



Activity Document

22010 – BICIFICATION

Qualitative assessment results for
extended period

EIT Urban Mobility - Mobility for more liveable urban spaces

EIT Urban Mobility

Thessaloniki | 19 December 2022

eiturbanmobility.eu

Co-funded by the
European Union



Reporting year	2022
Activity code	22010
Document title	Qualitative assessment results for extended period

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List of abbreviations (if any)

KPI	Key Performance Indicator

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1 Executive Summary

After the 4-month pilot period in Tallinn, Braga and Istanbul, all three cities expressed their interest in continuing the pilots further until December since it was quite critical for them to incentivize urban cycling during the winter months. Additionally, the continuation of the pilots gave to cities the opportunity to reward Bike2School rides, which was not possible during the summer months. All three cities updated the terms and conditions of users' participation considering higher amounts of rewards for providing stronger incentives to the participants.

The extension period started on 1st October in Tallinn, 8th October in Braga and 17th October in Istanbul and ended on 11th December in all cities, in order the users to have time to use their vouchers to local shops and the reimbursements to local shops to be completed before the end of the project on the 31st of December.

This document complements the qualitative evaluation of the 4-month pilot period that was performed during October and described in detail in the DEL04- Assessment results. The document has been developed by CERTH with the collaboration of PinBike based on the valuable inputs collected by the city of Istanbul, Tallinn and Braga during the October and November.

For the qualitative evaluation of the pilots' extension period, an additional questionnaire was delivered to the users on 1st December and was open until 8th December. A single questionnaire was drafted for the three pilot sites for allowing cross-area comparisons. Although some of the questions included in this last questionnaire were same with the ones of the previous questionnaires enabling the comparisons between summer and winter period, additional questions related to weather and sustainability factors were also included.

As an incentive to collect more answers, the users that filled in this last questionnaire were rewarded with a voucher of 20 euro in Tallinn and Braga and similarly with 20 euros in their Istanbulkart in Istanbul. The answers collected were the following:

- Braga last questionnaire: 207 answers
- Tallinn last questionnaire: 247 answers
- Istanbul last questionnaire: 236 answers

2 Tallinn city

During the period of 1/6- 11/12 in Tallinn, more than 38, 000 cycling sessions were performed by 422 active users. The total distance travelled was 237, 760 km with an average session distance at 6.24 km and the CO2 saved was more than 38 tones. The following KPIs along with heatmaps of cycling trajectories were available to cities through the municipality dashboard in order to continuously monitor the cycling conditions in their cities.

Regarding the local shops engagement 19 shops were registered to participate in BICIFICATION in Tallinn and a total amount of about 26, 000 € were currently used by users in a 10 euros voucher format and consequently were reimbursed to local merchants by Pin Bike (this amount may be increased after the completion of the money transfer to questionnaire respondents and to people who will return the kit to municipality).

Figure 1 shows the number of sessions performed by the users in Tallinn per month of pilot's duration (extension period included).

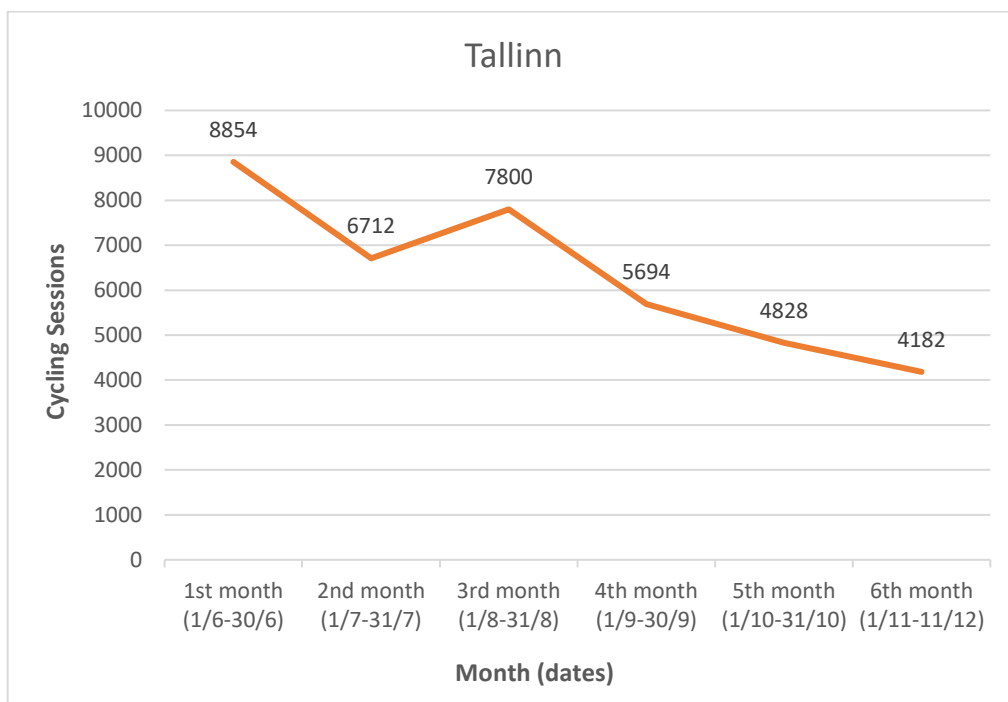


Figure 1: Monthly trend of registered sessions in Tallinn

In the first question about the frequency of bicycle use from October to the end of the pilot, the answers of “every day, included weekends” and “every working days” were balanced to 21-22%. These percentages were decreased compared to the ones of the previous questionnaire in October (see DELO4 -“Assessment Results”) while the percentage of “once a week” increased from 6% (in October) to 21%, due to weather conditions (Figure 2).

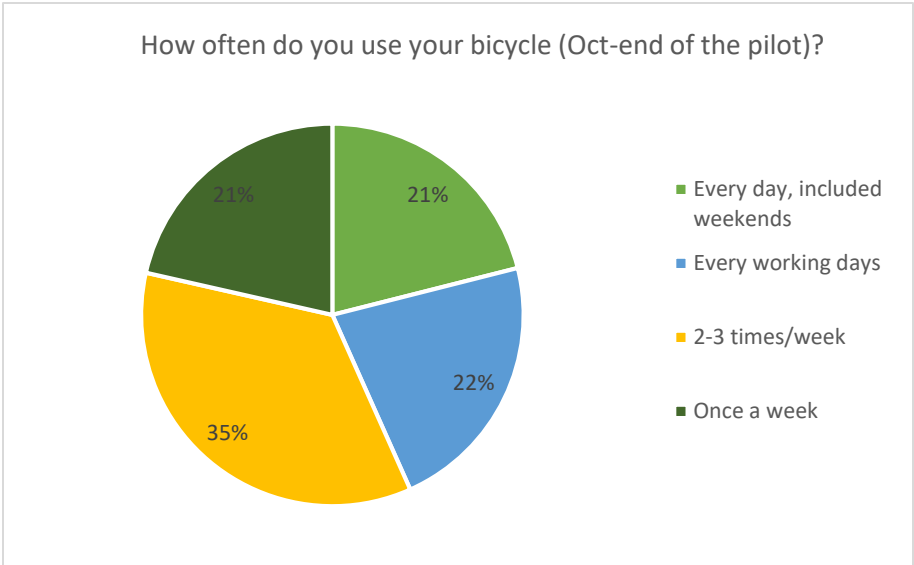


Figure 2: Frequency of bicycle use in Tallinn from October to the end of the pilot

The next question was to evaluate in a 5 scale the performance of different core features of the BICIFICATION scheme such as the kit, the dedicated mobile application, the rewarding system and the idea of the vouchers to be spent in local shops (1: lower value and 5: higher value).

The rewarding system and the vouchers have been again evaluated with 4-5 values by high percentages of participants (76% and 68% respectively; percentages slightly lower than the questionnaire in October). The PinBike kit was also evaluated positively by 85% of the respondents. Although comparing with the questionnaires of October, the low values 1-2 decreased and the high values 4-5 increased in the mobile application, it is worth mentioned that the percentage in values 1-3 remained high (72% in October’s questionnaire and 65% now) while only 9% of the participants evaluate the mobile app with 5 after more than 6 months duration of the pilot in Tallinn (Figure 3).

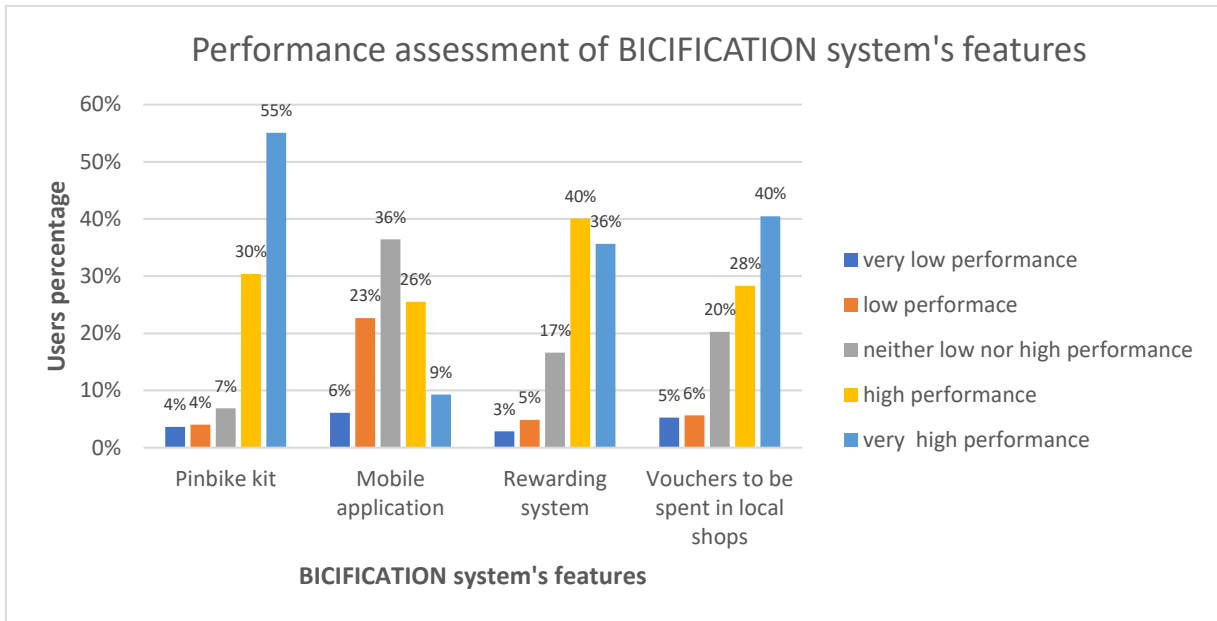


Figure 3: Performance evaluation of BICIFICATION system's features in Tallinn

In the next question the participants were asked to evaluate the usefulness of different features included in the mobile app such as the sessions registration, the CO2 savings, the help center, the rewards, the notifications received, the identification of elements on the map (drinking fountains, bike parking stations and bike repairing stations) and the report feature. The feature that seems to be evaluated as the most useful for the participants is the rewards appearance in the mobile app as it has the higher percentage in values 4-5 (84%). The second most useful feature was the notifications sent by the municipality to the users via the app (65%); percentage similar to the previous questionnaire. 30%, 26% and 30% of the participants in the questionnaire evaluate with 3 the help center, the identification of the elements on the map and the report feature respectively. These percentages were lower from the questionnaire in October but still quite high (Figure 4).

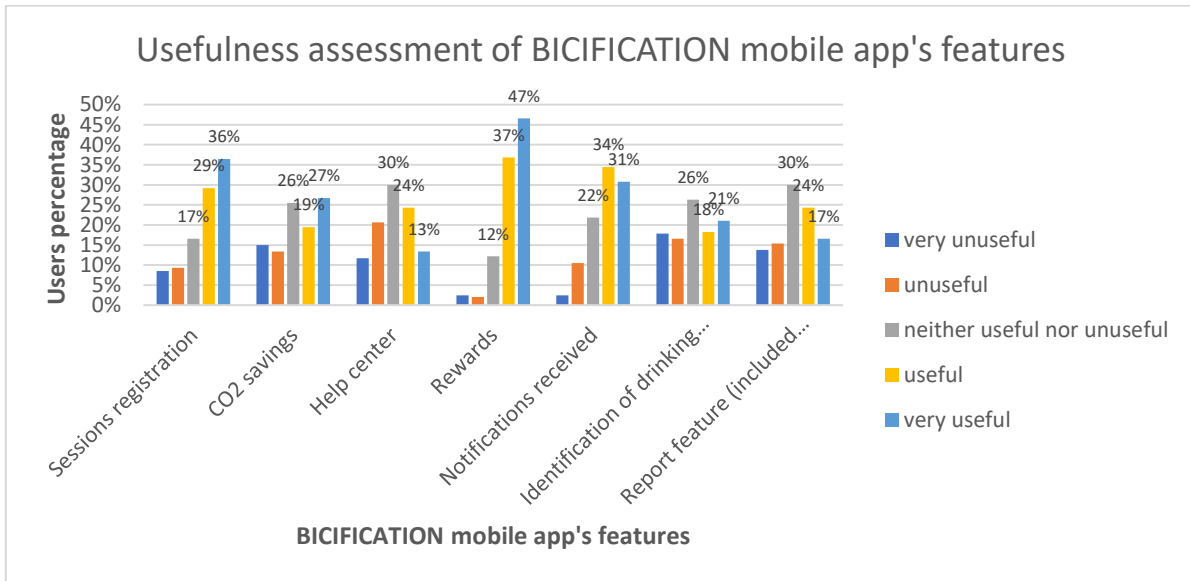


Figure 4: Usefulness evaluation of features included in BICIFICATION mobile application in Tallinn

As in Tallinn the only available type of reward is the Km reward (users earn specific amount in euro for each km ridden), the participants were asked to indicate how much they like the fact that during the project they received rewards for every km traveled (1- not at all, 5- very much). 95% answered value 4 and 5, with 81% of them answering “very much” (value 5) (Figure 5).

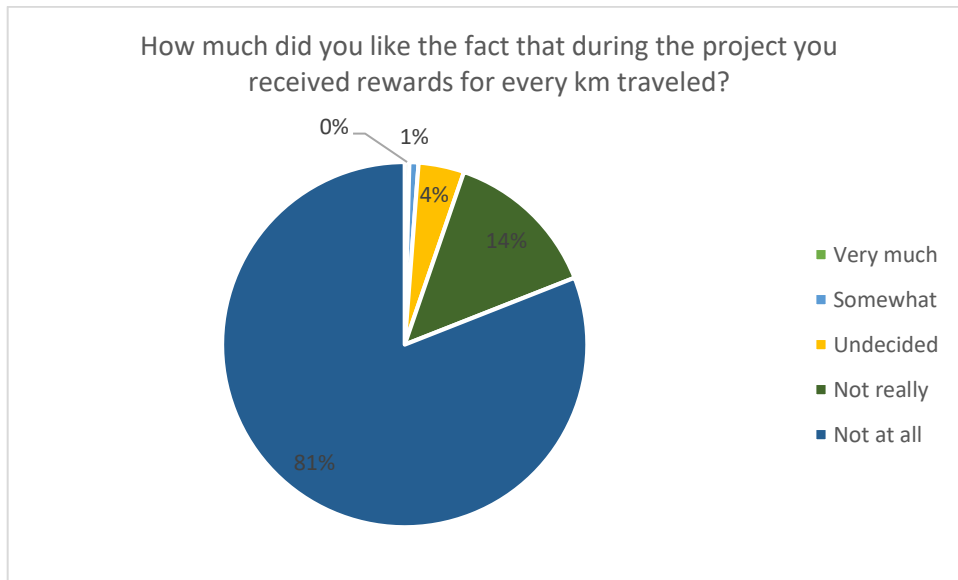


Figure 5: Satisfaction about receiving rewards for every km traveled in Tallinn

In the weather-related question, the users were asked to evaluate how important they consider some weather conditions (Low or High temperature, Strong wind, Precipitation, Fog/mist, Slipperiness, Snowy weather) when choosing a bicycle for their daily movements in the city. The most important weather factors according the users are the snowy weather and the slipperiness (Figure 6).

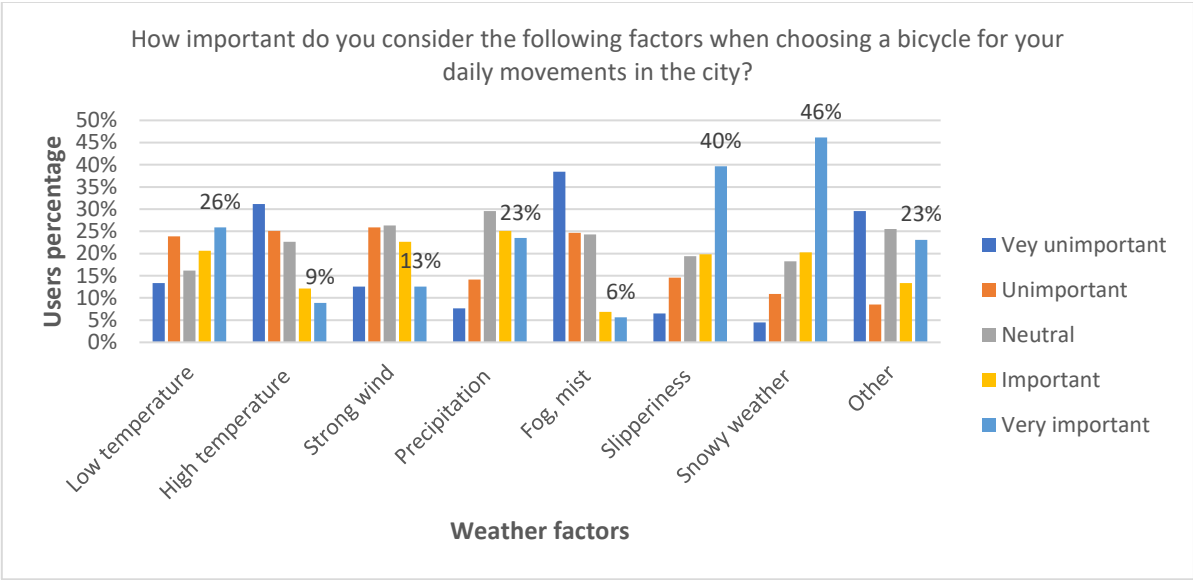


Figure 6: Importance of weather condition during cycling in Tallinn

The next question measured the participants’ attitudes towards sustainable transport and sustainability asking them to evaluate how important or unimportant some factors are considered when they generally use a bicycle as a possible means of transport. Health, freedom in terms of independence and comfort evaluated as the most important factors to choose bicycle as transport mode reaching 70% (Figure 7).

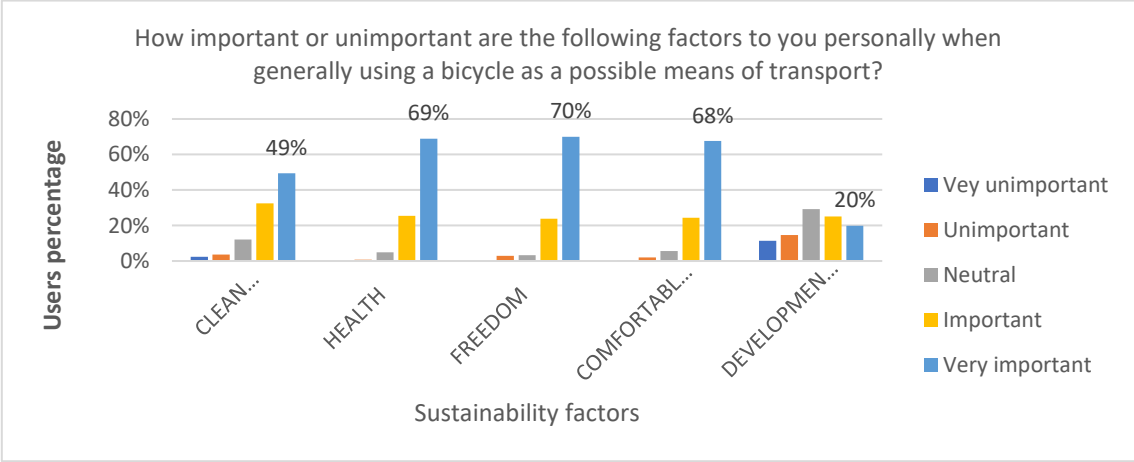


Figure 7: Importance of sustainability factors when cycling in Tallinn

The next question of the questionnaire was related to the evaluation of the overall participation experience of the users. The percentages of those that voted the values from 1-3 decreased during the months. The increase of the percentages of those that voted with 4 and 5 between September and October was similar (13% increase in value 4 and 12% increase in value 5). The percentage for the value 4 remained almost the same in the last evaluation. However, the percentage of those that vote the overall experience with the higher value of 5 increased from 19% to 34%, showing the continuous effort and the quick responsiveness from BICIFICATION team to overcome any difficulty that occurred during the pilot implementation (

Figure 8).

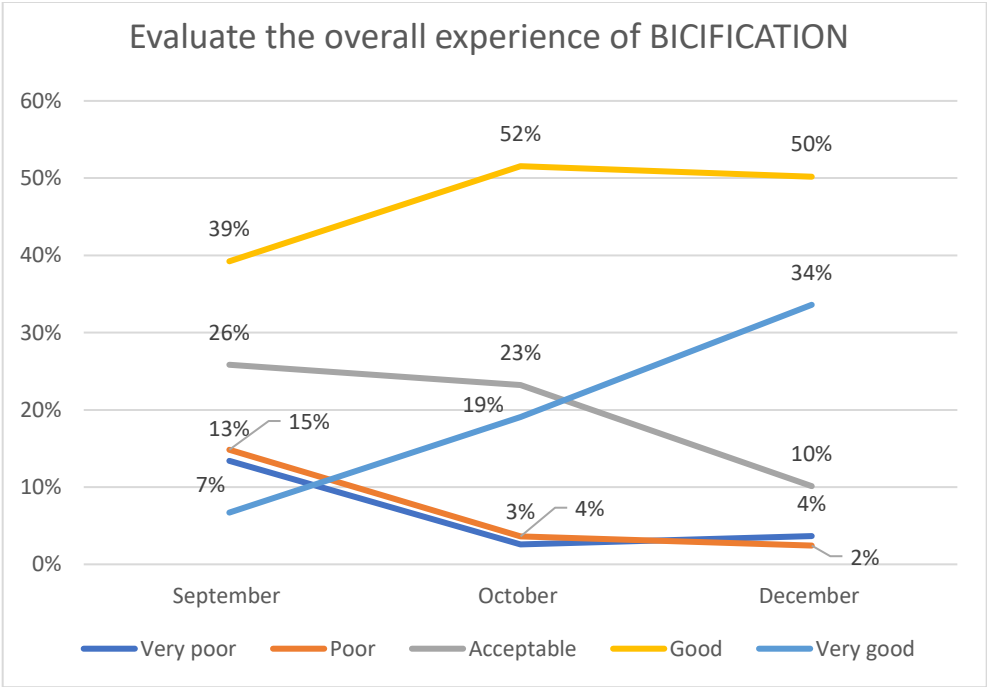


Figure 8: Evaluation of the overall experience of BICIFICATION in Tallinn (1st, 2nd and 3rd questionnaire)

The last question was related to the likelihood of continuing cycling after the project and rewards end. So, the participants were asked to answer in a 5-scale (1=very unlikely to 5=very likely) if they will to continue cycling after the end of the project. 87% of Tallinn users answered “very likely” to the above question.

The questionnaire of Tallinn included also an additional set of questions related to social networks. These questions weren’t analyzed in the current document as they are out of BICIFICATION evaluation scope. However, the results were provided to Tallinn for comparing them with prior research performed in the city aiming to explain the temporal dynamics in the associations between spatial mobility and social networks.

3 Braga municipality

During the whole period of 6/6- 11/12 in Braga, more than 31,320 cycling sessions were performed by 400 active users. The total distance travelled was 227, 143 km with an average session distance at 7.24 km and the CO2 saved was about 36 tones. These KPIs along with heatmaps of cycling trajectories were available to cities through the municipality dashboard in order to continuously monitor the cycling conditions in their cities including the routes used by citizens, the most used roads, starting and ending points, average and maximum speeds, preferred routes vs suggested routes, etc.

Regarding the local shops engagement 35 shops were registered to participate in BICIFICATION in Braga and about 34,000 € were currently used by users in a 10 euros voucher format and consequently were reimbursed to local merchants by Pin Bike (this amount may be increased after the completion of the money transfer to questionnaire respondents and to people who will return the kit to municipality for future use).

Figure 9 shows the number of sessions performed by the users in Braga per month of pilot’s duration (extension period included).

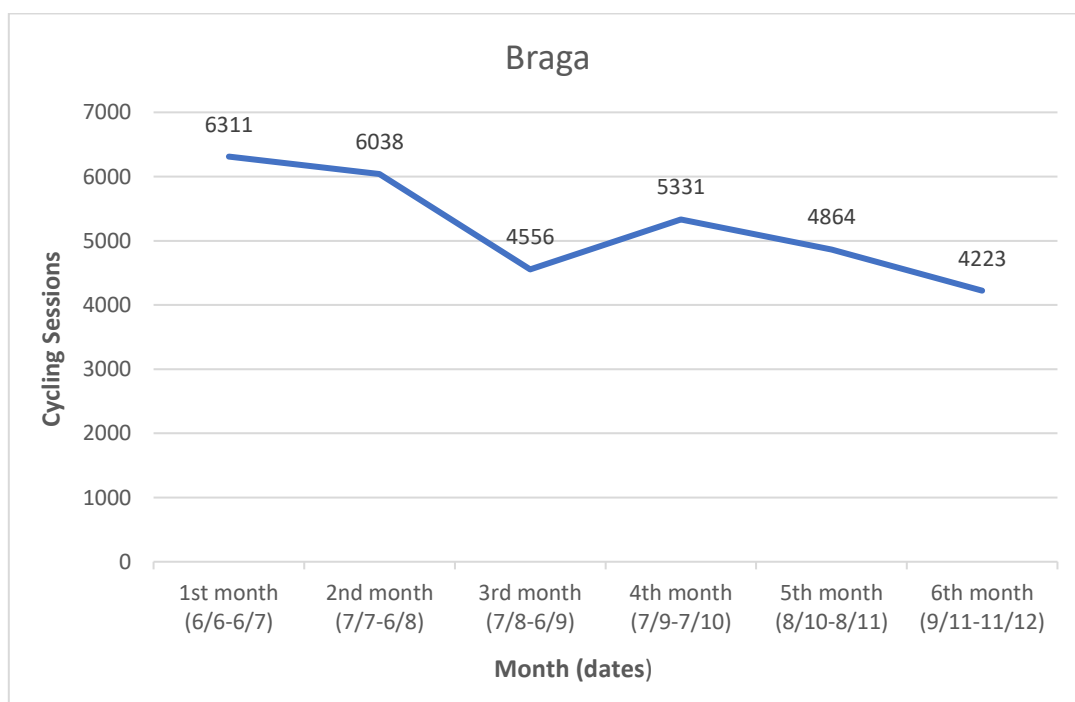


Figure 9: Monthly trend of registered sessions in Braga

The percentage of the users that use their bicycle “every day included weekends” remained high (30% compared to 36% in the previous questionnaire). The percentage of those that cycle “every working days” decreased from 27% to 18% while the percentage of those that cycle “once a week” increased from 3% to 18% due to weather conditions (Figure 10).

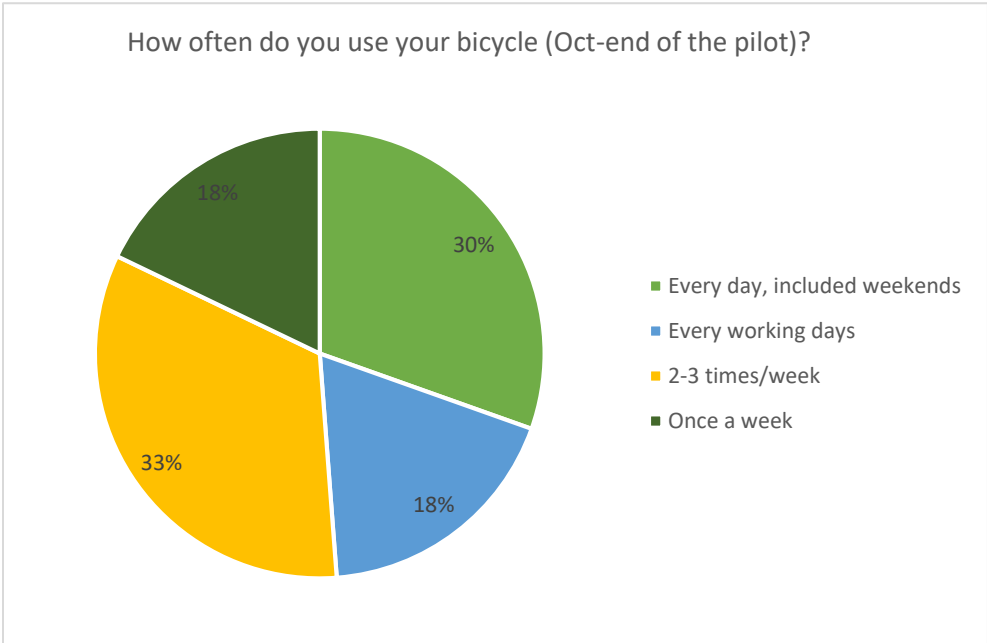


Figure 10: Frequency of bicycle use after participating in BICIFICATION in Braga

In all the features of the BICIFICATION scheme, the percentages of those that evaluate their performance positively (with 4 and 5) increased or remained at the same level compared to the previous questionnaire in October. The PinBike kit was evaluated positively by 84%, the mobile app by 61%, the rewarding scheme by 76% and vouchers by 72% (Figure 11).

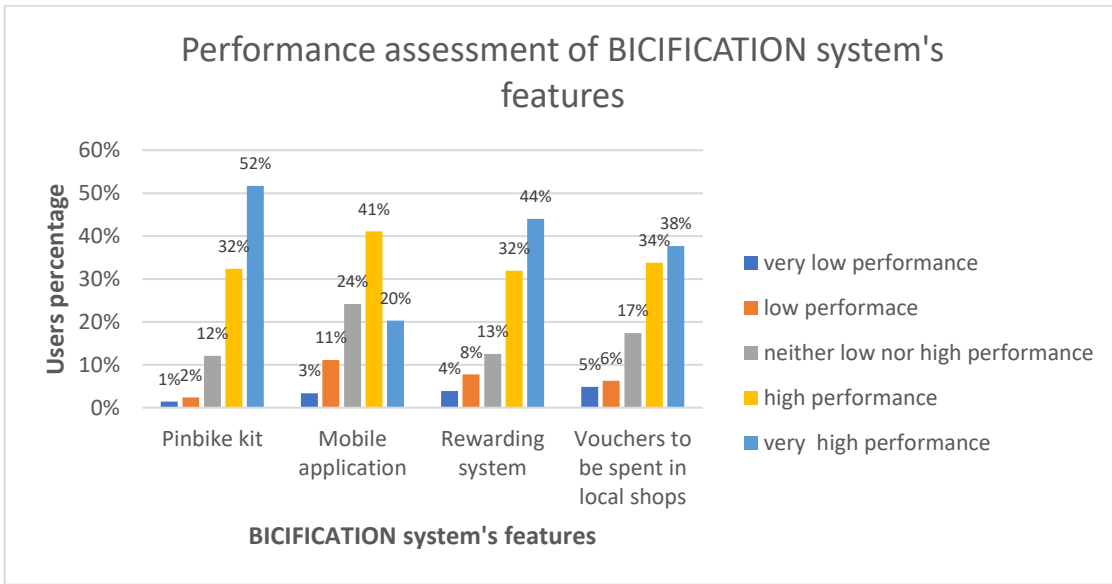


Figure 11: Performance evaluation of BICIFICATION system's features in Braga

The feature of the app with the higher percentage in value 5 (60%) was the CO2 savings. Also, it seems that the notifications sent via the app by the municipality to the participants aren't annoying as 82% of the participants keep voting this feature with 4 and 5 value in the 5-scale (Figure 12).

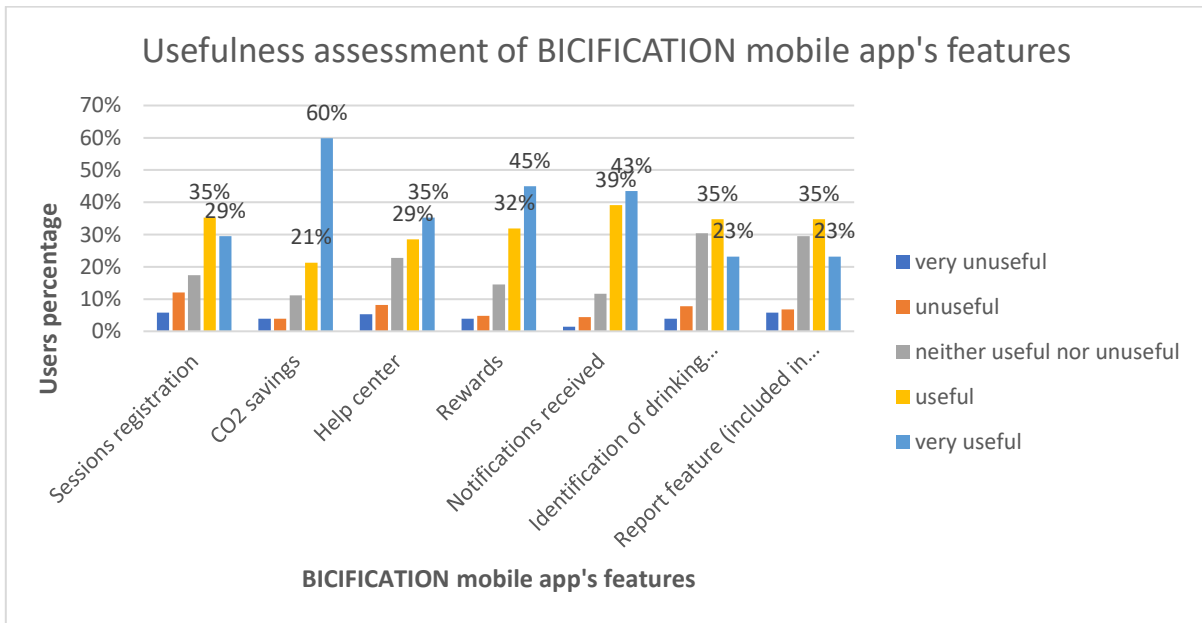


Figure 12: Usefulness evaluation of features included in BICIFICATION mobile application in Braga

In Braga all the different types of awards were available to users. Thus, in the question which of the rewards they like most, 71% of the users vote for km rewards. It is worth mentioned that the "points multipliers"

was doubled from 7% (in October) to 15% in December while the “cup rewards” was also increased to 5% (Figure 13).

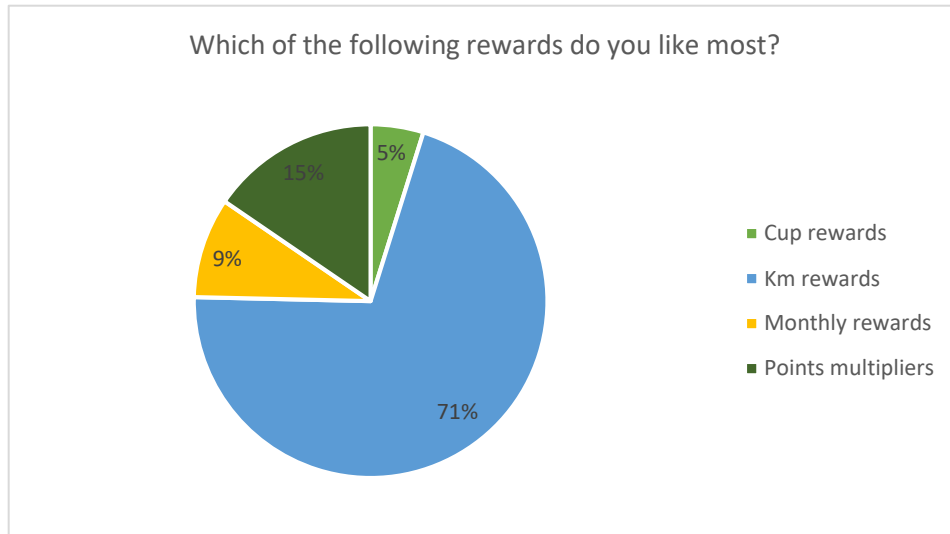


Figure 13: Preferences of Braga users about reward types

As the weather in Braga is mainly rainy during October and November, the most important weather factor that influence the user’s choice of using a bicycle is precipitation (48%) (Figure 14).

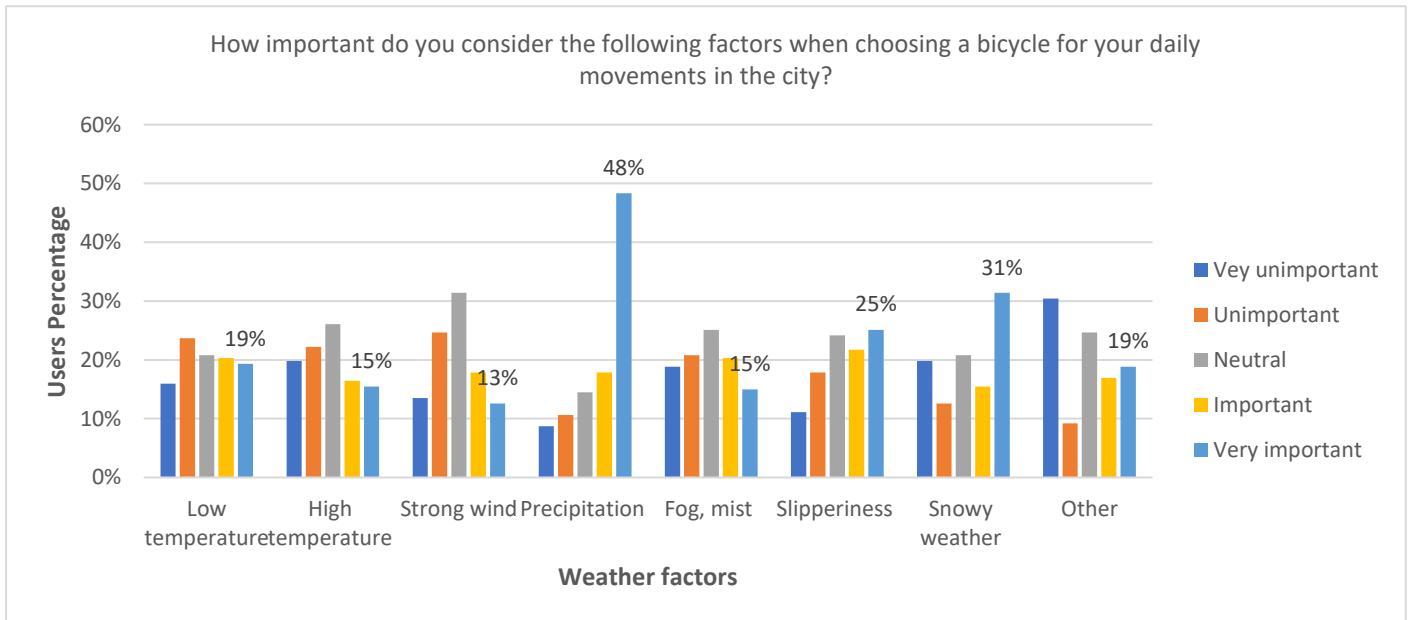


Figure 14: Importance of weather condition during cycling in Braga

In the question of the sustainability factors, the clean environment, health and freedom in terms of independence were voted with high percentages of 72%, 82% and 75% respectively (Figure 15).

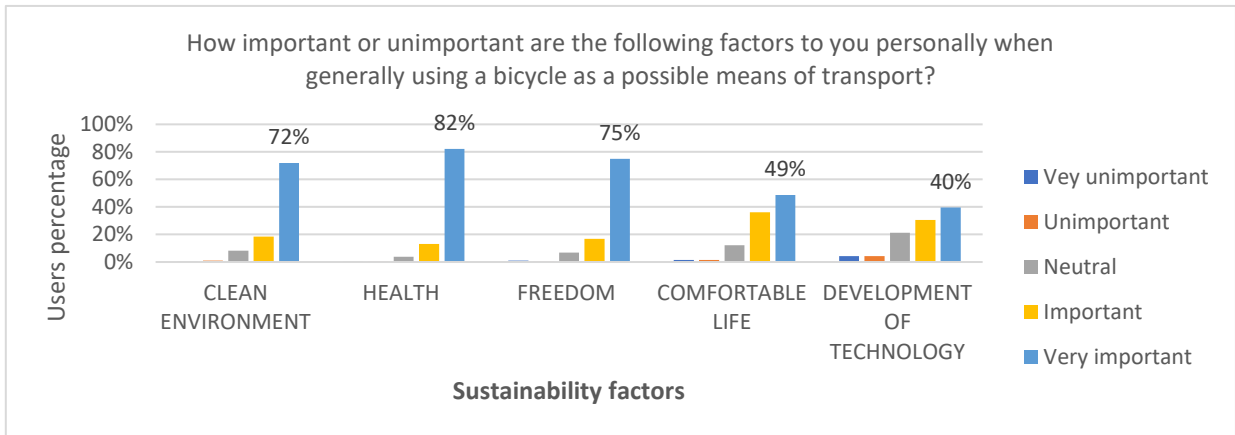


Figure 15: Importance of sustainability factors when cycling in Braga

In the next question related to the evaluation of the overall participation experience of the users, the percentages of those that voted the values from 1-4 decreased during the months. The Figure 16 shows that almost 90% of the users evaluated their overall experience with 4 and 5, confirming the high attractiveness of the BICIFICATION scheme for Braga citizens. Moreover, 74% of Braga users answered that it is very likely to continue cycling after the end of the project.

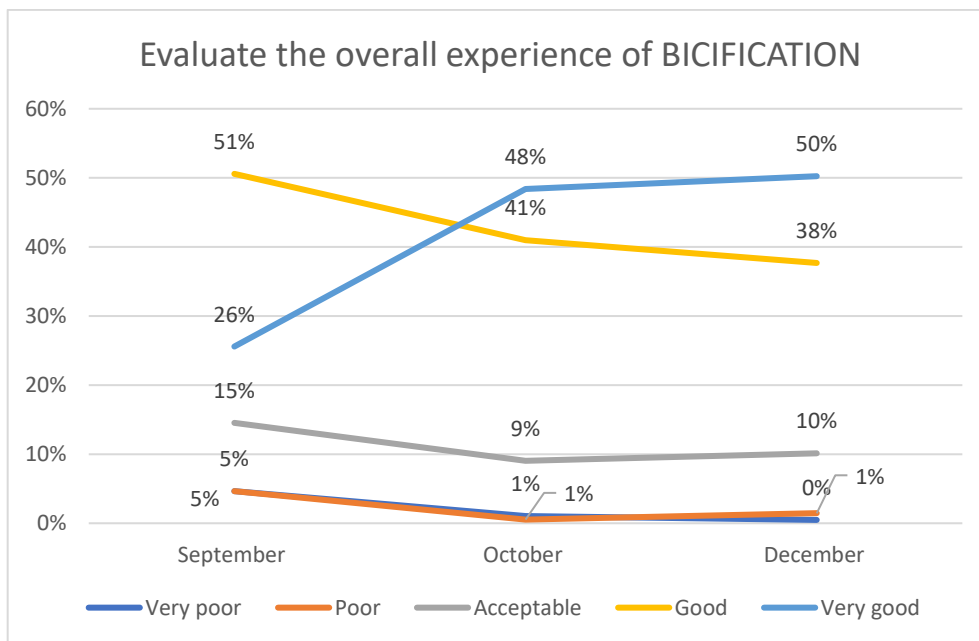


Figure 16: Evaluation of the overall experience of BICIFICATION in Braga (1st, 2nd and 3rd questionnaire)

4 City of Istanbul

During the period of 16/6- 11/12 in Istanbul, more than 26, 200 cycling sessions were performed by the 387 active users. The total distance travelled was 370, 788 km with an average session distance at 14.13 km and the CO2 saved was about 60 tones. The following KPIs along with heatmaps of cycling trajectories were available to Istanbul for monitoring reasons. In total about 25, 400 euros were currently transferred to users Istanbulcards (this amount may be increased after the completion of the money transfer to questionnaire respondents and to people who will return the kit to municipality for future use).

Figure 17 shows the number of sessions performed by the users in Istanbul per month of pilot’s duration (extension period included).

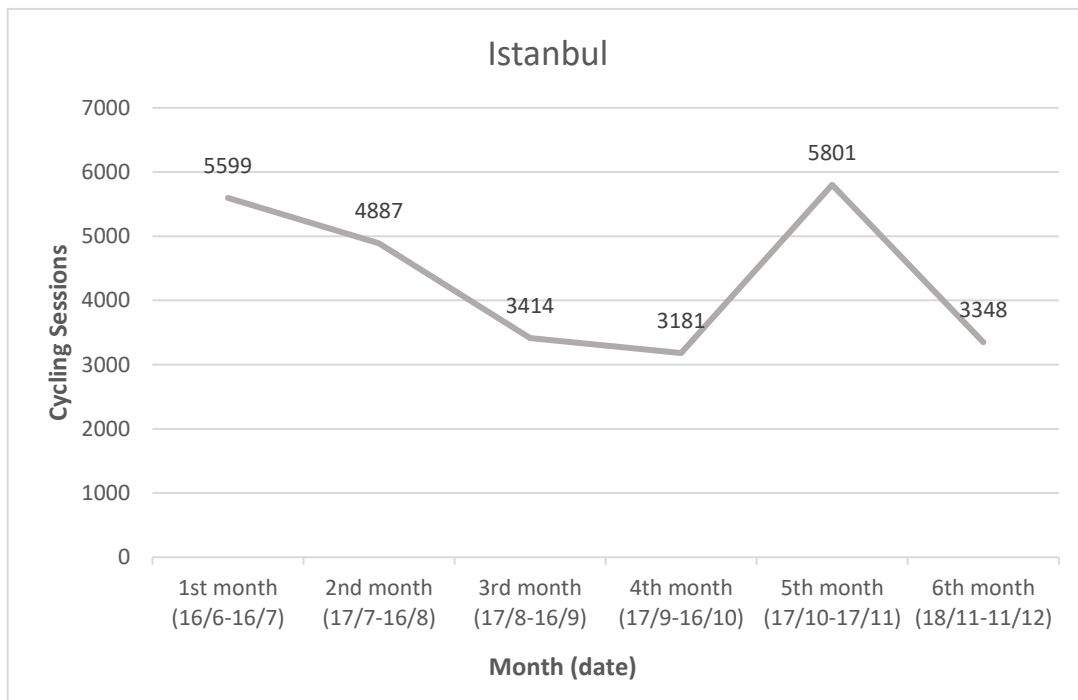


Figure 17: Monthly trend of registered sessions in Istanbul

The majority of users (32%) use their bicycle “once a week” while the percentage of those that use it “2-3 times/week” decreased from 41% in the previous questionnaire to 29%. (Figure 18).

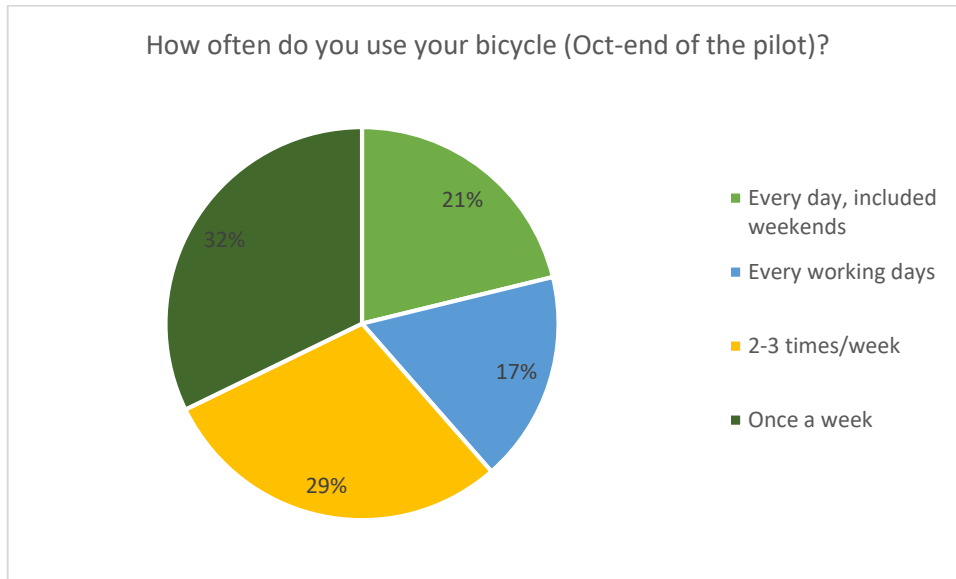


Figure 18: Frequency of bicycle use after participating in BICIFICATION in Istanbul

In Istanbul, 54% of the users evaluated PinBike kit with 5, while also 57% of them gave the higher performance value of 5 to vouchers. Rewarding scheme was also evaluated positively by 49% of the respondents. The distribution among the values 3-5 for the mobile app was quite balanced (23% for 3, 30% for 4 and 33% for 5) (Figure 19)

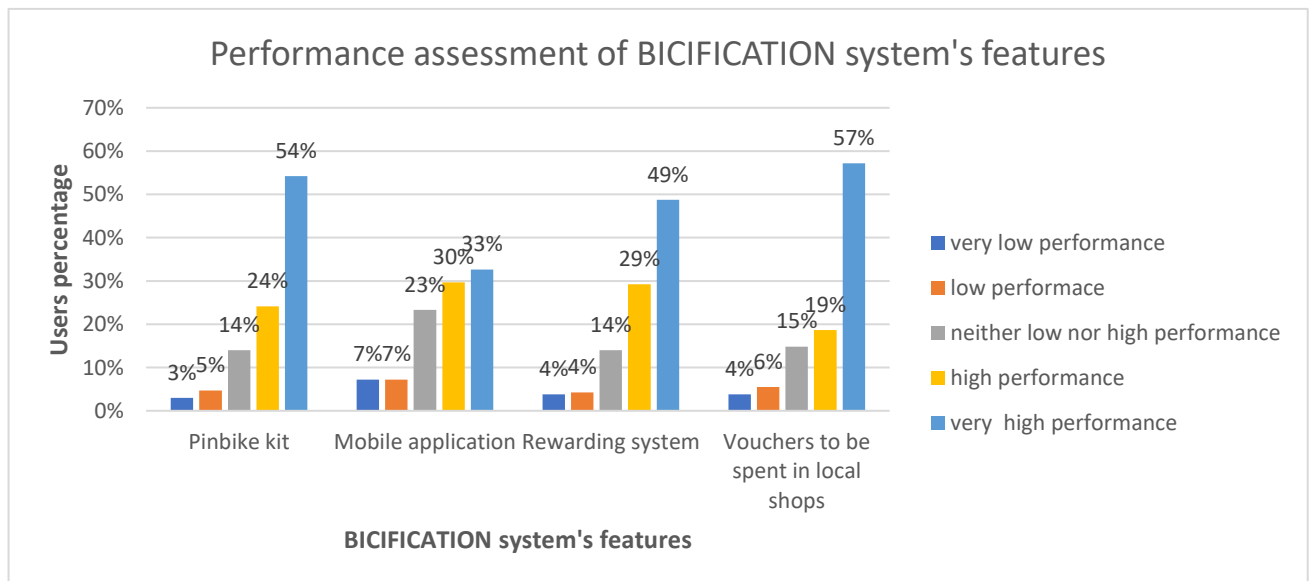


Figure 19: Performance evaluation of BICIFICATION system's features in Istanbul

In the usefulness performance of the features of the mobile app, CO2 savings was voted as the most useful feature by 57% of the users. The rewards, the notifications received and the help center were also evaluated as useful features by 55%, 54% and 46% of the users respectively (Figure 20).

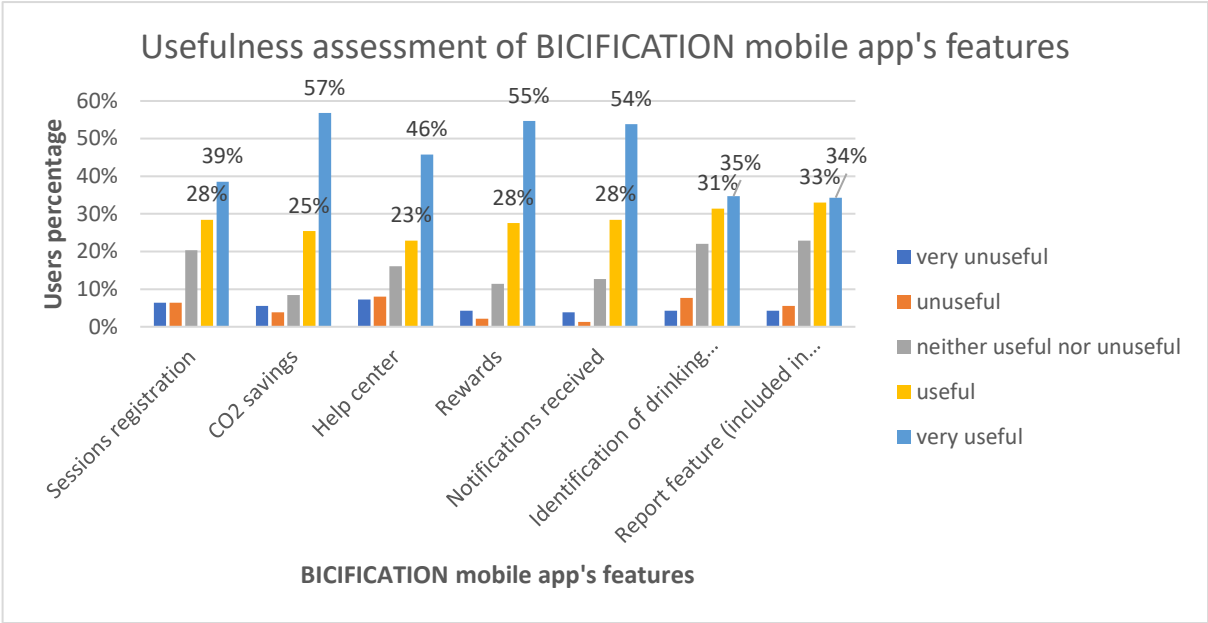


Figure 20: Usefulness evaluation of features included in BICIFICATION mobile application in Istanbul

In Istanbul all the different types of awards were available to users. Thus, in the question which of the rewards they like most 63% of the users vote for km rewards (percentage similar to the October’s questionnaire). The votes of the other types of rewards also remained at the same levels. (Figure 21).

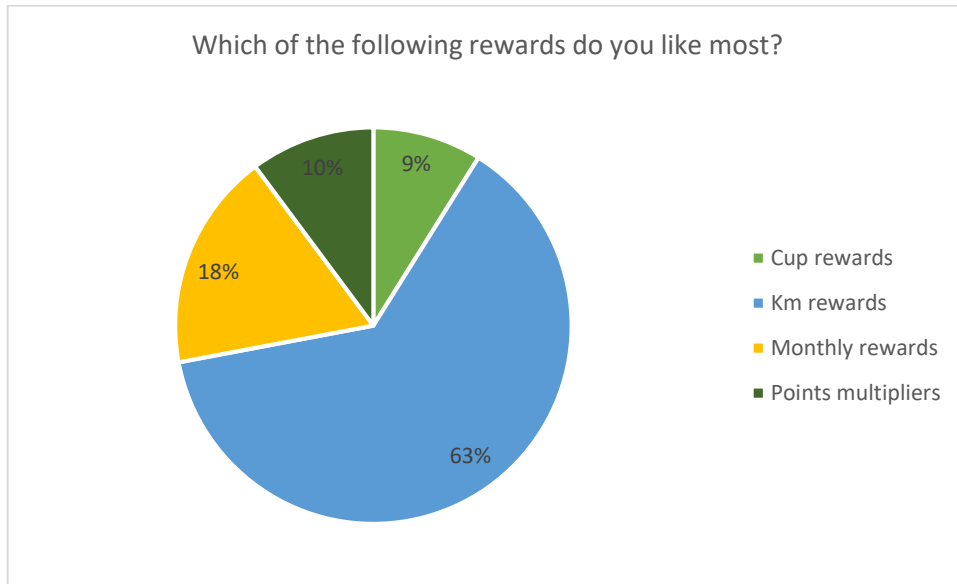


Figure 21: Preferences of Istanbul users about reward types

The most important weather factors in Istanbul as voted by the users were the snow (68%), the slipperiness (67%) and the precipitation (56%) (

Figure 22).

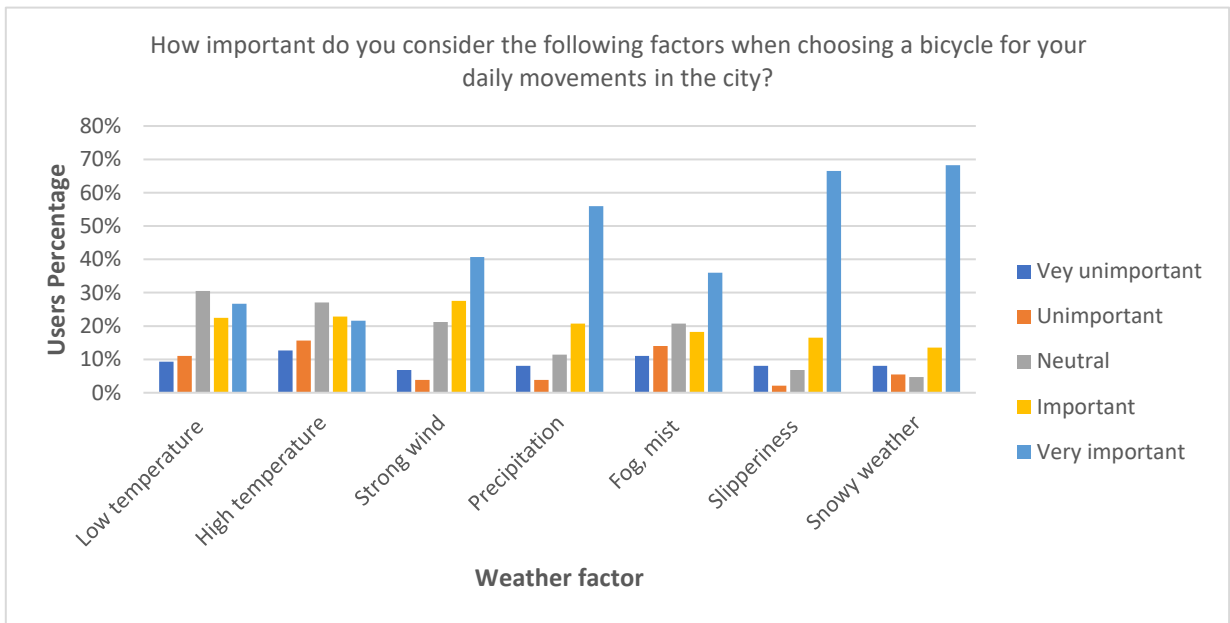


Figure 22: Importance of weather condition during cycling in Istanbul

In the question of the sustainability factors, freedom in terms of independence and health voted with high percentages of 81% and 75% respectively (Figure 23).

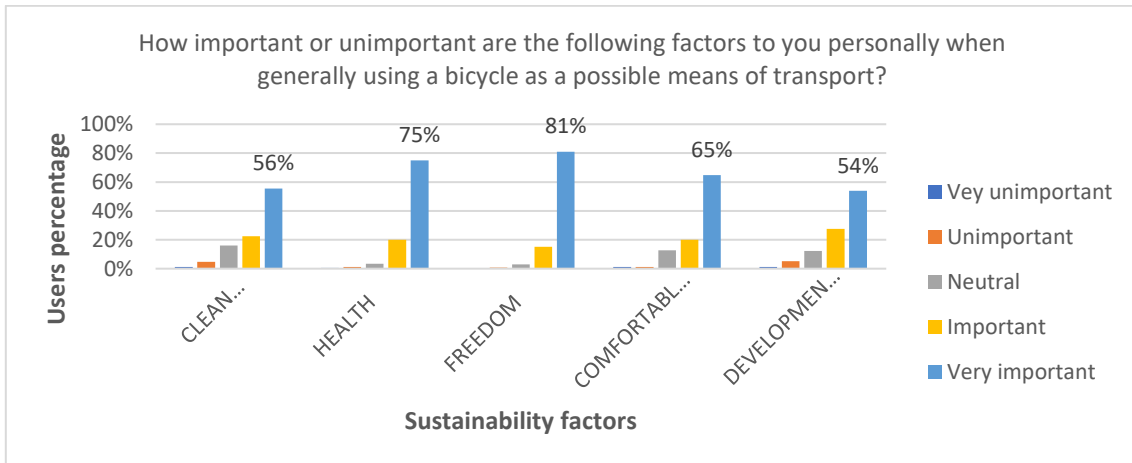


Figure 23: Importance of sustainability factors when cycling in Istanbul

84% of the participants evaluate the overall experience of participating in BICIFICATION with 4 and 5 values (increase from 82% of the October's questionnaire) while just 2% weren't satisfied from their participation (values 1 and 2) (

Figure 24). Finally, 83% of Istanbul users answered that it is very likely to continue cycling after the end of the project.

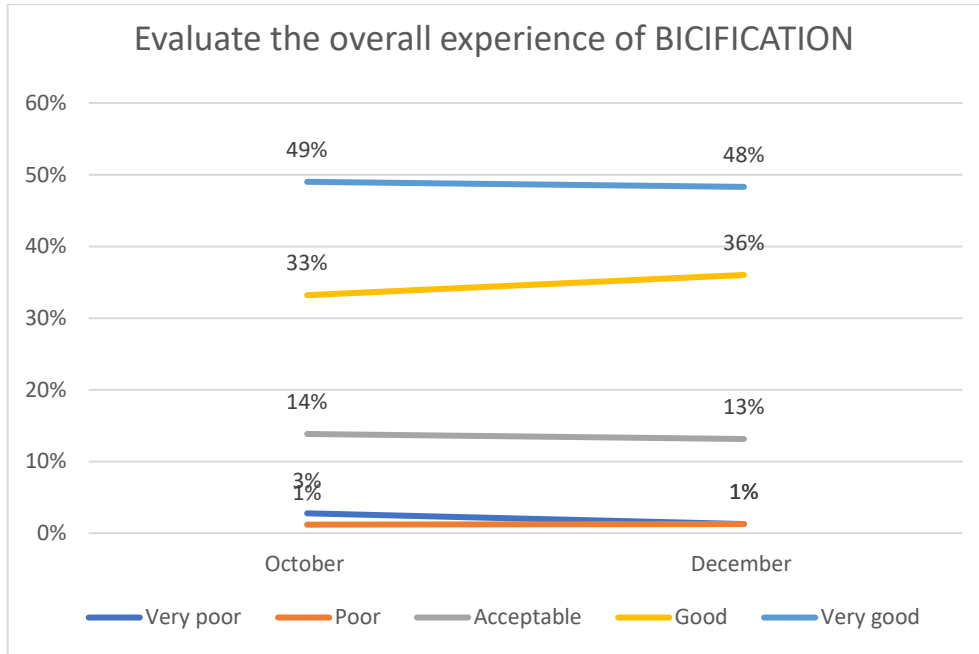


Figure 24: Evaluation of the overall experience of BICIFICATION in Istanbul (1st and 2nd questionnaire)

5 Cross-area comparisons

As the start date of each pilot was slightly different, a month is considered as a duration of 30 days and not as a calendar month (except of the last month), in order to have comparable results in the pilot KPIs.

The number of sessions in Braga and Istanbul follow a similar slightly decreasing trend by the 3rd month. The high numbers of the 1st month in all cities could be justified by the enthusiasm of the citizens to participate in a new mobility scheme. Some problems related to the allocation of the vouchers to the users during the 2nd month as well as some difficulties in the use of the mobile app and of the vouchers in the local shops could explain the slight decrease of the sessions. The 3rd month run during August in which is traditionally the summer vacation month in Braga and Istanbul, and thus the sessions appeared also decreased. In September, the sessions in Braga reached almost the number of the 1st month and then during October to 11th of December, they follow a decreasing trend due to weather conditions. In Istanbul, additional users joined the project in the 5th month, so this could be an explanation of the sessions increase.

A similar decrease between the 1st and the 2nd month was also noted in Tallinn for the same reasons mentioned above. However, the users in Tallinn cycled more during the 3rd month (August). A high decrease is also noted between in September in Tallinn due to weather conditions. During the extension period of the pilots from October to 11th of December, the sessions in Tallinn were continuously decreasing due to weather. All the above observations are presented in Figure 25.

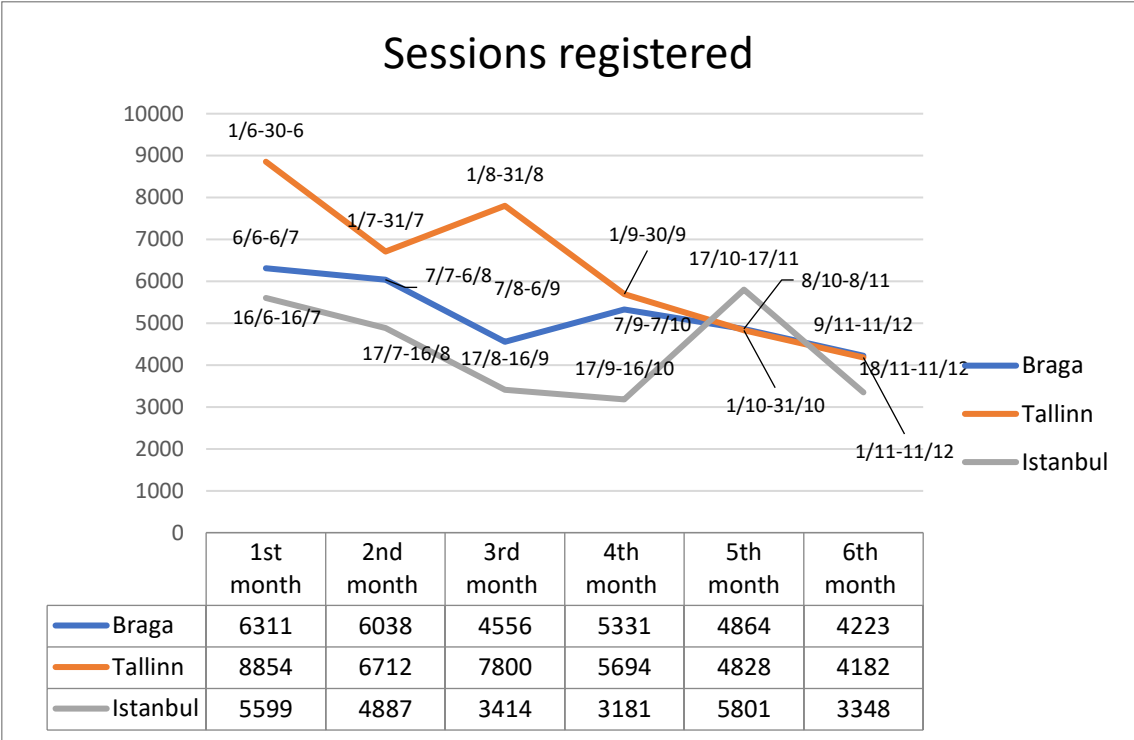


Figure 25: Comparison of monthly trend of registered sessions among pilot cities

The average sessions distance in Tallinn and Braga was similar (6.24 km in Tallinn and 7.24 km in Braga) while in Istanbul this KPI was almost double 14.13 km. This is due to the fact that Istanbul is a megacity with long distances and the whole city area was available for the BICIFICATION participants to cycle.

Regarding the performance evaluation of the features of the BICIFICATION system, Pinbike Kit received the higher percentage of positive evaluation (4 or 5 value) in all three cities (84% in Braga, 85% in Tallinn and 78% in Istanbul). The second and the third higher percentage was noted for the rewarding system and the vouchers/rewards to be spent in local shops notifications in all cities. The mobile application was evaluated as a high-performance feature by more than 60% both in Braga and Istanbul. However, in Tallinn just 35% of the respondents evaluated mobile app with 4 or 5 values (

Figure 26).

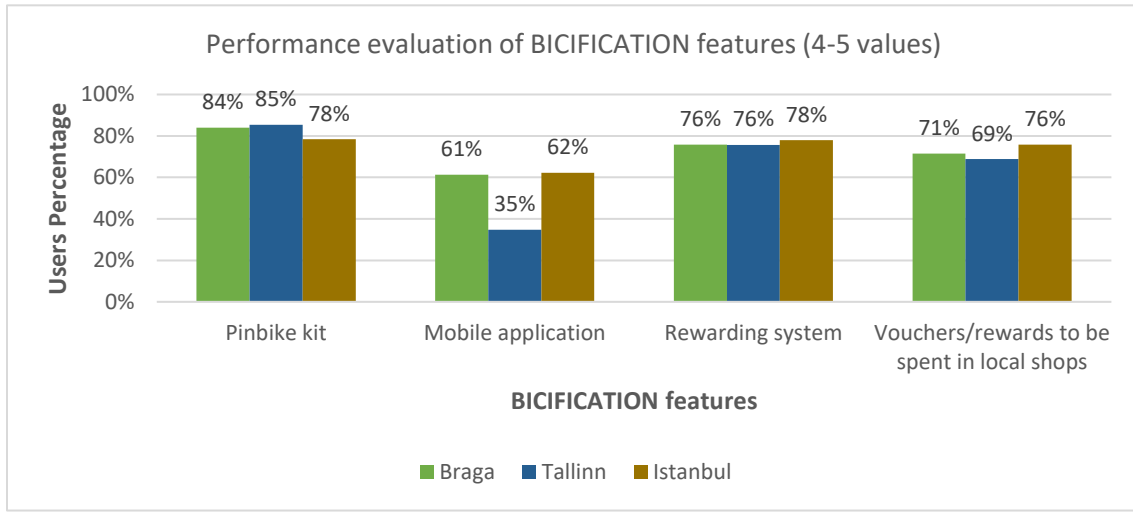


Figure 26: Comparison of the performance evaluation results of BICIFICATION system's features (Braga, Tallinn, Istanbul)

It is worth mentioned that the positive evaluation (4 or 5 values) of the usefulness of the mobile app's features followed similar percentages in Braga and Istanbul, while in Tallinn the percentages were quite lower in all features except of the "sessions registration" and "rewards". The higher deviation was noted in the "CO2 savings" and the "help center" feature. In Braga and Istanbul, 64% and 69% of the participants evaluated the help center with 4 or 5 values while in Tallinn the percentage was 38% (Figure 27).

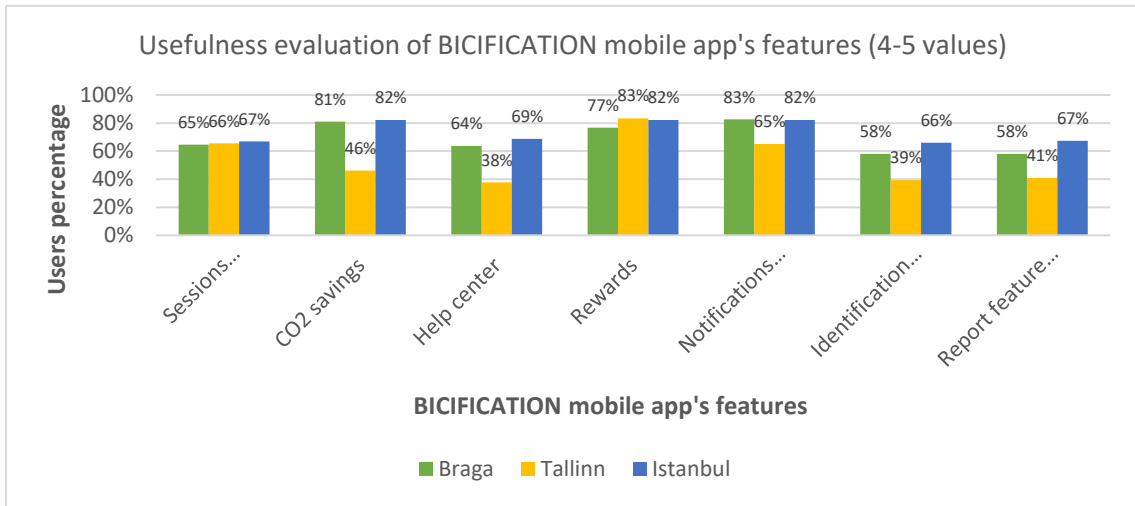


Figure 27: Comparison of the usefulness evaluation results of BICIFICATION system's features (Braga, Tallinn, Istanbul)

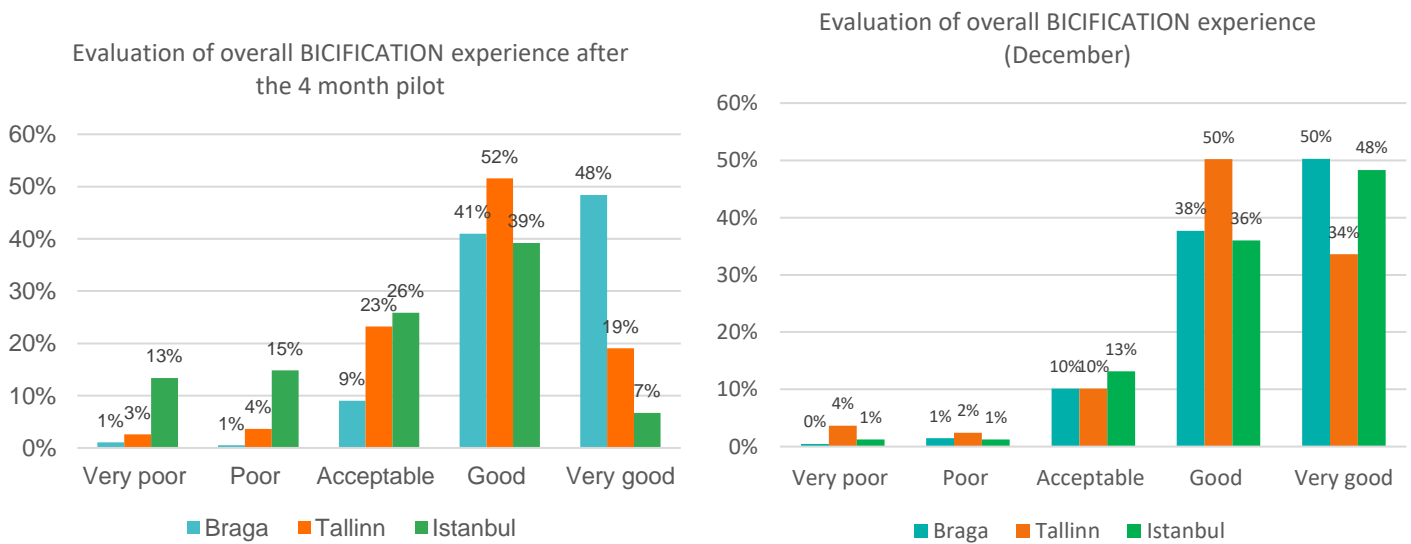


Figure 28: Comparison of the evaluation results of the BICIFICATION overall experience among pilot cities

The majority of the users in Braga (88%) evaluated their whole BICIFICATION experience with the higher values (4 and 5); percentage similar to the one after the 4month period. In the previous questionnaire in Tallinn, more than half of the participants evaluate the experience with 4 and only 19% with 5. A significant percentage of 23% evaluated with 3. At the end of the pilot in December, it is worth mentioned that the percentage of those that evaluate the whole experience with 3 decreased to 10% while 48% evaluated it with 5. In Istanbul, the percentage of those that evaluated with 5 increased from 7% (after the end of the 4month period) to 48%. Additionally, the participants of those that evaluated the overall experience

negatively (values 1 or 2) has almost eliminated (from over 25% after the 4-month period to 2% in December) (Figure 28).

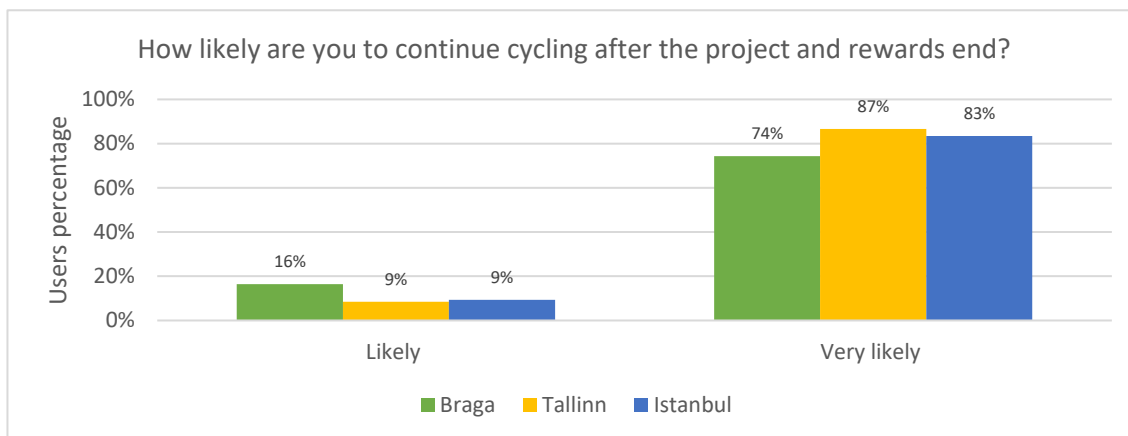


Figure 29: Comparison of the likelihood of continuing cycling after the end of the project (Braga, Tallinn, Istanbul)

Finally, it is quite encouraging that in all three cities more than 90% of the users stated that it is quite (4) or very likely (5) to continue cycling after the end of the project and the stop of rewards provision (

Figure 29). This statement confirms and enhances the success of BICIFICATION, as one of the main objectives of the project was not only to support green and active mobility through BICIFICATION rewarding scheme but succeed a behavioral change aiming at the achievement of a long-term modal shift towards active mobility.

6 Conclusions and Lessons learnt

The present document along with the DEL04- "Assessment results" and the DEL05- "Guidebook for cities and practitioners" compose a complete guide set providing to cities valuable and useful insights both on the implementation of rewarding schemes of active mobility and the users perspectives. By integrating these results in their strategies, the cities can better design future actions and implement more efficient activities towards the successful promotion of greener and more active mobility, ensuring high levels of cycling within the whole year period.

7 Acknowledgement

The activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation.