole how closely did you work together with the railway operators and will they be able to follow it up with the tight schedule that you are setting forward here? I have seen that you have the funding for them but also in the rollout part of the project on the one side and on the other side at a certain point when you are rolling out you will have the old system and the new system.

How will you cope with that together with the railway operator?

Morten Sondergaard: If you look at this slide you can see that there was a steering group. The main operator, the DSB, was part of this steering group. They didn't do a lot of work but they were informed at all times. They were brought in on all issues.

They were especially interested in this layout because they were very interested in how much delay we would have up here and what this would mean for traffic and stuff like that.

Now we sort of organised the project. Now they organise themselves internally at their (?) because they have so many issues. They are going to take up part of the contracts. So, they are working closely with us. The way we have organised the project for the moment is that it is organised within our headquarters. I have 45 people employed and 50-60 international consultants sitting in here, the same group and also the DSB sitting with us.

The idea is that everybody works better jointly in a team. And then on top of that we have an installation, where I have a steering committee and that can be escalated and so forth if there are problems we cannot solve. There are some discussions but it works out.

In the early phase, they were part of rectifying that we went that way and now they are working closely together with us.

The other train operators are brought on board but a lot of them are fairly small and accept that DSB talk their case. For example when we had to make new operational rules many of the small operators don't have the manning or the power to do that.

We agreed with the DSB that they would do the rules, the part of the rules that they had to do, at our expense but they could be transported to the

others. That's all about being in business.

You have to remember that in the end we have the same master, the Minister of Transport so we have to work together. We had to be a success together. This is our setup.

Steven Vandeput (N-VA): Sorry, just to have an idea when you talk about the railway operator, the big one, how many people are you talking about here?

Morten Sondergaard: I think the railway operator has nearly 20 000 employees, 18 000 or something like that.

Ine Somers (Open Vld): Thank you for the presentation. In one of your slides you mentioned that this project is more business driven than technology driven. In Belgium when we have such a project it is almost always technology driven. I will ask you what for you are the advantages and disadvantages to look at a project like this, more from a business point of view rather than a technology point of view?

Is there a big difference in the results of such an analysis when you are doing it based on business decision rather than a technology based decision?

Morten Sondergaard: In Denmark traditionally in the railway it was always a bottom-up technology discussion. The problem is that very often when you have all these experts discussing everything becomes a problem. Everybody loves their own solutions and it is very hard for the decision takers to find out what is true and what is not true.

The point here is that by making it a business case it is also much more comparable to what you want to invest in the rest of the country. This is what you do as politicians: you compare private planes with kindergartens. This makes it more comparable where you want to invest.

I worked on the Copenhagen metro for 10 years, from start to end and we had a lot of discussions, a lot of problems. We had delays, cost overruns but it was never, ever a technical problem. You could always in some way solve a technical problem. It was always a contractual problem. It was always a time plan problem and so forth.

Of course we brought our technology guys in on this. We didn't decide on anything that was impossible. We had a lot of technology guys in the projects who told us where to go.

The idea here was to get away from the monopolistic situation, to get better prices, to get more value for money. To that we introduced these terms. Trust me, it is even hard for the industries to understand because no supplier is different from the railway. All the railways are the same and so are the suppliers. I mean they started to work with the railways and then they moved to the suppliers so they are the same. So when I went to the suppliers saying I want to change everything they said we never heard about this before. They started mentioning a lot of problems and I said you won't have them anymore. So it also took them some time to understand that this is a new way of thinking.

So, I think it has done a lot for our focus on getting value for money. Of course we will not go away from safety.

I mean this is not value for safety. Safety is not a specification. Safety is a precondition. You do not do anything unless it has the right safety level. But safety is also something you can discuss. When I talk to my national safety authority, which is a government body who has to improve the safety they say and they agree with me that more safety is not always much better. We have a high safety level. What we should also look at as civil servants is would it not be better to spend money on the roads or on the cyclists than using more money on railway safety to make it higher?

But that's because we have a high level of safety. So the outcome was, same safety level as there is today.

Did that answer your question?

Ine Somers (Open Vld): I have another question. For the project you have an implementation of 4 years. I think after testing and the rollout is 4 years. What are the most important risks? I think the implementation time of 4 years is very short. Is there a risk that your implementation time will be much longer or have you covered everything in the test phase to ensure that your rollout is automatically in 4 years?

Morten Sondergaard: There was one point where a little bit of policy entered the project and this was for the time plan. When the Danish government decided the rollout here they made a plan for 10 years, ranging from 9 to 20.

The problem is that the amount of money they have for all transport investment was a fixed amount and this project took out a lot of that

investment. So they had an interest in moving some of their investment into the next period. We made a time plan to increase it a little bit. When we are talking to the suppliers we are asking them for a time plan and are saying can you do this faster and I personally think they can.

I think this period here will look more like this period here, 2 years design and two years test. We were asked to mark it, to mark how it is.

They are the ones who are going to do it. We were asked to come up with the optimal use of these years here and that might move this one up to 5 or 6 years. Then it is still an accurate (?) rollout but it is a little better.

The first plan we made actually had 2 years, 2 years, 2 years, 6 years. Let's just say that everybody agreed about doing it but we will ask the market about the precise rollout plan. So this is the short story.

De **voorzitter**: How do you measure an effective rollout and how do you report to parliament, to the Minister of Transport? Do you have a plan? Is there an individual, an independent organization or something like that?

Morten Sondergaard: No. As a public company there is of course a continuous monitoring of what we do.

In this period, before we actually signed the big contracts there were several consultations with the Minister of Transport. If there were issues that we changed which were different from the original decision basis made by the politicians we bring them in and they take a specific decision on that as well.

De **voorzitter**: But the monitoring and reporting is to the Minister of Transport. Is there any influence of the parliament or something like that?

Morten Sondergaard: In some respects, yes. The sitting government have regular meetings. They can either choose to hear what the status is or we suggest that we add it to the agenda. Typically every half year there is a short meeting. I go over there and do a ten minute presentation where are we, this has changed, this is going according to this and this. And they have questions. They keep away from the details, unless we go outside the concept. This is the way it is done. Banedanmark has regular meetings and daily business with the Minister of Transport and I meet with him for half an hour every fortnight and tell him what the status is.
De **voorzitter**: So it is well measured?

Morten Sondergaard : The measurement is more like if we meet our time schedules and of course we also have to prepare a financial budget. That goes through the official channels.

If something doesn't go exactly by the book or exactly how we planned what is the reason for this? There might be good reasons why you are a little bit delayed or why we use (?). It is a project, it very often goes a little different than planned. The idea is, is it a dangerous change, is it a normal change, is it unforeseeable, is it a risk we didn't see?

We are fairly open in our communication at all times.

Ine Somers (Open Vld): One question. When implementing ERTMS-2 baseline 3.00 you said in a slide that you do not have a fallback scenario. What problems can arise if the system fails and there is incorrect data transmission or something like that?

I think when you implement such a system you always need to have a fallback system. Are you 100% sure that it works because I think that is very important?

Morten Sondergaard: The thing is the specification we have doesn't run on solutions, it runs on specification of performance. What will happen here is different from the old systems. The old system you had on the railway was very mechanical. They maybe had failures so therefore you built layers of fallback systems.

In the modern world, the ability for the system to run continuously without having failures is much better. We explained this to our politicians very clearly. They could see that the system runs much clearer but that when we do have a serious failure we will fall much deeper, not in safety terms but in punctuality terms.

So the first time we have a serious failure the train will be very delayed. But what will happen is that it will happen much more seldom.

This is how all systems are, this is how the modern world is. How often is the Internet down? Not very often. How often are these systems down? The way these systems work because it is hardware and software is that when you test them, when you run them in and you've been through the

first (?), they'll run like that.

The second point of view is if I had to invest in a fallback system then I would have to maintain a fallback system and that system would have to be at the same safety level as the main system and it would be sitting out there and never be used.

In Switzerland they built a line from Masted (?) and for some political reason they signalled it with line signals first and then the ERTMS-2 later on. Then they used the line signals for fallback. This was in the early years of ERTMS-2 so there might be some sense in that. Today they are removing the signals because most of the failures come from the line signals that go back into the safety system so the fallback system delays the trains. This was the argument we had. I hope we are right. All of the experience with ERTMS-2 shows that this is the way it will be. Some railways have a well functioning line signalling system with a lot of years experience and they might keep that. We don't have that. The whole point of doing our total replacement was to remove all of the other stuff because we cannot buy the spare parts, we don't have the guides, it is too old and it is too costly.

That's why we went with this strategy.

De **voorzitter**: I want to thank you for your time and your interesting case and let us hope that our commission can also have the same results here in Belgium in a few years. Thank you very much.

Morten Sondergaard: You are welcome. Thank you.

De **voorzitter**: Er volgt nog een korte vergadering achter gesloten deuren. Ik weet niet of er bijkomende vragen zijn. Als iedereen zegt: "Voor mij hoeft het niet," moet ik die vergadering niet organiseren.

Steven Vandeput (N-VA): Mijnheer de voorzitter, ik begrijp dat de rapporteurs een eerste stuk van het rapport ontvangen hebben voor nazicht en ik zou u willen vragen wanneer dat ook voor ons beschikbaar zal zijn.

De **voorzitter**: Zodra het van de vertaling komt. Het is vandaag vertrokken naar de vertaling. Dat zal dus morgen of overmorgen zijn.

De vergadering wordt gesloten om 15.32 uur.
La séance est levée à 15.32 heures.