

## **Bike Sharing: How Can It Contribute To Urban Mobility A Case Study Of Brussels & St. Petersburg**

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In recent years there is an increased realization around the world of the many negative effects of car usage. This has led to a growing realization, that cycling could be a potential transport mode, to achieve sustainable mobility in urban regions. As a consequence out of this, there is a growing number of bicycle sharing systems around the world. However, research shows, that bike-sharing systems (BSS) are often underused. This makes it highly questionable, if the benefits of cycling that are often used to promote BSS can be really associated with BSS or whether the positive impacts are overstated.

Because of these findings, this paper will look into the question: *“How we need to conceive bike-sharing systems, the infrastructure around it and the engagement of citizens, if we want the bike-sharing systems to be successful and by this, make a real contribution to urban mobility?”* This question will be studied for the two cases of Brussels and St. Petersburg and their respective BSS. These two cities have been chosen in order get a broad perspective by taking also factors like the age of the BSS, weather/climate and different cultures into account. To answer the research question first barriers faced by users and potential users of bike-sharing systems are identified in the literature. Hereafter the results of interviews with important stakeholders of the BSS systems in Brussels and St. Petersburg, a survey of cyclists and observations will be provided and analysed in order to see, which barriers users face in the two cities. This will finally lead to a policy advice for the politicians in Brussels & St. Petersburg about factors, which might need more attention to make the BSS systems successful, so that it can make a real contribution to urban mobility in the two cities. Given the different conditions faced by in the two cities, this paper proposes that there are different barriers, but maybe also different expectations with respect to BSS.

Looking into the results of the interviews, surveys and observations we see that there are some problems in Brussels and St. Petersburg. In St. Petersburg, both the system and the stations are small. Moreover, it is often difficult to find a station since there seems to be no concept behind the placement of the stations. Furthermore, bikes and stations are sometimes not in the best condition and the app is not working for 100%. If we look at the cycling network in St. Petersburg it can be seen, that there is no connected cycling network and no connection between the bike-sharing system and the cycling network. 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. For the redistribution of the bicycles both Brussels & St. Petersburg use trucks. However, since the bike-sharing system of Brussels is much bigger than the St. Petersburg system, there are more trucks in Brussels. Moreover in Brussels the general concept behind the placement of the stations is, to place them at all subway stations, major tram & bus stops and at central spots in the residential neighbourhoods. Brussels also has a huge network of cycling infrastructure. However, the quality is often at a low level. Furthermore, car drivers often do not consider cyclists. A further big problem with cycling in Brussels is the hilly topography of the city, which leads to a huge need for redistribution within the bike-sharing system. Next to the bike-sharing system with stations - in Brussels called *“Villo!”* - there is also a system with floating (i.e. station less) bikes in some neighbourhoods.

If we look at the results of the cyclists' survey, with 40 respondents in each of both cities, we can see that the proportion of people biking daily is much higher in Brussels (60%) than in St. Petersburg (17%). In St. Petersburg 93,8% of the respondents use a bike for recreational cycling. 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. In both cities, the respondents criticize the number and size of the stations of the BSS. Similar, the majority of respondents think that the area covered by the BSS should be bigger. 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 bike-sharing systems in Brussels and St. Petersburg face common problems, but unique problems 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. Furthermore, in both cities, the stations are too small and there are not enough. In St. Petersburg, it is mainly caused by the small size of the system, which covers the city centre only, while in Brussels this judgement seems to strongly depend on the area and time. Often it is quite difficult to find an empty rack in the city centre while it is at the same time quite difficult to find a bike in other parts of the city. People often use the bike to go to the city centre, which is the lower area of the city, but for going uphill the bikes are not used. Due to this most bikes cluster in the city centre. Electric bikes might motivate the people to use bikes uphill as well. In St. Petersburg the main problems seems 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 the bike-sharing system only covers the city centre, people cannot use the system to commute from their flat to the next metro station/train station. Even worse; since it is not allowed to park bikes on the territory of the metro stations, it is also not possible to commute by private bike. This makes it complicated to use the bike for the last and first mile.