

New Challenges in the Public Electric Mobility in Portugal

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Abstract: The public electric mobility is a priority in many Countries. However, in Portugal there are mixed feelings about so different projects in study or implemented. There is no clear wider plan and municipalities act as they fell best. The present paper reflects on the paths and strategies adopted in Portugal and also points some experiences around the world.

Keywords: Public electric mobility, urban planning, sustainable transportation, energy mix, regional investment.

INTRODUCTION

Reflections

While Portugal despises the railways to serve public policy in support of road transport and restructure cities and regions, other countries take their railways plans seriously and invest in suburban, urban and regional networks. Railway is important in the strategic improvement of living and in planning and as a strategic vision about alternatives and solutions for cities and regions. The fact is that these solutions can be the main tool to retrain and restructure the urban planning and to reduce the negative effects of urban sprawl. The urban sprawl is responsible for the deficit and the debt accumulated in the various budgets, starting with personal and ending in the country's administration. The railway question raises several issues in relation to PNPOT and PNI2030 programmes. But the main question is why both PNPOT and PNI2030 haven't a strategy to combat urban sprawl. Does the geography of the territory is unimportant for public transport development? And the way of life and society of the cities of consumption and waste is also unimportant for public transport development? This thinking aims to bring better living conditions and work. It also aims to be an alternative to the waste, energy, environment and social segregation caused by such territorial fragmentation. The investment is another strategic objective to bring more people to public transport. Public transport has been badly treated in Portugal and more recently, are placed as a network strategic objectives and services that do not correspond to the demand for transportation of people. At least with sustainability. In Portugal, urban public transport has been boycotted, but urban sprawl is a serious structural problem and that is not fought with coherence and consistency. Just looking at the indicators on the use of public transport, it is clear the bad investments and poor field operation. The fact that the PETI3+ serve the strategy of the national government, puts the

situation from bad to worse: government statements about PNPOT and the PNI2030 generate increased concerns. In the urban public transport sector is necessary to reverse the situation and to listen and work with the staff of the companies. Expecting to be only private consultants and local public institutions to propose networks and services is wrong and will create systems that do not serve the people. This has only happened because the successive governments have successively emptied the technical staff of various public authorities which were dedicated to the public cause. There are more and more customers' complaints on public transport. In 2017, 61.319 complaints were registered, an average of 167 complaints per day and 38.9% more than in 2016. CP - Comboios de Portugal Train Company leads the list with more than 24 thousand complaints - 66 per day. Next follows the Metropolitan of Lisbon subway company with 6.000 and Carris Bus Company with 5.487. In the North of Portugal, the STCP bus company registered 3,139 complaints and Metro do Porto 1,639. Between an interoperable network and a hierarchical network there is a big gap. The first strategic planning can efficiently decrease the effects of negative externalities and has a positive economic impact. The second penalizes transport with transshipment and infests the territory with large interfaces, eventually not to respond with the same efficiency of the first. The first is equivalent to savings and direct and indirect gains. The second introduces losses at various levels. Strengthening the Alfa Pendular was the largest ever investment in the railway to be done. However, as of August 5, reduces the supply and no one can reach Oporto before 9:00 if travelling by Alfa Pendular. Entrepreneurs speak of strategic problem, since they have to travel by private own car instead of train (with the advantage of using the travel time to rest or work).

The subject of climate change may be controversial in the scientific community, but may be a connection point between areas of knowledge in dialogue. Urbanism in the age of climate change is a current strategy involving a transit-based system strategy. [blogs.crikey.com] Indeed, the debate on climate change is fundamental to understand a set of measures of cities and their transport plan, particularly as it relates to the collective passenger transport. When there isn't decarbonisation strategy and climate change fight and when the budget of the government only collects the tax on the consumption of fossil fuel and isn't to structure the energy and ecological transition, something is wrong. More serious is if these tax revenues will not serve to create an alternative to the private car dependency. It should be through the public collective transport that populations, economic activity, cities and regions take advantage of the sustainability of these networks. In Australia, the budget gives priority to public mass transit, with a planning program. As in many countries, cities and regions all over the world, one has already realized that it is necessary to create public mass transport networks, correctly applying the methodologies of evaluation of projects. In the case of France, for example, over 20 cities have built electric networks. As in Bordeaux at the end of the 90s, they decided to build 45 km of light railways transit instead of 9 kms Metro. Today the city of Bordeaux has more population served directly and the network even grew out of its boundaries. [www.railwaypro.com] announces a light railways transit (300 seats) moved by H₂. [www.facebook.com] announces that Germany is the first country to implement a passenger train powered by hydrogen. These are examples of technological innovation applied to public transport objective and advantageously in reducing local pollution. That can be done with H₂030 in urbanism, transport and the climate change fight. To plan and organize the cities is important for the future of public electric mobility. It is interesting to follow the foreign debates, as in New Zeland and Australia. Indeed, public transport might well enjoy the "golden era". During the transition period, significantly lower operating costs could open the door to much higher density routes, more frequent services and the flourishing of innovative feeder services. It will enable to compete more effectively with individual private vehicles than at present. While private vehicles struggle in congested areas, it could be the glory days of buses and light railway.

It is important to be consistent with the existing public mobility system and encourage good practice by political economy. A good example is the UK, where Employers with more than 10 parking spaces for staff are paying £ 402 per year and space. [www.eltis.org] Since 2012, £44 million had been raised by the levy in Nottingham Council reinvests the income in public transport development, such as its tram network, the city train stations and local bus services. The acceptance levels from Employers seem to be high, since Nottingham Council states full compliance with the scheme. Taking seriously what is done in their Country, the Scottish Parliament moves forward with a legislative proposal before going on vacation. Karlsruhe has three services: urban, suburban and regional, with the advantage of reducing the transfer. Each vehicle has a capacity of 300 seats, that is, to compositions 3x300 lug and I = 5min allows high flows in hp and today does not exist. There are other advantages and they did not stop at traffic engineering since the urban footprint is an integrated view of the entire country and it deserves a town planning strategy and transport, where the tram-train has other positive socio-economic impacts.

In Portugal dominate those who see in BAU the answer to everything instead of creating alternatives to the car. And what about tax company cars and parking in the city center? And what about make public policy car taking into account the climate change fight? None of these questions seem to be on the table.

One has to be strategic in relation to the public mobility sector and one needs to have a coherent program with justice and social cohesion. The urban public transport networks continue to have failures of information at stops on respect to waiting times transmitted by the SAE and continue to have failures at the level of service. To make network and public transport services it is necessary to know the cities and work with the people and with those who always dedicated to public transport and know present alternatives to the networks of neighbourhoods by promoting local and urban accessibility. In municipalities where the integration, justice and social equity is done has increased connectivity of networks, effectively interconnecting the various geographical cities that exist. The work is also incomplete if urbanism does not give their contribution and if there isn't a coherent program

to combat the hidden costs caused by urban sprawl. In terms of spatial planning and in transport, alternative exists and the BAU aggravates circumstances and the risk that does not respond to these challenges. On the contrary, it may exacerbate them.

While in some countries there are demagogues and populists, in other countries the institutional organization of the transport of passengers and goods is transparent and consolidates knowledge and knowing. In Germany, about 600 companies performing public passenger transport and railways freight transport in Germany are Organized in the "Verband Deutscher Verkehrsunternehmen" [www.vdv.de] to acquire knowledge in the technical and scientific field of mobility. The VDV advises and supports its member companies and politicians, incentivises the exchange of experience and know-how between the members and prepares technical, operational, legal and economic principles. In Portugal, there is a general unpreparedness visible on several statements of government experts. Perhaps this can explain why public transport is so badly treated in Portugal and realizes the point reached by the various public mobility services (rail, metro, tram and bus) and to understand how the planning and management is done. There is no comparison with experiences in other Countries, the treatment is prepared with loose technical reports, no information is collected regularly (there isn't a statistical yearbook on the networks and services of Portuguese cities, for example) and there is no administrative technical structures dedicated to public transportation. In Portugal there is also a bureaucratic level that creates the difficulty to develop the transport sector. For example, there is no establishment of the Integrated Internal operator (e.g. the case of Lisbon where it is desirable that public operators are together in a single company, mini-RATP model) and the operator training was boycotted due to the privatization process in the transport sector. The question of free public transport gains a new social, economic, environmental and energy dynamics. If there was the Public Accounts Displacement System, the positioning of the various municipalities would be much more advanced than it currently is. [forumviesmobiles.org/][forumviesmobiles.org] In 1972, then President Giscard d'Estaing approved the law "versement Transport" in which companies began to contribute to the financing of public transport rather than to promote individual

transport, as they benefited from having networks transport that gave access to their employees and themselves by their location, saving accessibility expenses. Germany operators themselves started in 1969 in Hamburg to want to do network and service in collaboration with the municipalities. It presupposes a large public investment, however it shows a broader understanding, and perhaps more correctly the Cost / Benefit from the use of public transport. In Portugal, if there was the Public Accounts Displacement System, as was envisaged in the law 1/2009 of January 5th, the health budget and other budgets (personal, family, county, company ...) paid due to the negative externalities caused by having high volume of motor traffic were lower.

Following the COST Action TU1103 (2012-2015) about tram urban safety, the team of 14 European countries experts, decided to continue the work that was presented in 2015 in Frankfurt. The work of the COST Action TU1103 is published in CEREMA site, through a new body dedicated to the planning of public transport utility by electric mode [www.iutcs.fr]. One focus was the safety by the introduction of the electric mobility mode in urban areas in its continuing studies on the various networks and problems of planning and circulation with other modes of mobility. This team continues to deepen methodologies (definition of areas and critical factors in the direct catchment area of the shaft or the station / stop; regulations; law; economic evaluation; impacts, indicators, etc.) to avoid the accident, contributing to the reduction of negative externalities and increasing the comfort of electrical networks.

In 2016 there was the Strasbourg meeting on Effectiveness of urban public transport networks, with the case study of the new tram line between Strasbourg and Khel, passing the two bridges over the Rhine. This tram line was very helpful to understand how to make urban enrolment of a stroke, for which sustainability has no boundaries. In 2018, the theme is dedicated to urban mobility in European cities, in relation to planning and regulation practices of OAUT (Organizing Authorities for Urban Transport). France moved to another stage: MOA (Mobility Organizing Authority), which is important to note that the to the report of mobility and accessibility coincides with political developments to want to commodify the public service, in compliance with the Directive EC/1370/2007. The investment intensity and distribution networks in electric mode by region (light railways transit / tram / Tram-Train)

is on the site STRMTG [www.strmtg.developpement-durable.gouv.fr]. As can be seen by the dates of entry to the service, most of these networks were initiated in 2000, creating alternatives to the excessive use of private vehicle mode and resulting in a clear schedule a sustainable development strategy.

Some municipalities in Portugal are replacing the out of service railway lines by Ecovia. An example is the continuation of a project started long ago in Viseu region. After the construction of Ecovia of Sever do Vouga and Dão, it was approved another new Ecovia Dão-Lafões the renovation and conversion implemented over 55 km represents a total investment of 3.3 million Euros, 60% of total investment reimbursed. The Ecovia starts in Viseu, goes through S. Pedro do Sul, Vouzela and ends in Oliveira de Frades. In S. Pedro do Sul this intervention includes wooden walkways, a bridge, urban furniture, equipment and rainwater drainage.

On other municipalities, lines recovery projects are being implemented. Recently, hundreds of people received the composition of the extinct Historic Macinhata Train of Aveiro-Sernada-Espinho for a visit to the Railway Museum. The CP has engaged on this path and promises new developments next year: If the weather and security conditions allow, in the future, there will be a steam locomotive to be used on the line.

At an intermediate stage, there is the example of Lisbon and its periphery, where it was spend millions to build tunnels, viaducts and parking for cars in the past recent years. The other possibility would be the Municipalities articulate with EP (Portuguese Road Infrastructure), the CP (Portuguese Train Company), the metropolitan (Portuguese Subway Company) and the CARRIS (Portuguese Bus Company) to implement inclusive feasible solutions. Nowadays, the shift to electric public mobility is on the table but the lack of inter municipality reasoning continues in the following projects: build 1.9km between Rato and Cais do Sodré instead of 27 km between Algés and Loures, directly serving 300.000 inhabitants; the lack of underground connectivity Rato-Alcântara and Reboleira-Algés, very densely populated areas and with hundreds of companies; the lack of tram connectivity Santo Amaro station next to the library, since the entire Oeiras East has poor links to third nearest stations (one in Paço de Arcos and two in Oeiras) and is the most populated area of the parish. It makes sense to expand the Metro Red Line to Amoreiras to complement with a new

access Rato in Rua das Amoreiras (3 min walk). But it doesn't make sense to link to Estrela without connecting to Ourique which is right there. It is important to invest in the expansion of the Metro red line, especially at the Airport-Campo Grande.

In the periphery, one project under consideration is the Tram-Train at Cascais line and branch lines, which has the following advantages: 1. Increase the acceleration of the rolling stock by reducing the time travel between Lisbon and Cascais; 2. Increase the number of stations shortening the stations to access time and so privileged to walk and bike to the stations; 3. Increase the frequency and capacity. Broadcast stations in remote locations of urban areas based on travel and car parking is a concept dysfunctional and wrong, because it continues to focus on the car and inefficiency. Tram-Train model prevents the construction of the Metro at a cost of about five to ten times larger than the light railways transit and solves the geography of travel and geography of sustainability, both demanding more interoperability of public collective transport networks to greater cohesion, integration and territorial justice, social, environmental and energy. The SATU (above ground tram) is not a mode of transport suited to the challenges of Oeiras. The solution is to build light railways transit axis light railways transit / Tram-Train between the Palácio dos Arcos / Santo Amaro and Cacém, ordering accessibility alternative to the car and understand what the geography of sustainability is. The Cascais line to be connected to more subway lines, such as Rato-Alcântara Mar, is more than essential to reduce traffic on the viaduct Duarte Pacheco, Avenida de Ceuta, the entire western part of Lisbon, A5 highway, Axis North- South highway, among others. : it makes sense to connect this line to Cais do Sodre train station that is more than saturated transport level. It's needed an improvement of the Cascais line and expansion of Metro to Alcântara to greatly improve mobility. Able to reduce traffic on the A5, also decrease the accident happens due to excessive traffic and better air quality are some of the advantages. The Metro connection to Alcântara demand will grow considerably, operating result will always be positive and investments in railway could now be paid in 50 years, being paid every month / semesters very low amounts.

In the periphery, another project is the axis of the study Algés - Loures in 2002 was the definition of tracing with the objective of circulation planning and parking for the circulation of the electric mode

to be safe and not have any accidents with people and vehicles. One of the themes was to analyze the distraction that pedestrians invade the circulation axis electric mode. In Lisbon the lack of regulation on driving conditions of the collective public transport service in the RoW and the trivialization (RoW C) should be reason for a local authority pay more attention to this situation. Hence, it depends on the reduction of externalities and increased accessibility of electric mode and upgrading its network and the city's way of life and its people. In Lisbon the lack of regulation on driving conditions of the collective public transport service in the RoW and the trivialization (RoW C) should be cause for a local authority pay more attention to this situation. Hence, it depends on the reduction of externalities and increased accessibility of electric mode and upgrading its network and the city's way of life and their people.

There is still much to do on the railways. For example, poor management of resources in West line *Marinha Grande*, resulting in no strategy to support the sustainable development of regions. Too much road infrastructure funding and despised to train is a result of thinking less in people than in designated corridors of goods. Knowledge of regional railways transport is important but will be even more important when put through the railways interoperability, integration of these services with the suburban and urban design. There are railways systems intermediate capacities that can take advantage of the infrastructure and meet other objectives that the train itself cannot.

There are good examples, such as in Oporto city. The network of light railways transit / Tram-Train is able to develop in the next decade and be an example of better coordination between public policy and urban transport.

In Portugal, what most local railways lines need is comfortable train two floors and long trains. It only exists in Sintra line and in Alverca line: there is possibility to have these trains without a huge investment in railways. There is the challenge of studying from the Minho to the Algarve multiple subnets in Tram-Train from the Valley Cávado, AM Oporto, Aveiro, Coimbra, West, AM Lisboa, Tagus Valley and Algarve. In this challenge, the geography of displacement is crossed and integrated with the geography of sustainability. Another possibility is the tram-train is a technology used as an intermediate capacity system. While in Portugal, one of the strategic objectives of the urban operator is to combat fraud,

other Countries try to provide networks and services with innovation and integration. [www.smartrailworld.com] The objective is to reach greater sustainability of people and economic activity.

The beginning of August of 2018 brings some particularities on the CP trains. First, the tickets selling for the train Lisbon-Oporto in the North were suspended to reduce the number of passengers because the Alfa trains have no possibility to refrigerate the carriages when there is more than 42 degrees. Second, a train from Alentejo line in the South had to stand by in Casa Branca station due to the outsider heat of 40 degrees, leaving the passengers the possibility to walk through the line and being the fireman to carry the older and the babies to Vila Nova da Baronia and Beja stations.

At an international level, the Portuguese Government did not include, in the priorities, the railways link between Aveiro and Salamanca (Spain) on the national which was a great concern not serving an important part of the country, connecting the north and central regions to neighbouring Spain. In 2016, the Minister of Spatial Planning and Infrastructure defended the connection as absolutely essential for the transport of goods and the competitiveness.

Too often do we plan and engineer rather than design. Planning tend to be ambiguous, leaving the critical details of place making to chance, and engineering tend to optimize isolated elements without regard for the larger system. If merely we plan and engineer, we diminish the possibility of developing the design makes informed tradeoffs isolated and integrated efficiencies between parts. Design is multidimensional problem solving, while engineering is single-issue optimization. Urban design must integrate the work of all the single-minded specialists; it must balance economic, social, and environmental needs; and in the end we must create places that are beautiful, memorable, and user-friendly.

When one looks at what was done in H2020 in research and scientific knowledge by country, the result is not famous and leaves apprehensive thoughts before such inefficiency in projects submitted for funding [www.horizon2020.gouv.fr]. In the case of transport, it is disturbing to find the inefficiency of projects submitted for funding and must be sure that this is not repeated in H2030.

CONCLUSIONS

In Portugal, there are few examples of accessibility and sustainable mobility that reinforce the public transport expansion, integration, sustainability and assuring the stations are done in accordance with the principles of accessibility for all.

The railway system needs to be worked to support the sustainable development strategy of the regions. Funded in excess road infrastructure in designated corridors of goods in the past, the Portuguese Government and municipalities are challenged for public transport of people, especially by electric mobility.

BIBLIOGRAPHY

1. <https://www.railwaypro.com/wp/usd-11-billion-for-public-transport-system-in-new-south-wales/>
2. https://www.facebook.com/EmbaixadaAlema/videos/1656142764485044/?hc_ref=ARSwAxFwblbUxUX-PQyxP8J1Lze2OJRc6kPt--3VShv0sg1XcKHheQE8skzDEy1Hhwc
3. <http://www.eltis.org/discover/news/scottish-government-urged-back-workplace-parking-tax>
4. <https://blogs.crikey.com.au/theurbanist/2018/03/13/driverless-cars-public-transport-winner/>
5. <https://www.vdv.de/english.aspx>
6. <http://www.iutes.fr/spip.php?rubrique611>
7. <http://www.strmtg.developpement-durable.gouv.fr/lignes-tramway-en-service-a304.html>
8. https://www.smartrailworld.com/environment-and-ticketing-london-transport-future?utm_campaign=SmartRail%20World&utm_source=hs_email&utm_medium=email&utm_content=63938383&hsenc=p2ANqtz-INLFaNmdSWifBQAldNkZ-JKCAOpFGnDibu_QXAUMvJ6lyBva9NMD_A-jPesuHK_sHuSzM2nZ7-z_f5IQvB30Vi_by9nA&hsmi=63938383
9. http://en.forumviesmobiles.org/video/2018/06/26/why-are-free-public-transport-initiatives-gaining-ground-12478?utm_source=metropolitics&utm_medium=email&utm_campaign=2018_06_28
10. http://en.forumviesmobiles.org/video/2018/06/26/future-free-public-transport-dunkirk-today-paris-tomorrow-12477?utm_source=metropolitics&utm_medium=email&utm_campaign=2018_06_28
11. <http://www.horizon2020.gouv.fr/cid91235/donnees-statistiques-horizon-2020.html>
12. "Urbanism in the age of climate change." *Island Press* (2011).

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