



The Next Stop - Guest Episod

Shownotes

- **[Introduction]:**
- An important part of our project is connecting you, our listeners to the world's foremost leaders in electric mobility. Today's very special episode is split into three parts, with three very special guests talking to us about their ground breaking work. You can find the links to the other episode on our website at www.bsr-electric.eu and also in the show notes of this episode.
- For our third part, we again prepared something special again: This time, we'll have two interview partners, Yannick Bousse and Arno Kerkhof from UITP in Brussels.
- This is Arjun Jamil and you're listening of "The Next Stop", the BSR electric Podcast.
- **[Interview]**

Arjun: Hi Arno and Yannick, thank you very much for joining us on the Next Stop. Would you mind introducing yourselves to our audience and telling us who you are?

Arno: Yes, of course. My pleasure. Good afternoon. My name is Arno Kerkhof. I am currently the head of the bus unit in UITP, but you cannot see me. I'm 48 years old. I'm from the Netherland, originally. I'm working in Brussels. I have been active for about 20 years in the domain of public transport.

First, at the side of the operations, operating in France, and for the past 12 or 13 years in UITP. UITP, it's the international association of public transport where we are advocating the benefits of using public transport in cities for the benefit of the cities and we have in UITP a knowledge and innovation department.

30 people working there mainly on the content for the production side for public transportation for UITP, and in this department, I'm head of the bus unit. So, the bus unit is one of the five global knowledge units that we have in UITP. In the business unit, we work with a team of five people nonstop on bus-knowledge.

We do that both in two ways. We do it with the knowledge exchange from UITP's membership-based organization. So we do internal notice production with our members through a committees, like the bus committee, the trolley bus committee. And we have also on the other side funded knowledge production, we call that. **And it RD** third party funded projects, which we are running with the **risk** partners. And yeah, with some of them UITP is coordinated.

Arjun: Very interesting. Thank you very much. Yannick, would you mind going ahead?

Yannick: Sure. So my name is Yannick Bousse. I'm a senior manager, also at UITP within the urban governance units, and I have a background of urban sustainability and I've worked for a number of

networks related to urban mobility and sustainable cities. Within UITP and managing a number of projects working with public transport and with city authorities, that are related to the planning and governance of urban mobility.

Arjun: Very interesting. Right. Arno, would you say that your work is a very technical or more on the policy side or a mix of both?

Arno: I would say, especially with what Yannick just mentioned, where his unit is working on the planning and governance aspects of urban mobility, it's probably more technical, in the sense that we work with the bus operators mainly in in the committees and although they are, of course, impacted or motivated by policy frameworks and by policy related objectives, there's quite a lot of knowledge exchange, mostly on the technical side. On the engine technology, on the pollutant technology or on the sometimes more technical aspects around procurement **drop and their books**. So for sure, you could describe it as a little more operational and technical,

Arjun: Right. Well I'm very excited for this conversation now because I guess we have the technical side and the policy side covered from both of you.

So moving on, what do you guys think about electric buses for cities? What are their benefits? What are their negatives? What is your experience with them?

Yannick: I think from a city perspective, one of the first major benefits that you see from them is specifically increasing the quality of life for cities and for citizens. That's more particularly related to the air quality and also with the health of the cities. So what we can see today in Europe, is that greenhouse gas emissions linked to transport account for about 25% of the total greenhouse gas emissions, of which 8% roughly from that is directly related to urban buses.

So when cities renew and modernize their bus fleets, this is an opportunity for them to also improve the quality of their transport and also to reduce polluting emissions in cities also; and electric buses can also be part of this renewal process so that they can improve the air quality. By reducing and replacing conventionally fuelled buses with electric buses, they can cut CO2 emissions and also particular matters and NOx, which has a negative impact on citizens' health.

Arjun: Right.

Yannick: Since electric buses do not emit CO2 emissions at the tailpipe, they're often part of the strategies of cities to improve health and quality of life. And many cities in Europe are doing this at the moment. But this is just part of the sort of wider urban mobility strategy. So they need to do this, while at the same time increasing efficiency, accessibility and also the quality of these transport networks.

Arjun: Right. Interesting. Arno, know your take.

Arno: Yeah, I could for sure complement on Yannick's statements that for, of course, the bus operating companies, first of all, they are also part of the cities. We observe, there is often inside the companies a fantastic opportunity to reboot and to make an entire teams in bus operating companies **at the chest take about outsets**. so it's, **Buster sits** electric buses as they come often in a form of a complete revamping of the operators' bus fleet. These are really big the complete company involving projects which are on **the terminals** are used to create a good team and a spirit and sort of team challenges in the operating companies.

Arjun: I think.. Please go ahead.

Arno: I just want to add, what we see is that, because I know from the policy perspective, at least this is the case in Europe, where the benefits, or especially the CO2 print, of electric buses are realistic considered from the tailpipe. There's no tailpipe, of course, in an electric bus, but let's say from the tank or from the battery to the wheel. Indeed, there is absence of local emissions, of local pollutants. We have some discussions now starting up, in the bus committee in particular, about what happens on the other part of the life cycle. From the production until the battery is in the bus. So for sure, I think it's going to be a major theme in the future to see also case by case, a country by country, what is the life cycle assessment of an electric bus?

Yannick: I would just add one more point to about the benefits and that is related to the attractiveness of the city. An electric bus fleets also can be of strategic importance for cities, as it will promote the attractiveness, the social cohesion, and also dynamism of cities. So if you integrate an electric bus fleet into a public transport network, it's also an opportunity for cities to review their mobility strategy and also the image of buses within their city. And from a marketing point of view for cities, this is a powerful tool for them.

Arjun: Right. Yes, I agree as well.

Arno: If I can just say one word on the buses because, I know from recent discussions with other stakeholders, that it also knowing UITP, historically we are an old association, from 1885, and we have been for a long time advocating and focusing on public transport as mass transit mainly, talking about metros, trams, buses, then the big buses.

But of course, they were also smaller sized vehicles. Several smaller buses, but also the entire I new mobility services that are emerging have been recently added into the core focus of UITP. So I just wanted to underline this because in the past, UITP was really only mass transits, and two years ago, we changed our bylaws. So by our general assembly that said new public transportation for UITP is mass transit plus all the forms of new shared use mobility. Very strongly, we, of course, look to the shared use aspects of vehicles.

Arjun: Right. Times are changing, and these new forms of micro mobility and shared mobility are becoming increasingly important and I think in combination with renewable energy and electric buses and newer forms of these micro mobility methods, a city can really push forward this this new agenda of being more environmentally consequent, as Yannick said.

Arno: yes.

Arjun: Right. I think Arno, you raised a very good point about considering what happens on the operators' side of running an e-bus fleet. If we may talk a little bit more about that. What do you think are some of the challenges, or what do you think are some of the aspects that an operator has to consider before they can implement or manage an e-bus fleet?

Arno: What we advise for our operating members, is to start to look at the needs and at the feasibility on the level of the bus lines. So, we advise not to start with the electric technology, but really to make an analysis on the network to see how different lines could be maybe prioritized in terms of electrification.

And this is something that we have been testing on a big scale in a project, which is called ZEUBS, Zero Emission Urban Bus systems. Ten demonstration cities in Europe started to test operating small bus lines. But this was really the first step in a deployment. And we have observed mainly the networks and choose the lines, which are less important lines are certainly not the key carrying

Arjun: The critical ones, right.

Arno: Small capacity lines, mainly operating in lower density areas. These are appropriate for trialing out. This also gives the operators the necessary experience in all the aspects from route selection to technology deployment and to operational availability on such lines to then dive into a deeper, more ambitious plan to also start electrifying other types of bus lines.

Arjun: Right. And I've read about some of your work in this operational, technical aspect of running an e-bus fleet. Would you tell us more about SORT and how it affects e-bus fleets?

Arno: Yes. About SORT, I can say a few words because this is an essential part of the work, we are doing in the UITP bus unit. By the way, for those who are not familiar with, it stands for Standardized on Road Test for energy consumption. It is already running for a couple of years, actually, for more than, for more than 10 years. And it is mainly driven by the, operator reality in terms of mastering and controlling the costs of operations. It is for sure the case that the cost of energy is one of the major cost components of a bus kilometre production.

Of course, besides the staff costs. But the staff costs, you could consider them as fixed costs. It's not something you can change easily. It's quite rigid. So you could say that for the flexible costs, the energy costs are really the biggest part of the pie. So from that angle, the operators have always been quite a cautious in selecting the right bus products at procurement stage. So we thought at UITP, if we can provide the operators with a standard that measures, the fuel consumption in a way that the buses can be compared at tender stage, when the buses are procured, because it's the only moment when the energy efficiency can be chosen, then it gives a very strong tool for the operators to take this criteria to account for this procurement. So this is a bit, I would say, the rationale behind SORT.

We have been developing the SORT methodology for fuel consumption for all kinds of buses, 12-meter buses, particular buses, double decker buses. And also **we would have time**, from diesel to all the alternative fuels, CNG buses, hydrogen buses, and the latest work has been done on electricity. So this is why we have now the SORT methodology that is also can be used for electric buses.

Arjun: Right. And a quick question here: do the final results also include the cost of the infrastructure that is needed to support an e-bus line?

Arno: Well, in the sort methodology, definitely not, because this is only an instrument for the energy consumption **and actually what** is even maybe more difficult to assess. It's the thing that the SORT methodology only measures the traction energy. So it's something that we've discovered recently, also within the sector of electric buses are, we were seeing that the consumption of the heating and the cooling can be a very important consumption in addition to the traction consumption. So we are now trying to get the SORT protocol fitting to make statements or estimations about what the energy consumption might look like for networks that need heating and cooling in their operations. That's a considerable amount of electric energy that will be used.

Arjun: That's smart. I would, I come back around to the infrastructure question in a bit because that's kind of important to our use case over here. But before we do that, I would like to ask you, does driver behaviour play an important role in the SORT of methodology?

Arno: No. In the end, not because it's a standardized on-route methodology where the idea is that a bus, be it an e-bus, is running in the SORT cycle. There are three SORT cycles that correspond to the average commercial speeds. So we have one cycle for 12 kilometre, one for 17, and one for, I think it's 25 kilometres per hour. And these on route tests are being measured and being run in a completely controlled environment. So it means that there are many test drivers that are running the SORT test.

And of course, if this is used in the frame of tender, you could imagine that the manufacturing industry that is going to prepare the offers, they will do their maximum effort to put the best drivers on the track to reach their requirements. So in the SORT methodology, we have tried to eliminate this variant of fuel consumption, although we know individual driver behaviour is in the reality a big influence factor, but it's something where the rate around safety each bus operator itself could and should make appropriate programs.

Arjun: Right. Makes a lot of sense. Would UITP have some kind of tools similar to SORT, but more on the operator side of things instead of the procurement side of things.

Arno: A while ago, there has been a project running in Europe around eco-driving experiences. So what we do is mainly to recommend to national framework to use the resources available. Also, because we know that in terms of human resources and for instance, in incentive schemes, but also in terms of individual driver monitoring, this is very sensitive for local rules and conditions in the operating companies. UITP as a not European, but even global association, very difficult to have an universal recommendation in this matter

Arjun: Right. Makes sense. All right. Yes, very interesting. Thank you very much. About the infrastructure question: we're facing the issue here, and I've had this conversation a lot of times with many people who work in the public transport authorities here in Hamburg, that the infrastructure is one of the key domains that are lacking before they can actually implement technology like e-buses or to manage these fleets. On a technical on a legislative governance side, what would you say, how can they overcome these barriers? Or what are some ways that you have managed to overcome these barriers?

Yannick: Yes. Well, what we can, what we can see for cities and for municipalities when they install infrastructure and a charging infrastructure and what impact this has on urban space is that firstly, the planning phase is very important for this, and this is crucial for the future electric bus system, basically, when this is installed.

So what is needed from the authority perspective that is then working on this planning phase is that they need to involve a wide range of stakeholders to identify together what solutions would be the benefits from this fleet and to decide on the scale and on the pace of this installation of the infrastructure. So they can choose the right technology according to the local context to the operations that are in place and also to the natural conditions of the city. They can do this by having a close cooperation between the city authorities and those various stakeholders that need to be involved. And what they can do to facilitate this is develop a feasibility study of the system needs which will support the decision on which application and technological solution that they will find to be the most suitable for the operational environments and for the urban structure of the city. So planning is key whenever a city would like to start with this.

Arno: Yes, absolutely. Maybe, if I can complement to what you said, Yannick: In the planning phase, what you should also absolutely underline here, is that, especially about electrification, this is not merely a regular procurement switch that is made by the bus networks.

I mean, all the bus operators, they are used to buy rolling stock on a regular basis just to renew the diesel buses on a current pace. Whereas, in case they switch to a electrification of the system, they enter also in a complete different project set up, which even makes it more necessary than ever to make a very good a feasibility study in this planning phase.

And this is something we are observing at UITP. It's quite a big, switch. It's a big step to complete a different approach on the side of the operator, the side of the company,

And of course, the thing that charging infrastructure is part of such citywide project makes it even more complex. Also, with gaining this experience now across Europe, about different charging technologies being deployed, slow charging and fast charging, or static charging solutions and dynamic charging solutions and, of course, the cities and authorities, they are traveling around, so they get well-informed, there's always this risk. The risk should be not to start from the technology side, but to really stick to the feasibility plan and also on the transportation needs within the city, within the local context, and always to start with the best types and the best features that are that are needed, to look at the timetables and to make the route analysis and, of course, to always ponderate the environmental factors in the analysis. The climate, the topography and also sometimes the traffic that is on the streets.

Arjun: Right. I agree as well with both of you. I think planning is key and that should be the first step in implementing or doing a feasibility study to cater to the actual needs of the system. In this sense, we spoke a little bit right now about the push side of things coming from the implementing stakeholders, like operators and public authority officials.

In terms of pulling, so let's say legislation from the EU or national legislations, would you have some experiences or some examples that you'd like to talk about and say, they're are good examples or they're bad examples? They have a positive or a negative effect?

Arno: Yeah. I think what should be reminded here, is as you mentioned, that in Europe at least, there is the clean vehicle directive, which is now the major driver in the markets for the coming years for electric buses. But not only, it's clean vehicles, it's clean buses, which means electric battery or fuel cell buses, but it also comprises the plugin hybrid buses or the compressed natural gas buses and biofuel buses. So they are all part of the European clean bus definition.

Obviously, I think it's a good driver for European member States to have those quantitative targets set for the next couple of years. Of course, only for public procurement, but we all know that when we book transportation, there are only public procurements. So this is the reference for public transport sector. We also noted the quota that are now in place, will be on the member state level. So for Germany, it will be for the German sector and for Belgium, it will be for the Belgium sector. We still have to see how each member state will translate the directive in the national law. This needs to be done before next year, before August.

But then we know that from 2021 onwards. So from next year onwards, this is target will need to be met for the yearly procurements. We think it will now go very fast because the clean bus target is 45% in the majority of the members' spaces counting from 2021 onwards, it's really tomorrow. And this will at least give the necessary push for the national markets to accelerate the deployment of clean buses and electric buses.

Arjun: Yannick, would you have a take on these legislations and perhaps also what is the planning side of these legislations and how they need to be structured so that they get the maximum return on investment?

Yannick: Well, the first point is on the national authorities. It's very important for them to set up and to have an ongoing dialogue with the public transport authorities and the city authorities when setting these infrastructure targets. As of course, it's the national authority that can set the target, but it's really the city authorities and public transport authorities that's have to implement it in the end. So I think the dialogue there is very important and is key. And by doing this, they're able to also

discuss what the feasibility of this is and also plan for the future and set a long-term vision for the infrastructure. So I think having good cooperation between the levels of authorities, and also setting long-term goals and long-term visions, and also to plan for this is very important points on this.

Arjun: Right, right. Thank you for that.

Arno: I also think that at least in Europe, as it is a patchwork of member States and of national preferences also from historical historical background, you will probably, nonetheless also in the future see that there would be markets or countries like the countries in Scandinavia, for instance, that already started very early to make a switch, not specifically to electric buses, but to carbon neutral buses with the biofuel buses, which they will continue to do. There are other countries where quite a lot of technology already deployed in terms of compressed natural gas and it could maybe more easily switch to bio gas. And probably be, we'll see that depending on the country, either one of the other alternatives will be stronger or quicker deployed.

If you take a look to the Netherlands for instance, a country I know pretty well, they have a system of competitive tendering with the all, or I would say almost because there are some exceptions, the transport concessions are being run by the provinces, and these concessions and on the back off the national wide green deal, there were already quite some efforts done to ask for electrification in those concessions. So you see today in the Netherlands, that the number of electric buses in operation is already quite high also as compared **transport** fleet, and that in the end of this year, end of 2020, around the 20% off the public transport buses running in the Netherlands will be already electric. So that's just one example of a member state. But there are many national specific factors and a context, which are not the same in Belgium or in France, just to name an example.

Arjun: Right. That's fascinating. I would say that there's a very fine balance between push and pull that needs to be established for a good implementation. I would say that it's across the domain, like the, especially in the case of e-buses since they're very much used.

If you had any suggestions or recommendations on overcoming challenges that you faced in your projects or your implementations, for example, to other stakeholders on the push side or on the pull side what would you say to them?

Arno: I mean, in terms of projects results and lessons learned, I already mentioned before the project ZEUBS, so Zero Emission Europe Bus Systems. This was for us a learning project to see what is feasible and what is possible in Europe in different demonstration cities to introduce a low quantity of of electric buses in networks. This ended in 2018, two years ago. And today, we don't see any technological barriers to deploy that at a larger scale. I really think that in terms of member state support and in overcoming the investments needed to make this deployment happen. But what can really help, is to look at the benefits to the societal benefits that this electrification is bringing to the cities.

Of course, this is traditionally not inside the transport budget, but in budgets for the environment and for clean air. I think there can really be a challenge to get the investment also financed through alternative sources, which are not necessarily coming from or from transportation budgets. So I think for UITP it's an important point to **a dreadful goods**. Another point, I want to mention it here because sometimes it's forgotten especially in technology discussions, and we are here today talking about electric buses, is to simultaneously continue to build policies in cities and urban areas that promote the use of public transportation. So it means not only looking to the improvement from the technological perspective, but also to stay or to become ambitious in terms of alternative targets of modal share for public transportation and the clean transportation modes for the cities.

Arjun: Right. Thank you for that. Yannick, your take.

Yannick: Sure. I think also whenever cities and public transport authorities are making their assessment and their planning of their public transport on how they want move to electrified and clean fleets, they should look at the entire planning process and should also integrate active modes as walking and cycling strategies. The new mobility solutions are also very important. And look at the interactions between public transport and e-mobility. And also speak to your citizens within cities and make sure you can do enough citizens and stakeholder dialogue so that this will enable you to come to the best plan of the deployment and a scaling up of electric bus fleets. Those were a few points I liked to add.

Arjun: That's very smart. I really like also the point of speaking to the citizens. One of the key things that we're doing here in our project as well is doing a user survey for people who not only travel with the e-buses, but also along the route that the e-buses travel through to ask people how they are effected by the reduced emissions and the reduced noises through these transport lines. I think, it's also very important to keep the people in mind terms of their usage and their needs and desires.

Arno: Yes, absolutely. I fully agree. And again, looking to the users and citizens, it's not necessarily always black or white. It's not necessary to switch automatically to only uses off public transport. But sometimes it can be just one day in a week, you know, if people need to get the acquainted with or when they need, what we call a "dosage thérapeutique", just a little bit of public transport it's for sure something that the citizens can take ownership of and that's something we very much believe in.

Arjun: Right. That's, that's very smart.

Arno: We will maybe see in the future, because we are currently everywhere in Europe working from home, I mean, there is no need for travel and transport networks are still in operation but at the very, very low base. Most of the networks today probably running at 10% of the regular offer. And with a tremendous decrease of usage, there is no transport need, but we see a also within our membership that the people that are not working or are working from home, they start, of course, thinking a lot about the impact of this crisis. Are we going back on track? Are we going to restart the machine like it was before? Or if not how could we change the way we work, how we produce, how we organize ourselves. So for sure, I think in coming weeks, in the coming months, it will be continuing in all of our minds to think about that.

Arjun: Right. That's a very interesting point. Speaking as stakeholders that have their years very much close to the ground, the decision making authorities in the EU, would you say that there is a higher probability of the system being kind of renovated to a new, more ecological standard, or are we going to try to kind of hold on to our old values and try to improve on those?

Arno: The European Union is of course in the starting blocks. Well, they were in the starting blocks before the crisis with the European green deal. So we know, there's some massive investment plan on the table that has also a transport chapter and I think of course it's difficult at this stage to make speculations about what will happen. But for sure, if you look to the national economies and also to the situations of the companies, maybe we will face less jobs when we are back to normal again. Maybe there will be bankruptcies, higher unemployment rates. These are parameters that are, at least for transportation systems, very influential.

We are maybe too early to make firm scenarios from UITP's perspective. But what we are doing is we are engaging with our members, as mentioned, UITP is a director membership organization. So we are in contact with the operators, with the PTAs, with the stakeholders and for sure we will continue

to think about how to advocate let's say the benefits of public transportation in cities at the setup or the reset phase, when we go back to the new normal.

Arjun: Right.

Yannick: Arno caught up on the European green deal and looking at after crisis. And if we can look at, how things could go after this current crisis, then if we could look at this through the prism of the European green deal and see there, that the ultimate end goal as the current strategy sets is to have a climate neutral Europe by 2050. So looking through this prism and then stimulating the sectors that we want that will help us achieve that goal, I think would be a correct way to look at the post crisis response.

Arjun: Right. That's also very smart. Right. Well, thank you so much for your thoughts. I would love to guide our audience to connect with you on a more personal level through your official channels, perhaps your LinkedIn profiles. If you could tell us more about your current work and how our audience could reach you. Arno, you could go first.

Arno: Absolutely. My pleasure to present my LinkedIn account. Your colleagues, your peers can find me on LinkedIn: Arno Kerkhof on the UITP bus division. And I'm always happy to receive messages or questions engage in dialogue with mobility stakeholders. It will be my pleasure. And we also have a website, of course: UITP.org

And what's maybe interesting specifically for the deployments of clean buses in Europe, so UITP is running a project website. It's called the cleanbusplatform.eu. And this is a deployment service that we are doing for the DG move to support DG move in the clean bus deployment Europe initiative.

Arjun: Right.

Yannick: Okay. And I can be found on LinkedIn or Twitter if you would add or search for Yannick Bousse and also via UITP channel we can be found. I would also like to just make a quick plug for our current UITP work related to COVID-19. We have produced guidelines for public transport operators which is called management of COVID-19. It's a fact sheet and it's available in various different languages, in English, Spanish, Portuguese, French, Italian, Polish, Turkish, and Russian.

Arjun: That's great. There's also a series of webinars that I read about on LinkedIn on COVID management. Are you also involved with those?

Yannick: I know we're part of a webinar related to urban mobility and the post crisis response and that's taking place shortly this week and that's together with an association related to city authorities, which is UCLG. I can share some information about that, if you like,

Arjun: Yes. I would definitely include any links that you would send me in my show notes and the audiences could lead themselves through to your portals.

Yannick: Okay.

Arjun: Right. Well thank you so much for this extremely fascinating and interesting conversation, Arno and Yannick.

Yannick: Thank you very much.

Arno: Thank you very much for the opportunity. Our pleasure.

--Outro Music

This episode of The Next Stop was produced by me, Arjun Jamil. Co-produced by George Matthews and technical support and music by Jona Scholz. We're a part of the project BSR-Electric and are proudly funded by the Interreg Baltic Sea Region Electric.

This is one part of a series of 3 episodes. To find more, please access the shownotes and their links at our website, www.bsr-electric.eu.

We're introducing an online learning course for decision makers, researchers and stakeholders invested in the electric mobility revolution, just like you. To find out more, check out our website at www.bsr-electric.eu.

We're also holding our project's final conference online as an Open access resource, meaning it's completely free of charge with interactive presentations, joint learning and networking opportunities. Come join us on the 16th till the 17th of June 2020- to register please follow the latest updates on our website!

Our working team is based out of the Hamburg University of Applied Sciences at the Research and Transfer Centre for Sustainability and Climate Change Management. Thank you for listening in and I hope you tune into our next episode, coming soon!

Here are the links mentioned in the podcast:

- BSR electric's LinkedIn: <https://www.linkedin.com/groups/13561920/>
- UITP's Website: <https://www.uitp.org/>
- Arno's LinkedIn: <https://be.linkedin.com/in/arno-kerkhof-266bb69>
- Clean Bus Europe Platform: <https://cleanbusplatform.eu/>
- Yannick'S LinkedIn: <https://be.linkedin.com/in/yannickbousse>
- Yannick's Twitter: <https://twitter.com/yannickbousse?lang=de>
- Public Transport and COVID-19: <https://www.uitp.org/public-transport-and-covid-19>