Cost of Rail

Presentation by Jacob Heinsen, Permanent Secretary for Transport, Denmark

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We all love railways.

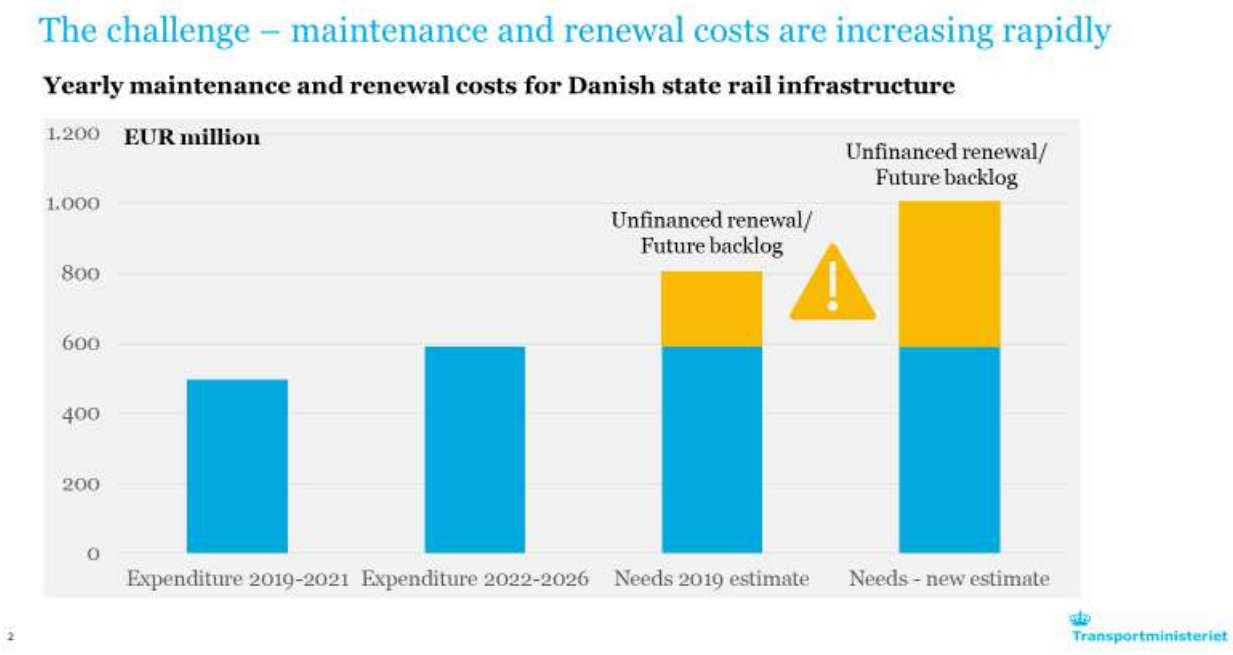
We love the idea of being able to take the train and arrive at your destination on time after a comfortable, stress-free and environmentally friendly journey.

We all love railways. But as people who work professionally with railways, we sometimes find that the love is not reciprocated.

Because railways are cumbersome, troublesome - and expensive.

Railways cost a lot, even to the extent of being unaffordable. And the costs constitute a barrier to the spread and success of railway transport.

In this presentation I will talk about the problem of railway costs from a Danish perspective. I will not claim that the problems we have encountered apply similarly to all other European countries. It is a Danish perspective. But I believe that some issues are general, and I hope to be able to provide inspiration and input to the discussions.



The starting point for us was a challenge of ballooning costs for railway maintenance and renewal.

In 2019 we made an estimate of the expenditure needs for maintenance and renewal of the state railway infrastructure. It was significantly higher than the historical expenditure level. The expenditure on the state budget was increased in the following years, but not as much as required. So, we are building up a backlog.

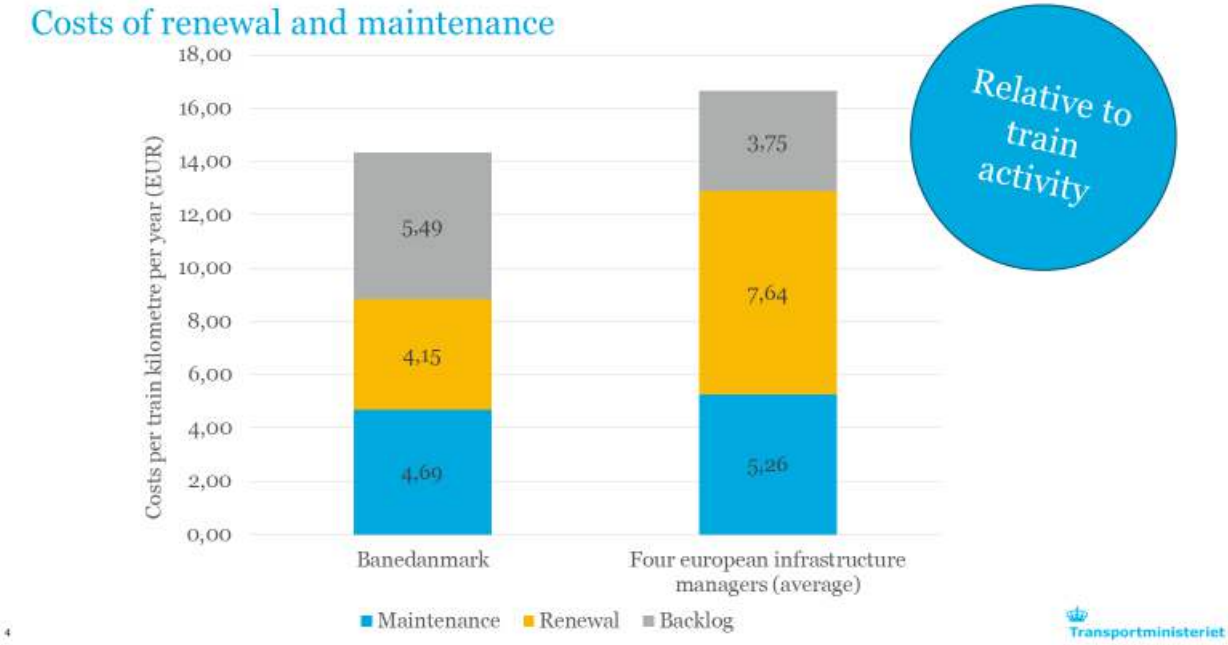
And now in 2024 we have made a new cost estimate, which is once again significantly higher. Our need for money to maintain and renew the railway is now twice the historical level. 100 percent more. In real prices. That is quite a lot!

Now, one can ask: Is this just a Danish problem? Is it just because the Danish infrastructure manager – Banedanmark – is inefficient?

To find out, we have made an in-depth comparative study of infrastructure costs for Banedanmark and four comparable European infrastructure managers. And the answer is clearly “no”. The level is more or less the same in the other four countries. And more or less the same result whether the comparison is relative to:

- network size

- train activity or



- passenger volume.

Due to confidentiality clauses, I cannot disclose which infrastructure managers were part of the study, and I cannot show you the individual figures for each of the four infrastructure managers. However, I can reveal that there are significant differences.

We are happy to share the Danish figures. We believe that openness and transparency are the way forward.

So, one might ask: Why is rail transport becoming more and more expensive?

I think there are some causes, that would apply also to other modes of transport:

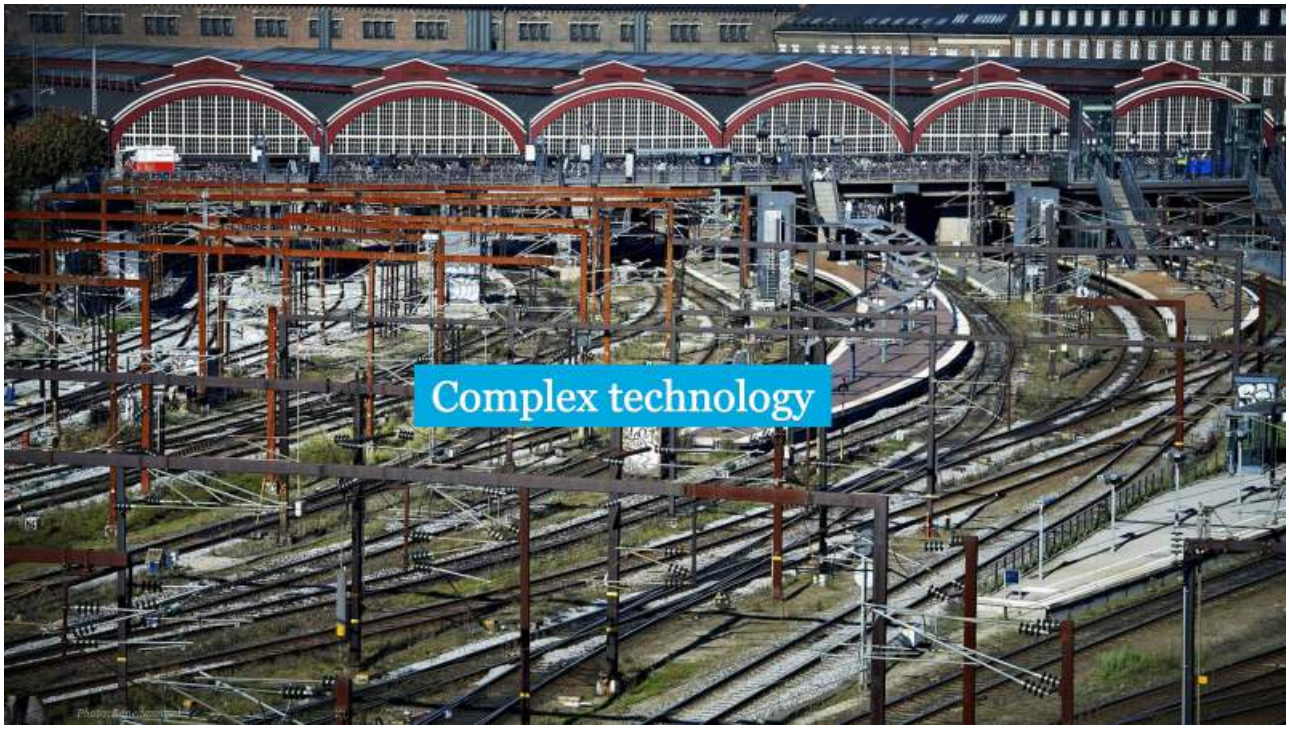
- The first is that we have experienced a general price increase after Covid …

- … and the Russian invasion of Ukraine.

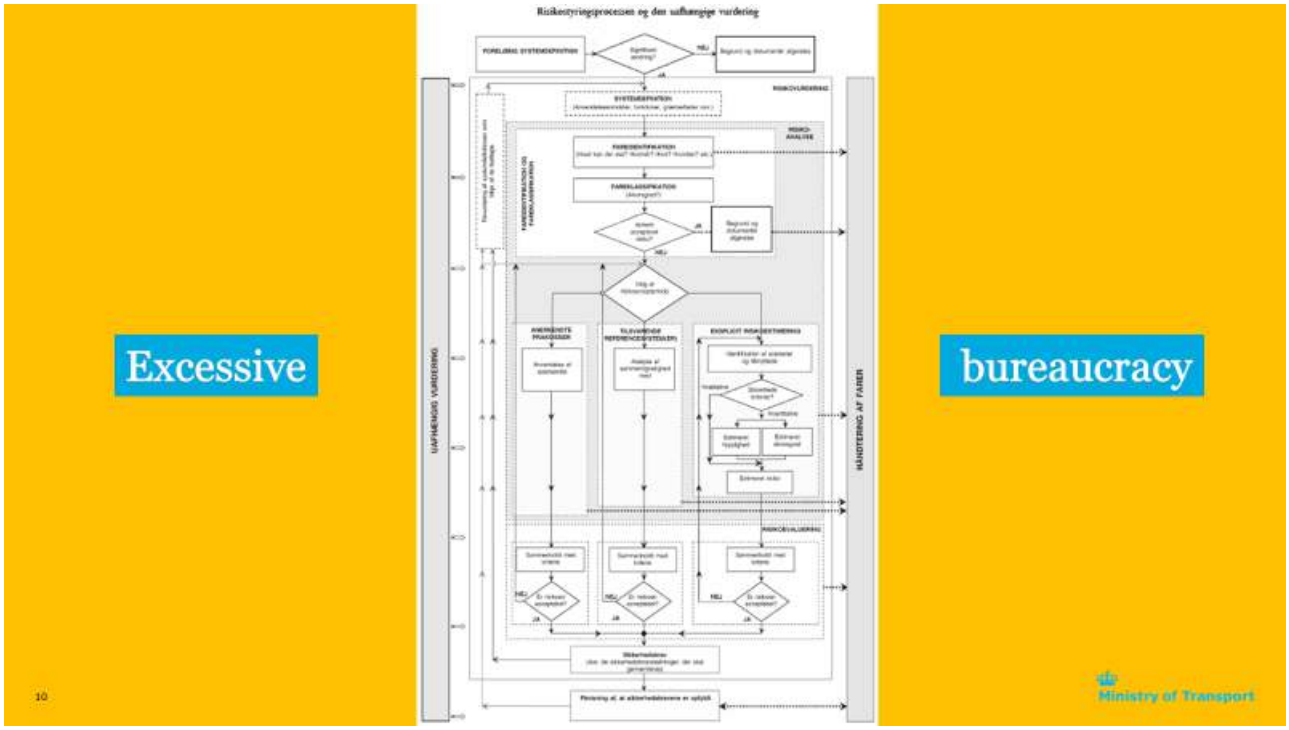
- The second is the lifespan of the assets. Most railways are more than a hundred years old. As a consequence, many assets are approaching end of life. This beautiful bridge was built in the 1930s. Now, we are building its replacement.

But there are also some causes, that are specific to railways:

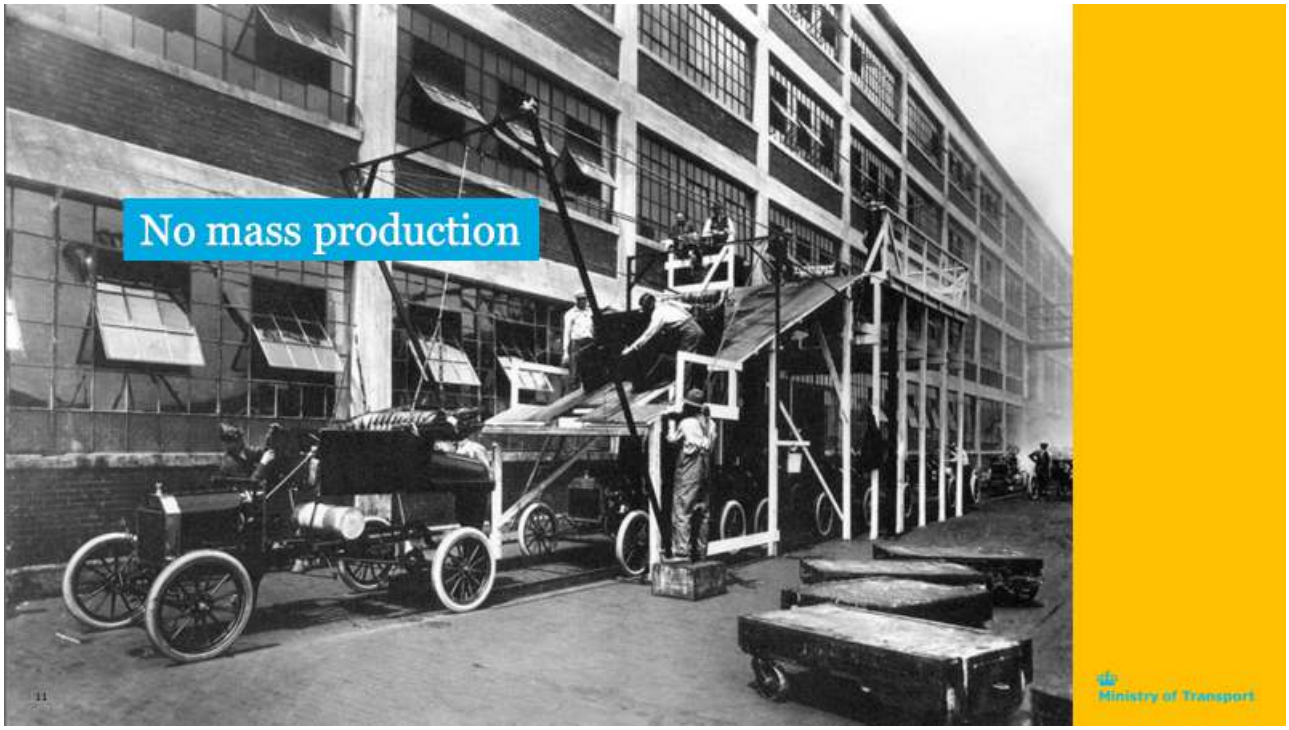
- It is a relatively complex technology. Perhaps not as complex as air transport, but certainly much more complex than roads.



- The focus on safety, interoperability and documentation tends to increase bureaucracy and administrative costs. It has become a free-for-all buffet for assessors, NoBo's and whatever they are called.



- There is no real mass production. Rolling stock is basically built in the same way cars were built before Henry Ford invented the assembly line. Whether we are talking about rolling stock or signalling systems, what you are buying is a project and not a product.

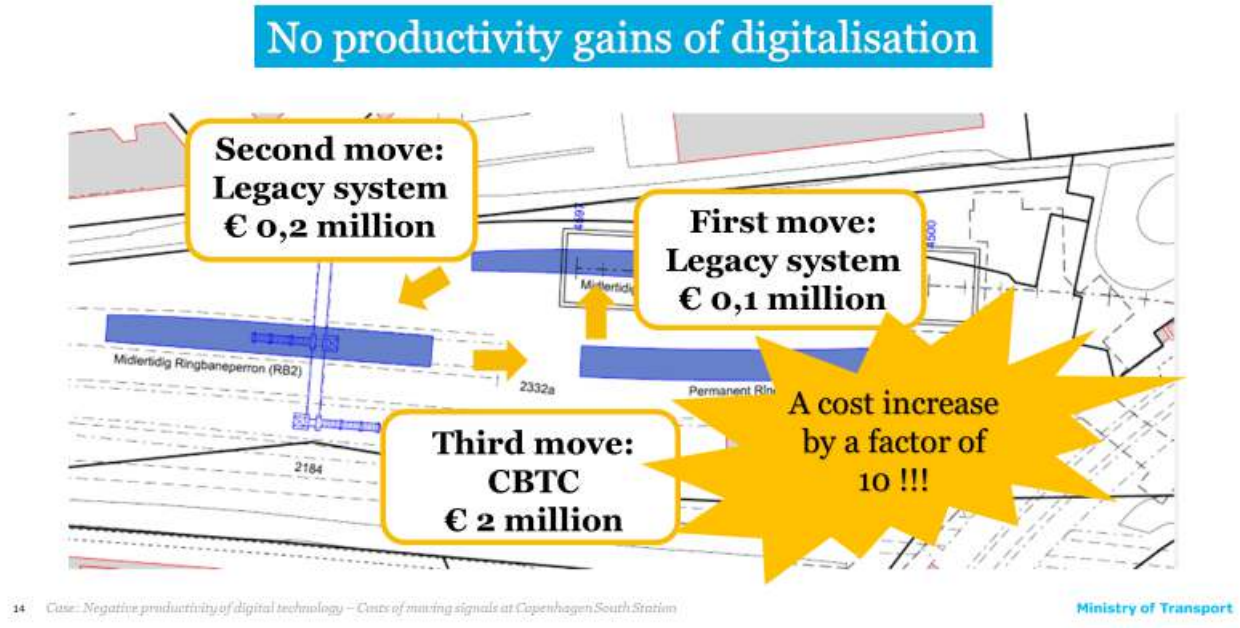


- There is no Airbus A320 in the railway industry. A single platform built in large numbers over a number of years with continuous improvements.

- Even within technically harmonized areas such as signals, the solutions are in practice supplier-specific with a risk of lock-in.

And finally – and perhaps a little provocatively – there are often no productivity gains of digitalization.

Let me give you an example. When building the new station Copenhagen South, we had to move the platforms for a suburban train line three times.



The first time we moved the platform, the cost for changing the signalling system was 100.000 EUR. This was a traditional signalling system with relays. The second time the cost was 200.000 EUR – twice as much. But before the third move – back to the original and also permanent location for the platform – we had changed the signalling system of this line to a state-of-the-art CBTC system. And now the costs were 2 million EUR. 10 times as much!!!

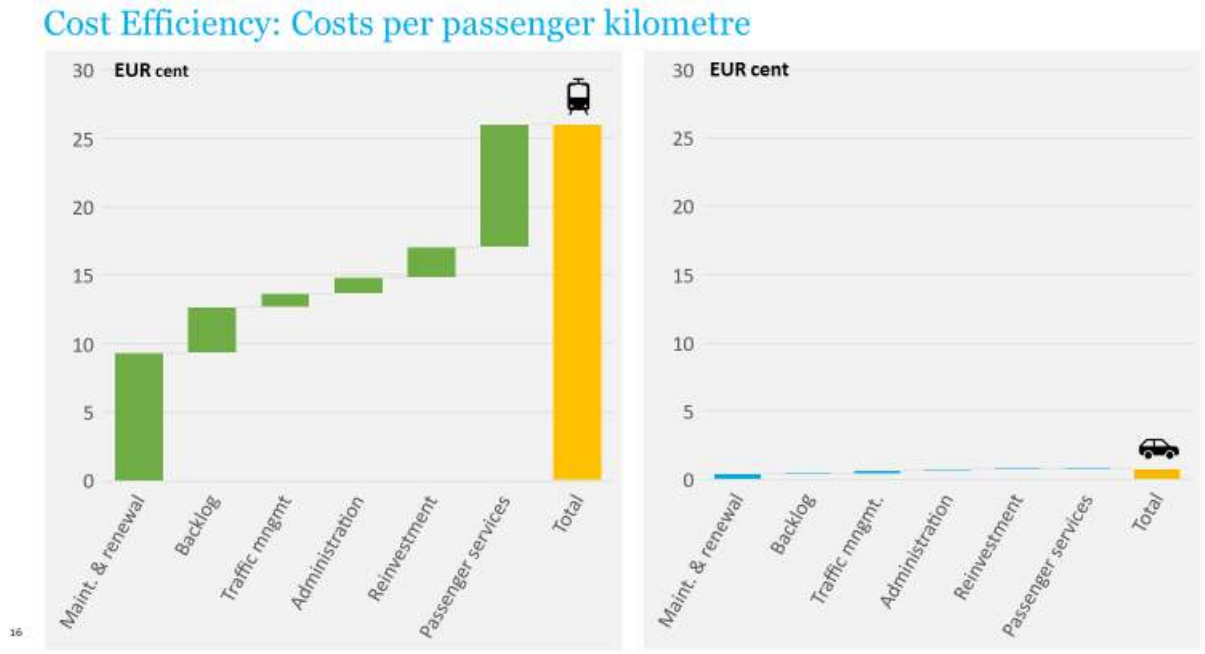
It's the same with ERTMS. It's more expensive to move data in a computer programme, than moving physical cables in the real world. The costs of making small changes in the new digital systems – the kind of changes that we need all the time – are many times higher than what we have been used to.

To put the costs of railways into perspective, we have made a comparison with roads. Again, I must emphasize that this is a Danish perspective. The situation may be different in other countries.

This slide shows the Danish state's costs for the railway – including both infrastructure costs and subsidies to the operators - compared to costs for the national roads.

As you can see, we spend about four times as much on railways as on roads. Or five times if we include the backlog.

If we compare the cost with the transportation – measured in passenger kilometres – carried out on the rail and road networks, the difference becomes even greater. In Denmark, a rail trip is more than 30 times as expensive for the state budget as one on roads.



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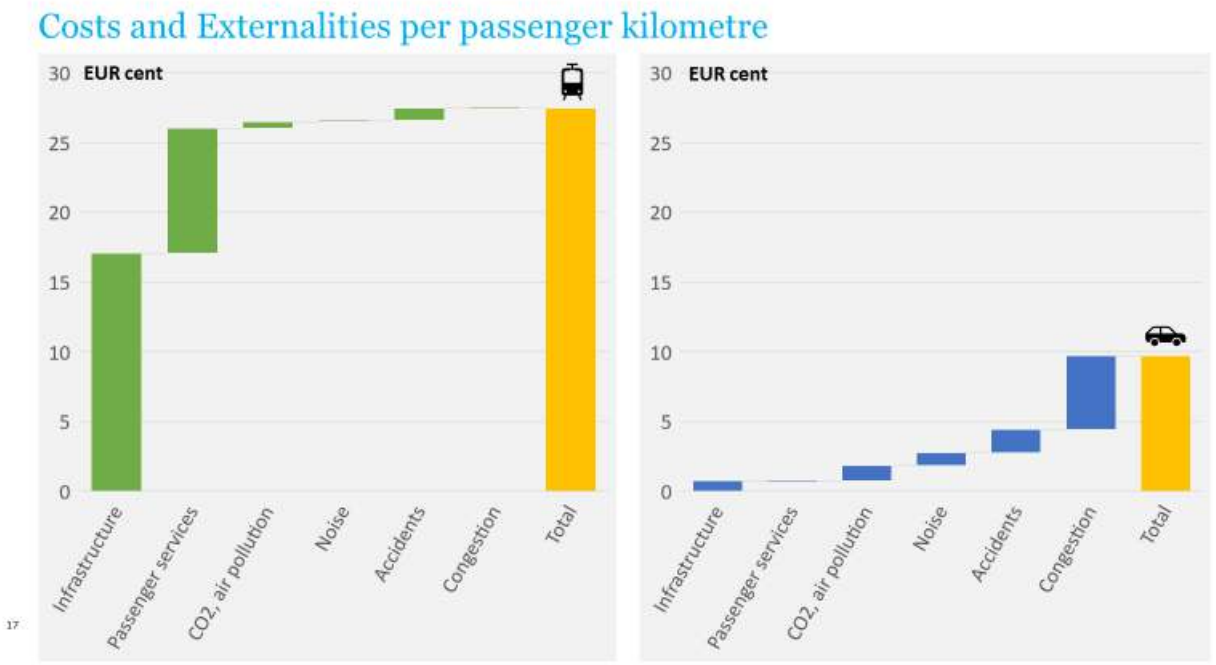
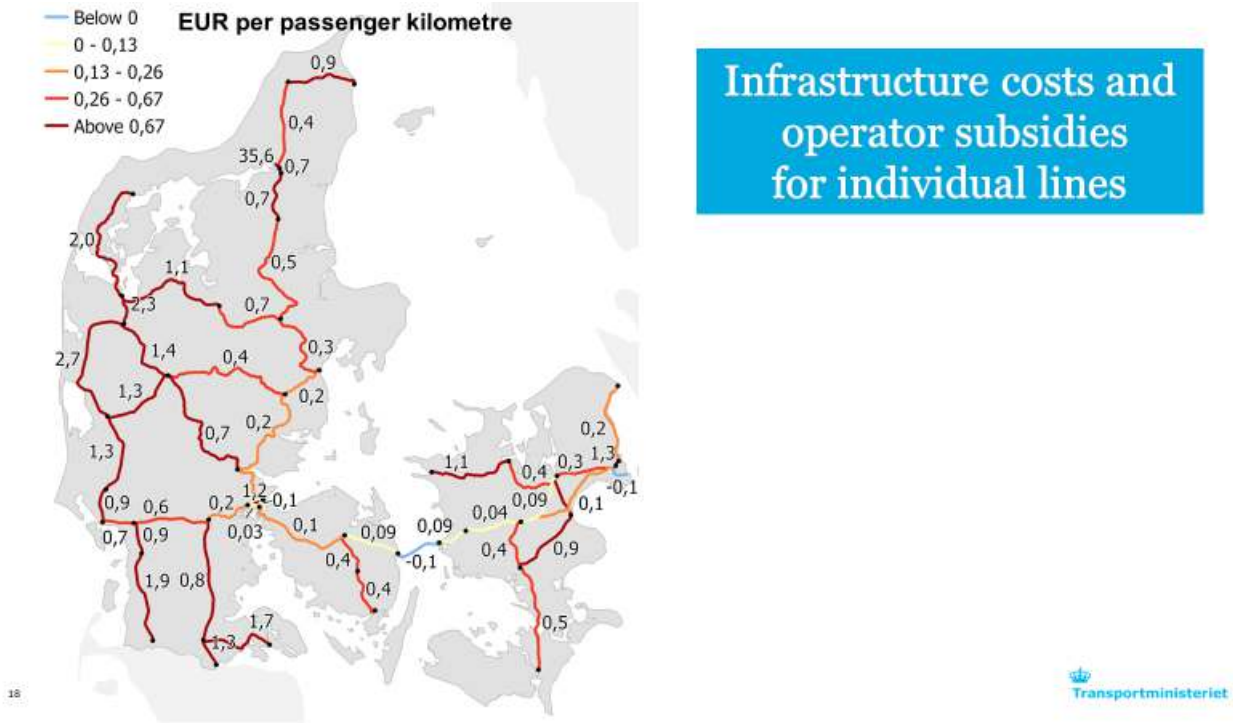
But what about externalities? CO2, air pollution, noise, accidents and congestion. Here, the railway is undoubtedly doing better than the roads. But does it close the gap?



Unfortunately for the railways, the answer is no. Externalities reduce the gap a bit. But – at least in Denmark – they do not come close to closing the gap.

In other words: The high costs of railways cannot be justified by reference to lower externalities.

These are national averages. It is important to note that if we look at individual lines, a much more differentiated picture emerges.



We have made separate calculations of the state's subsidies for individual lines. And it shows that some lines are doing much better than others.

And if we look at larger urban areas, the congestion externality is so large that it can actually almost eliminate the difference between the socio-economic costs of rail and road transport.

My conclusion is that we need to talk more about costs when we talk about railways. As it is today, railways are not competitive and we cannot afford them.

We need to talk more about costs and how to bring them down. Not as an expression of a dislike for railways, but on the contrary: because we love them.

Thank you for your attention.