

Investigation of models for the integration of non – motorized individual transport and public transit and assessing their role in the modernization of urban transport in Europe & Russia

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In recent years there is an increased realization around the world of the many negative impacts of the current car focused transport systems. This has led to a growing realization, that a less-polluting and healthier transport system – including cycling, walking & public transit could be a potential transport mode, to achieve sustainable mobility in urban regions.

As a consequence, out of this, a growing number of cities around the globe heavily invested in improving the infrastructure for cycling & walking and their public transport system. These improvements often lead to steady increases in the bicycle uses or the use of public transit, However, despite of all these developments a real integration of public transit, walking and cycling did not take place.

Because of these findings, this paper will look into the question: *“How to integrate different modes of public transport, non-motorized private transport, the infrastructure around them and citizen participation in order to successfully manage a sustainable public transport system, and how can it contribute to urban mobility in cities in Europe and Russia?”* This question was studied for the two cases of Brussels and St. Petersburg and their respective public transit system. These two cities have been chosen in order get a broad perspective by taking also factors like weather/climate and different cultures into account. Moreover, by observing cities in two regions (Nord Eastern Europe & Western Europe) it will be possible to compare the situation in these two regions. To answer the research question first the potential of and barriers to an integration of public transit, cycling and walking identified in the literature. Hereafter the results of interviews with stakeholders of the cycling community in Brussels and St. Petersburg, a survey among cyclists and observations will be provided and analysed in order to see, which barriers are faced in the two cities. This will finally lead to a policy advice for the politicians and public transit companies in Brussels & St. Petersburg about factors, which might need more attention to make an combination of the different modes possible for users, so that an integration of non – motorized individual transport and public transit takes place in the two cities. Given the different conditions faced by the two cities (e.g., with respect to climate and culture), this paper proposes that there are different challenges and expectations with respect to a multimodal transport system. However, there will be also common challenges that are faced by both cities (e.g., the connection of the city with the surrounding region). So, it is possible that in some points the cities can learn from each other.

Looking into the results of the interviews, survey, and observations we can see that there are some difficulties in Brussels and St. Petersburg related with a multimodal transport system. In St. Petersburg while the cycling infrastructure was significantly expanded in recent years from around thirty kilometres to 255 kilometres it is far from forming a connected cycling network. This can make cycling – even if only to the subway station inconvenient. Another problem in St. Petersburg is, that often cars or people sitting on the sidewalk block the stations of the bike-sharing system and cycling paths. Moreover, while the bike sharing systems covered the whole city and is also connected to the public transport systems there are obviously less stations outside of the city centre. This can make rides to/from the public transit stop difficult since there is possibly no BSS station near the start/destination of the user. Furthermore, the app is not working for 100%. While people in St. Petersburg walk regularly in combination with public transport it is obviously important that the sidewalks – like the cycling paths are ploughed during the winter. So that people can walk safely. While this problem does not exist in Brussels the quality of the huge

network of cycling infrastructure in the city is often low level. Furthermore, car drivers often do not consider cyclists or pedestrians. The general concept behind the placement of the bike sharing stations is, to place them at all subway stations, major tram & bus stops and at central spots in the residential neighbourhoods. Which makes combining cycling with public transit quite easy. However, a huge problem with cycling and to a lesser extend also walking in Brussels is the hilly topography of the city, which can make cycling/walking demanding.

If we look at the results of the survey in both cities, we can see that the proportion of people biking daily is much higher in Brussels (60%) than in St. Petersburg (17%). Moreover, 93,8% of the respondents in St. Petersburg cycle mostly for recreation. Which often does not require a combination with public transit. When we look which type of bike people use, we can see that in both cities we have a high proportion of people owning and using their own bike. However, in St. Petersburg there are also people using only the BSS, a fact that no one has given as response in Brussels. Moreover, the majority of cyclists in Brussels (61,5%) and St. Petersburg (81,3%) do not feel safe when cycling. An explanation for this could be, that in both cities' respondents have the feeling, that there is not enough cycling infrastructure, and that the existing cycling infrastructure is not of high quality and not safe as well. While in Brussels 56,1 % of the respondents combine cycling with other modes of transport in St. Petersburg only 40,6 % of respondents combine cycling with other modes of transport. Finally, only 20% of the respondents cycle during the winter in St. Petersburg while 97% does this in Brussels. The interviews confirmed these findings.

As a conclusion, the integration of public transit, cycling and walking face common problems, but unique as well. In both cities there is the opinion, that there is not enough save cycling infrastructure and this leads to the fact, that cyclists do not feel save when cycling. In Brussels a problem connected to the topography of the city is that people like to bike downhill to the city centre or a transport stop, but for going uphill the bikes are not used. This leads to a lot of people using shared bikes that then cluster at lower stations. Electric bikes might motivate the people to use bikes uphill as well. In St. Petersburg the main problems seem to be the cycling infrastructure, which need to be expanded to increase the safety. Moreover, it is quite difficult in St. Petersburg to combine cycling with other modes of transport. Since it is not allowed to park bikes on the territory of the metro stations, it is not possible to commute by bike to the metro station. This makes it complicated to use the bike for the last and first mile.

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