UPPER

Unleashing the Potential of Public Transport in Europe

D5.3 Strategies and solutions toolbox to improve public perception of PT

WP5 Technology and strategies to trigger the behavioural change in citizens in favour of PT

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EU-RES: Classified Information - restraint UE;
EU-CON: Classified Information - confidential UE;
EU-SEC: Classified Information - secret UE

List of abbreviations and acronyms

Abbreviation/Acronym	Meaning
QoS	Quality of Service
MaaR	Mobility as a Right
EPF	European Passengers' Federation
FIT	FIT Consulting
PT	Public Transport
UITP	International Association of Public Transport
WP	Work Package
EMTA	European Metropolitan Transport Authorities
MSLG	Measures Support Leaders Group
BKK	Centre for Budapest Transport
ICLEI	Local Governments for Sustainability

EIT UM	European Institute of Innovation and Technology Urban Mobility
ECF	Europea Cyclist Federation
IFP	International Federation of Pedestrians
API	Application Programming Interface
VGP	Versailles Grad Parc
WYD	World Youth Day
TML	Transportes Metropolitanos de Lisboa
TC	Technical Committee
GDPR	General Data Protection Regulation
IPR	Intellectual Property Rights
KPIs	Key Performance Indicators
GDPR	General Data Protection regulation
EUR	EUROCITIES
FAC	FACTUAL
IBV	Instituto de Biomecanica de Valencia
EPF	European Passenger Federation
ECF	European Cyclist Federation
IFP	International Federation of Pedestrian
UM KIC	Urban Mobility Kic

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Abstract

This deliverable, aims to resume the activities that had been implemented and demonstrated as part of UPPER project under Task 5.3. The report outlines innovative strategies and solutions aimed at enhancing public perception of public transport (PT) across diverse European cities. The document introduces the concept of Quality of Service (QoS) classes, and present 15 of them derived from extensive literature reviews that had been used for a user surveys, as part of a key methodological framework -UPPER toolbox- for understanding and improving PT user satisfaction. Through the collaboration with ten UPPER sites and the extensive knowledge of horizontal partners, this deliverable presents tailored recommendations based on the unique characteristics and needs that each site, supported by Miro tool exercises and a workshops on point of attentions has been raised.

Three specific measures implemented at UPPER sites—Budapest, Lisbon, and Île-de-France—are highlighted, focusing on the correlation between service level and passenger satisfaction. The document also synthesizes the outcomes of a comprehensive toolbox, survey results, and a WP5 workshop, offering actionable insights for cities to refine their strategies and tools aimed at boosting PT uptake and user satisfaction.

This deliverable does not propose a one-size-fits-all solution but instead provides a methodological framework for cities to assess and address local challenges in public transport perception, contributing to the overarching goals of the UPPER project to increase PT usage by over 30% and enhance user satisfaction by over 25%.

Keywords

User perception, user satisfaction, user needs, resilient cities, quality of service, urban mobility, quality of service classes, survey, toolkit, three-factor theory, horizontal partners, measure monitoring template

Executive summary

The UPPER project, funded by the European Union's Horizon Europe research and innovation program, aims to promote public transport (PT) as the cornerstone of sustainable urban mobility across Europe. This deliverable, D5.3, focuses on Task 5.3, which addresses innovative strategies and solutions to improve public perception of PT in ten diverse European cities, metropolitan areas or regions, referred to as UPPER sites. The ultimate objectives of the UPPER project include increasing PT uptake by over 30% and enhancing user satisfaction by over 25%.

To achieve these goals, D5.3 introduces and applies the concept of Quality of Service (QoS) classes, a framework designed to assess and enhance user satisfaction with PT. The deliverable is structured in two main section: the first section that include chapter 3 present the main tools and activities that had been used to assess all the 10 sites, while chapter 4-5 specifically focused on the implemented UPPER measures related to PT perception.

The first section includes:

QoS Classes Identification: Through a combination of literature review and feedback from UPPER's horizontal partners, fifteen QoS classes were identified. These classes serve as the basis for understanding and improving user perceptions of PT.

User survey and Miro exercises: A comprehensive survey was developed and distributed across the UPPER sites, gathering insights from a diverse range of users. This was complemented by interactive Miro exercises, which allowed cities to categorize QoS classes into basic, performance, and excitement factors, helping to prioritize areas for improvement.

Site-Specific Solutions: The deliverable presents the findings from the QoS classes survey and Miro exercises for each UPPER site. It provides targeted recommendations to improve PT user satisfaction,

The second section includes:

Measures Support Leaders Group (MSLG): To ensure the successful implementation of the proposed measures, the MSLG was established. This group facilitated collaboration among task leaders, city representatives, and horizontal partners, ensuring that the development and monitoring of measures proceeded according to plan.

Status update of the specific measures implemented at three sites—Budapest, Lisbon, and Île-de-France—highlighting the correlation between service levels and passenger satisfaction.

WP5 Workshop: A workshop involving UPPER cities and horizontal partners to refine the proposed measures, ensuring they address common challenges and are tailored to local needs. Key points of attention, such as improving multimodality, enhancing social inclusivity, and ensuring robust stakeholder engagement, were identified and addressed.

This deliverable provides a strategic approach to enhancing public perception of PT, recognizing that user satisfaction is influenced by a complex interplay of factors, including geographical, societal, and economic conditions. Rather than offering a universal solution, the document emphasizes the importance of site-specific strategies and continuous monitoring to achieve meaningful improvements in PT usage and user satisfaction and therefore it offer a methodological toolbox that might support Mission cities to reviews their passenger surveys.

By implementing the recommendations and measures outlined in this deliverable, the UPPER project aims to make a significant contribution to the EU's mission toward climate-neutral and smart cities, with PT at the heart of urban mobility solutions.

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1.Introduction

1.1. Scope of the document

UPPER aims to strengthen the role of public transport (PT) as the cornerstone of sustainable and innovative mobility. The project will implement a combination of measures looking to push people out of private cars and to pull them closer to public transport in 10 diverse cities or regions (referred to as “sites”) across Europe. The key milestones of the UPPER project include increasing PT uptake by over 30% and enhancing user satisfaction by over 25%.

The current deliverable is the main output of UPPER Task 5.3 ‘Innovative strategies and solutions to improve public perception of PT’ and as such has a dual focus:

Firstly, the report introduces the concept of ‘Quality of Service (QoS)’ classes, highlighting their importance in enhancing user satisfaction. Based on a survey and a set of interactive online sessions with UPPER sites’ representatives, the report highlights the relevance scale of the identified Quality of Service classes for each UPPER site, identifying key areas of focus to enhance PT user satisfaction.

Secondly, the deliverable details three measures implemented at UPPER sites (Budapest, Lisbon, Ile-de-France) that fall under UPPER Task 5.3 and focus directly on improving user perception of public transport. Points of attention raised during a workshop by UPPER ‘horizontal partners’ (i.e.,UITP, EMTA, EIT UM, RC, ICLEI, EIT UM, EPF, ECF, IFP)) in relation to these specific measures are also included.

The goal is to provide actionable suggestions and recommendations to UPPER sites, aiding them in improving both the implementation of measures aimed at improving PT user perception, as well as finetuning planned user satisfaction surveys to better capture user satisfaction, thereby supporting UPPER’s overall objectives.

User perception of public transport is strongly linked to geographical, societal and economic factors and is something that is not easy to change in a short time. Allowing each site to emphasize its unique characteristics was crucial for this task, which needed to consider the significant differences among the various contexts within the project to effectively highlight their peculiarities.

Therefore, this document does not have the ambition to suggest any magical recipe to increase user satisfaction. Rather, it is the summary of the discussion and co-design activities undertaken in UPPER with the various pilot sites, to better understand the most important Quality of Service (QoS) classes at each site and their relevance. Additionally, it includes recommendations for conducting surveys to assess user perceptions of public transport, aiming to enhance user satisfaction.

1.2.Structure of the document

The document is structured into seven sections.

The first section, which is the present one, serves as the introduction.

The second section outlines the methodology used to carry out the activities under task 5.3, including survey preparation, toolbox development, and a WP5 Workshop.

In the third section, the document presents the results generated by the toolbox developed under task 5.3, with participation from the sites. For each site, the general outcomes of the two main activities within the toolbox are presented through graphical representations and key insights. The toolbox aimed to categorize the quality of service classes into three main groups: basic factors, performance factors, and excitement factors. Additionally, the sites indicated which quality of service categories were represented in their own surveys.

The fourth section provides a brief report on the WP5 Workshop, highlighting common points and insights related to these measures.

The fifth section details the measures developed under task 5.3, specifically focusing on the measures of BUD_03, LIS_10, and IDF_08.

The sixth and final section is dedicated to high-level recommendations, offering general considerations applicable to all sites and includes a collection of conclusions related to the main activities performed in this task.

2. Methodology

The main activities within UPPER Task 5.3 are outlined as follows:

1. Identification of QoS Classes (literature review and horizontal partner engagement): Fifteen QoS classes were identified through a comprehensive literature review and feedback from UPPER's horizontal partners (i.e., partners not directly involved in pilot sites, UITP, ETRA, POLIS, EUR, EMTA, FAC, IBV, EPF, ECF, IFP).
2. User engagement and feedback collection on identified QoS Classes: A survey on the 15 QoS classes was created and translated by horizontal partners into most of the languages used at the UPPER sites. This resulted in the engagement of 122 users, with support from horizontal partners.
3. Toolbox Implementation, Discussion and co-design activities undertaken with the various pilot sites, to better understand the most important Quality of Service (QoS) classes at each site and their relevance. This exercise was developed on the online platform tool Miro

In this task, a comprehensive toolbox was developed, consisting of the Quality of Service (QoS) identification, a survey of qualitative QoS classes, and a set of Miro exercises. The Miro board and its associated exercises are designed to be replicable and reusable by any other cities, making it a valuable supporting tool for broader application. All the activities within the toolbox are detailed in the respective annexes.

Figure 1 presents the methodology applied to implement task 5.3.

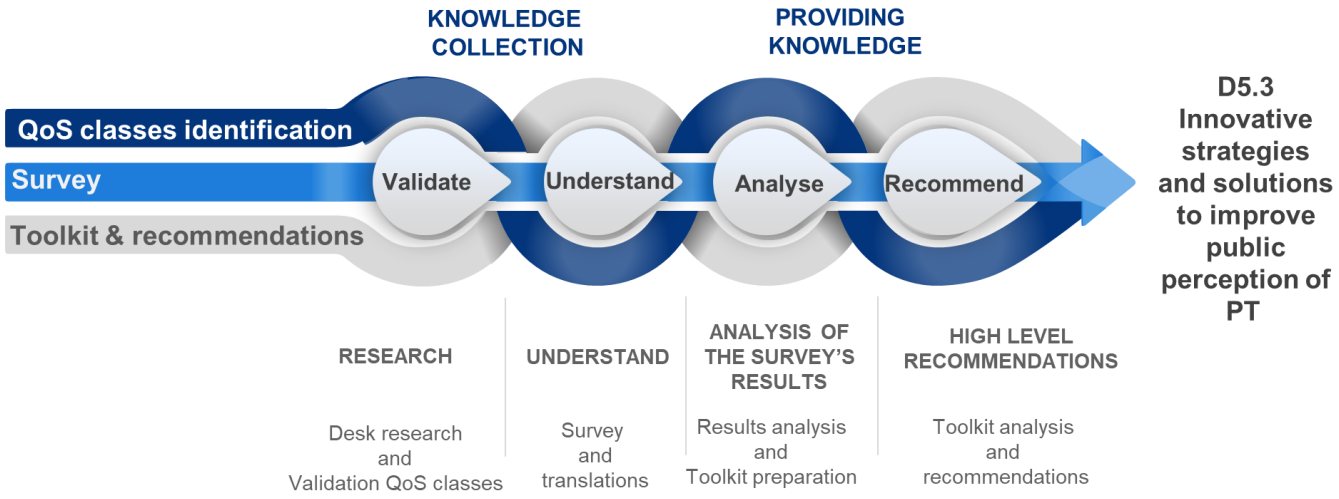

Figure 1 Methodology applied to implement T5.3

In parallel at the beginning of this Task 5.3 it was created by CERTH the Measures Support Leaders Group" (MSLG), see chapter 5 with the aim to monitor and support all the measures implementation. Within task 5.3 the activities had focus on the three UPPER measures BUD_03 (Budapest), LIS_10 (Lisbon) and IDF_8 (Île-de-France).

On this regards with the support of the Work Package 5 leader IBV, a Workshop was organized by Horizontal partner to refine and adapt the implementation of the measures, as detailed in Chapter 4. Based on the outcome of these activities, conclusions and recommendations were defined, providing actionable advice to UPPER cities, aiding them in improving both the implementation of measures aimed at improving PT user perception, as well as finetuning planned user satisfaction surveys to better capture user satisfaction.

2.1. QoS classes identification

To identify relevant classes related to quality of service, a literature review was conducted, for which the "pyramid of customer needs" in transport, which is based on Maslow's hierarchy of needs, provided a useful starting point (see Figure 2). This pyramid reflects the perception of the service offered by public transport users. The six aspects outlined in the pyramid of customer needs in transport define the six dimensions related to achieving higher customer satisfaction. The base of the pyramid represents safety and reliability, which are considered the basic needs and the foundation for the customer's trust in the public transport (PT) system. Speed, in terms of travel time, is considered the principal customer need influencing travel choices, together with value for money (price-competitive and cost-effective PT). The aspect of ease describes the convenience or hassle associated with travel. Travelers also expect a certain degree of comfort both at the station and in the vehicle. Finally, the need for a pleasant experience must be fulfilled to increase user satisfaction, which includes a wide range of features such as architecture, cleanliness, and environmental variables.

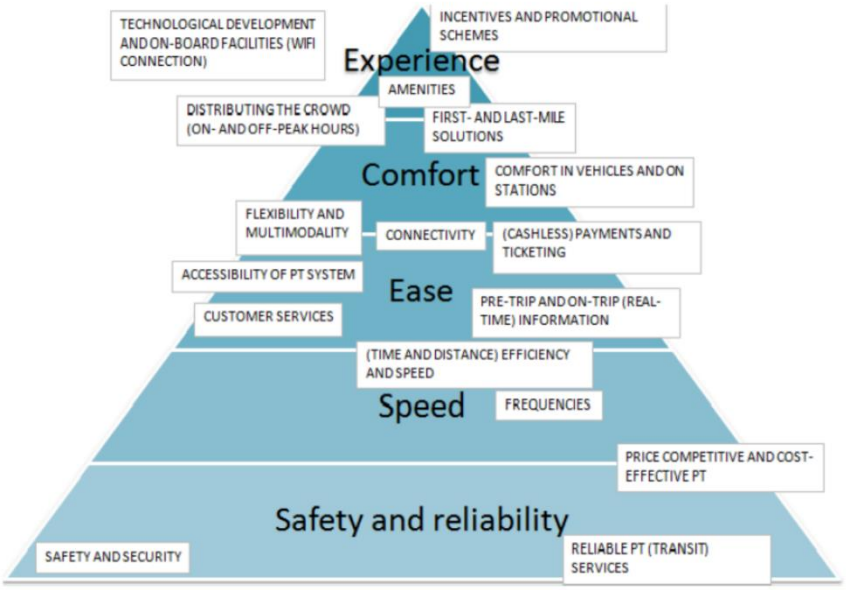

Figure 2 Maslow 's pyramid applied to public transport (CIPTEC, Peek and van Hagen)[1]

To identify the Quality of Service classes, a range of categories was examined, including those from the pyramid and additional ones retrieved from del Castillo J.M. and Benitez F.G. 2013 [2], Abenoza R. et Al. 2018 [3], Eboli L. and

[1] CIPTEC project, 2016. D1.2 Report on analysis of customers' groups and users' needs per customer group, p. 25, in turn based on Peek, G. & van Hagen, M., 2002. Creating synergy in and around stations: three strategies in and around stations. Transportation Research Record, Volume 1793, pp. 1-6.

[2] J. M. del Castillo & F. G. Benitez (2013) Determining a public transport satisfaction index from user surveys, Transportmetrica A: Transport Science, 9:8, 713-741, DOI: 10.1080/18128602.2011.654139

[3] Travel satisfaction with public transport: Determinants, user classes, regional disparities and their evolution Roberto F. Abenozaa, Oded Catsa,b, Yusak O. Susiloa (2016)Fellesson, Markus, and Margareta Friman. "Perceived satisfaction with public transport service in nine European cities." Journal of the Transportation Research Forum. Vol. 47. No. 3. 2008.

Mazzulla G. 2012 [4]. Social equity and justice classes were also considered. On March 11, 2024, a workshop with UPPER horizontal partners was conducted to present these classes and gather their feedback. Finally, the following QoS classes were decided on for use in the surveys and discussion with the UPPER sites (the order of the classes in not indicative of their importance):

1. Punctuality and Reliability
2. Comfort
3. Cleanliness
4. Safety and Security
5. Accessibility (information + physical)
6. User-friendly Infrastructure
7. Real-time Information
8. Communication Channels
9. Affordability
10. Capacity
11. Customer Service
12. Complaint Resolution
13. Seamless Transfers
14. Environmental Sustainability and Green Initiatives
15. Equity and Social Justice Promotion

2.2. Survey

Once the Quality of Service classes were confirmed, a questionnaire (ANNEX A) was developed to be filled in by the UPPER cities. The drafting process involved several stages, beginning with an initial version in a Word document, which was presented for feedback to the horizontal partners during a meeting on March 20, 2024.

The final questionnaire (ANNEX A), created using Google Forms, was organized into 15 sections, each corresponding to the Quality of Service classes as presented above. Designed to be completed in approximately 15 minutes, the questionnaire featured three types of questions per section: one on personal perception, one on general perception, and one on the importance of the class, rated on a scale from 1 to 10. With the help of UPPER horizontal partners and cities, it was translated into seven languages used within the UPPER project: English, French, Portuguese, German, Spanish, Dutch, and Italian.
The UPPER sites and the horizontal partners distributed the questionnaire among citizens, collecting a sample from each city that included respondents with diverse travel behaviors and demographic characteristics.

The goal was to achieve 100 responses to the survey, with at least 10 responses from each city. This target was successfully met with a total of 122 responses. It should be noted that the purpose was not to assess user satisfaction levels at each site, but to identify the Quality of Service categories that could enhance the analysis of user satisfaction

[4] Eboli, Laura, and Gabriella Mazzulla. "Performance indicators for an objective measure of public transport service quality." (2012).

at each site. This information will guide future measures and aim to improve user perception of Quality of Service, which is a key objective of the UPPER project.

Questionnaire responses were then transferred to an Excel document for processing using a pivot table. Analysis included fields such as city of residence, gender, age, income bracket, and profession. A document with the main results obtained for each city was created, containing the results of the perception questions rated from 1 to 10, graphically represented in bar charts to show frequency of distribution (as illustrated in Figure 3). These data were provided to the cities as reference, during the Discussion and co-design activities undertaken with the various pilot sites as discussed in the following chapter.

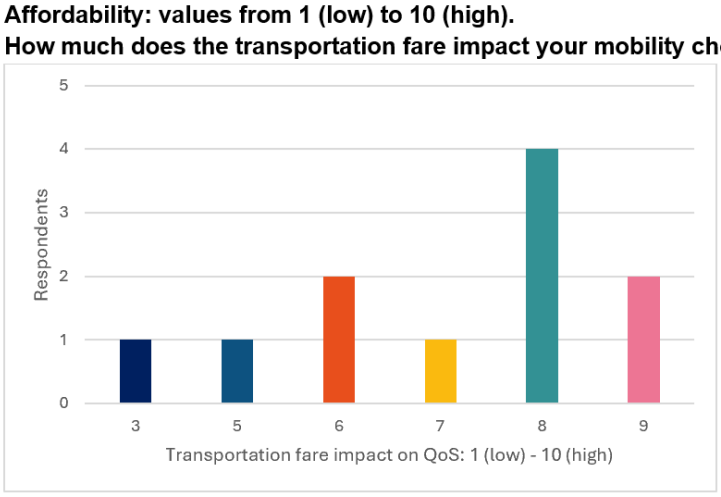

Figure 3 Representation of a site's questionnaire results (ANNEX B)

2.3. Miro tool exercises

As a next step, UPPER cities were invited to adopt the two exercises using Miro, tool an online platform allowing teams to collaborate, create, and innovate using visual tools and templates:

- In the first exercise, cities were asked to categorize each of the 15 classes into basic factors, performance factors, or excitement factors. Additionally, for each class, a value from 1 to 10 was assigned to reflect its perceived relevance.
- The second exercise required cities to complete a table listing the 15 classes and indicate whether these were included in their site's user satisfaction surveys. There was also space provided for comments or additional notes if needed.

The purpose of these exercises that are part of UPPER toolbox was to assist each site in understanding which classes to prioritize to enhance public transportation user perception. A dedicated Miro whiteboard was created for each city, featuring the two activities. Each city received a guide outlining the activities and a short video explaining how to complete the tasks on the board.

The first exercise conducted with the cities on the Miro platform is based on the three-factor theory (Kano et al., 1984). This theory postulates that Quality of Service (QoS) affects overall travel satisfaction differently depending on the performance level of each factor. The three factors are defined as follows:

- Basic factors: They are basic and expected attributes that all transport services should provide adequately to the user. From a policy perspective, basic factors should be delivered at the standard regional level to avoid

the dissatisfaction of riders. In general, they do not positively influence overall satisfaction when they are well delivered, while they create dissatisfaction when they are poorly delivered.

- Performance factors: Resources should be allocated to performance factors to maximize user satisfaction. This category can contribute to both satisfaction and dissatisfaction depending on whether their performance is high (satisfiers) or low (dissatisfiers), respectively.
- Excitement factors: Unlike the basic factors, attributes belonging to this category are unexpected attributes that can only bring joy and satisfaction with the service. Excitement factors often surprise users and generate delight. Therefore, they are often used to promote competitiveness.

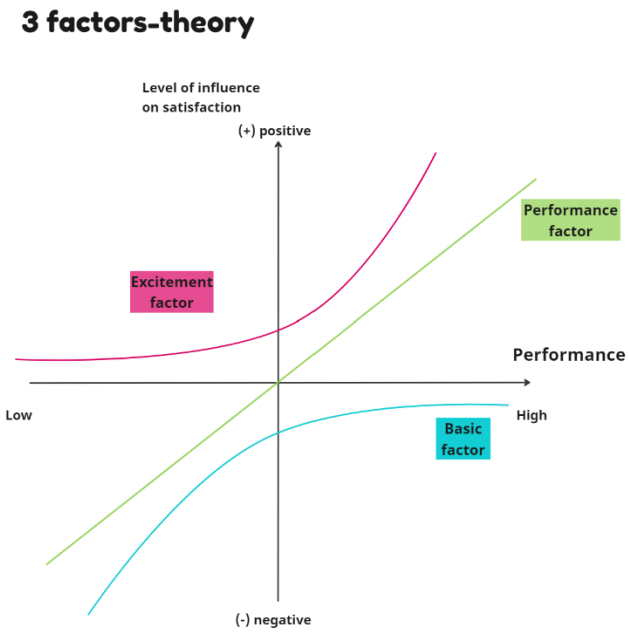

Figure 4 Three-factor theory graph (adapted from Kano et al., 1984)[5]

3.UPPER sites' perspective and solutions to improve public perception of PT

One of the objectives of T5.3 was to provide recommendations for each UPPER site. The Miro exercises enabled them to systematically analyse the results collected by the sample survey on QoS indicators helping them to better understand the key classes that will need to be promoted.

[5] Tuan, V. A., Van Truong, N., Tetsuo, S., & An, N. N. (2022). Public transport service quality: Policy prioritization strategy in the importance-performance analysis and the three-factor theory frameworks. Transportation Research Part A: Policy and Practice, 166, 118-134.

In this chapter, the results of the Miro toolbox completed by the UPPER cities will be analysed. The quality of service's classes will be categorized into the three factors (basic, performance, excitement) as identified by each city. Additionally, key insights will be provided for each site. By creating this categorization, each site can visualize the performance factors that can influence user satisfaction, positively or negatively. This will help prioritize areas for improvement to achieve higher levels of satisfaction. Furthermore, understanding which basic factors need to be maintained at a high level of performance to avoid dissatisfaction, and identifying excitement factors that could be leveraged to boost satisfaction levels, will also be addressed.

3.1. Rome

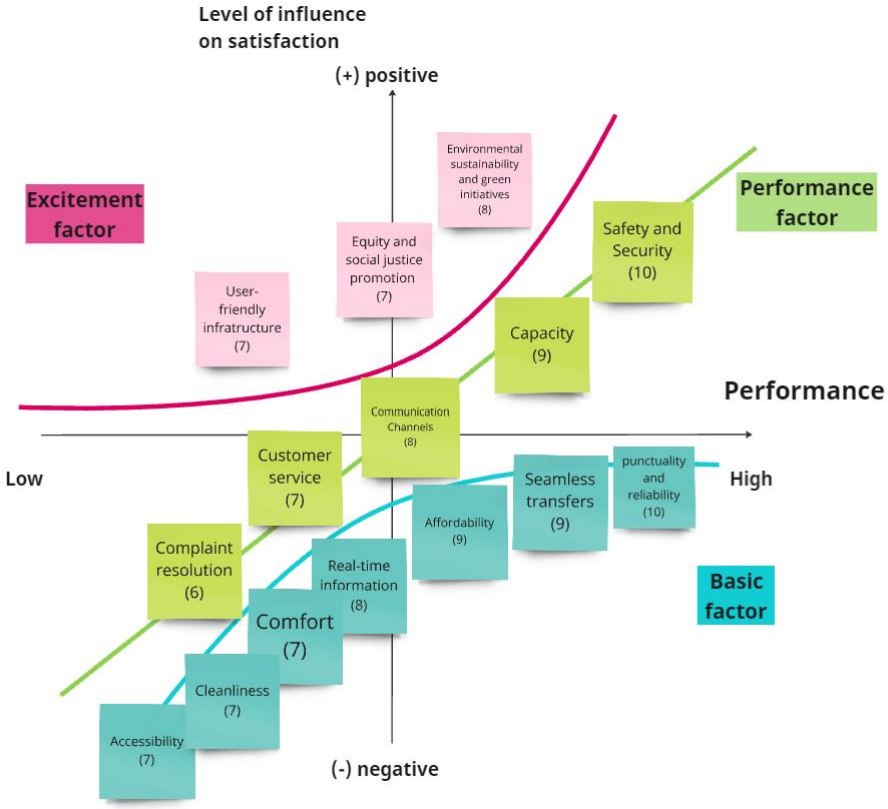

Figure 5 Rome's three factors theory graph

The Rome site identifies several basic factors as critical for ensuring user satisfaction, with a high relevance rating. These include punctuality and reliability, seamless transfers, affordability, and real-time information. Additionally, comfort, accessibility, and cleanliness are rated 7 out of 10, indicating that these essential attributes are expected from all transport services and must be adequately provided to avoid dissatisfaction.

In terms of performance factors, which are key areas where improvements can significantly enhance user satisfaction, the Rome site highlights safety and security (with high relevance), capacity, communication channels, customer service, and complaint resolution (with lower relevance).

Unexpected attributes that can greatly enhance user satisfaction, known as excitement factors, include environmental sustainability and green initiatives, the promotion of equity and social justice, and user-friendly infrastructures. These elements can provide an extra layer of satisfaction and delight for users.

Key insights for improving user satisfaction suggest that efforts and resources should be focused on performance factors. Notably, capacity and complaint resolution are not represented in the site's survey, despite capacity receiving a high relevance score with an average of 7 out of 10 and complaint resolution receiving an average score of 6 out

of 10 in the qualitative survey. Monitoring these factors over time through site questionnaires is crucial for ongoing improvement in user satisfaction.

Similarly, for the basic factors, it is important to ensure they are included in the site survey, with a particular focus on seamless transfers, which is currently not represented. In the qualitative survey, seamless transfers received an average score of 9 out of 10, indicating its critical importance. Additionally, if the site wants to use the identified excitement factors as leverage to enhance user satisfaction, it should include them in its surveys to assess their impact.

3.2. Valencia

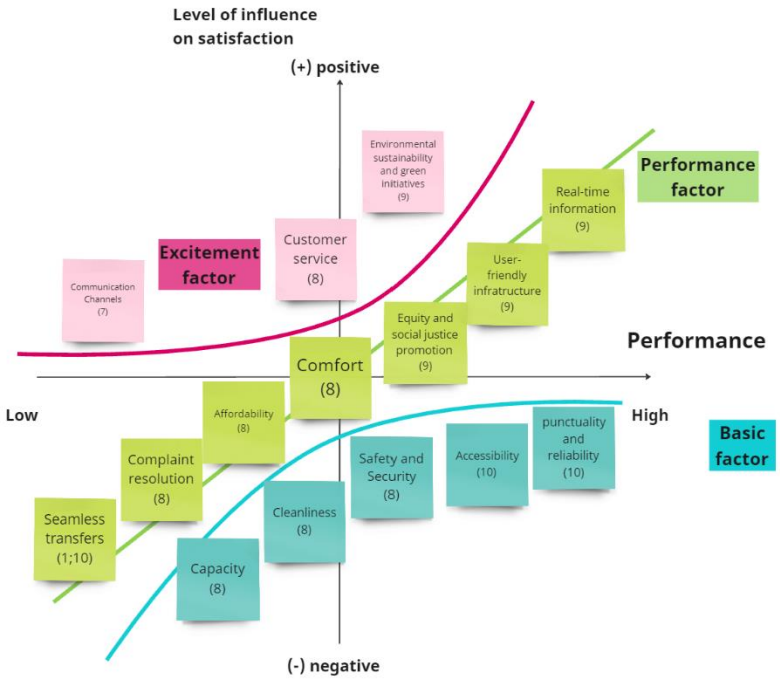

Figure 6 Valencia's three factors theory graph

The Valencia site identifies several basic factors as critical for ensuring user satisfaction, all with high relevance. These include punctuality and reliability, accessibility, safety and security, cleanliness, and capacity. These elements are fundamental and ensure that users have a reliable and safe service.

In addition to the basic factors, there are performance factors that can significantly enhance user satisfaction when improved. For Valencia, these key performance factors include real-time information, user-friendly infrastructure, equity and social justice promotion (rated highly with a relevance of 9 out of 10), comfort, affordability, complaint resolution, and seamless transfers. These aspects are crucial for improving the overall user experience and ensuring that the service meets user needs efficiently and effectively.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Valencia, these include environmental sustainability and green initiatives, customer service, and effective communication channels. These elements can provide an extra layer of satisfaction and delight to the user experience.

Key insights from the Valencia site reveal a comprehensive approach to user satisfaction. All classes reported in the graph were included in the previously conducted site questionnaires, ensuring a thorough assessment. Notably, the

inclusion of the "Equity and social justice promotion" class within the performance factors highlights its high relevance and importance to users.

Additionally, Valencia has included several other categories that contribute to user satisfaction and engagement. These include brand perception and brand value, participation in EU projects and R&D initiatives (transference to society), participatory tools such as the Mobility Board or Accessibility Board, and access to public information through transparency policies, an open data portal, and accountability measures. These additional categories reflect Valencia's commitment to comprehensive service improvement and user engagement, ensuring that all aspects of the user experience are considered and addressed.

3.3. Oslo

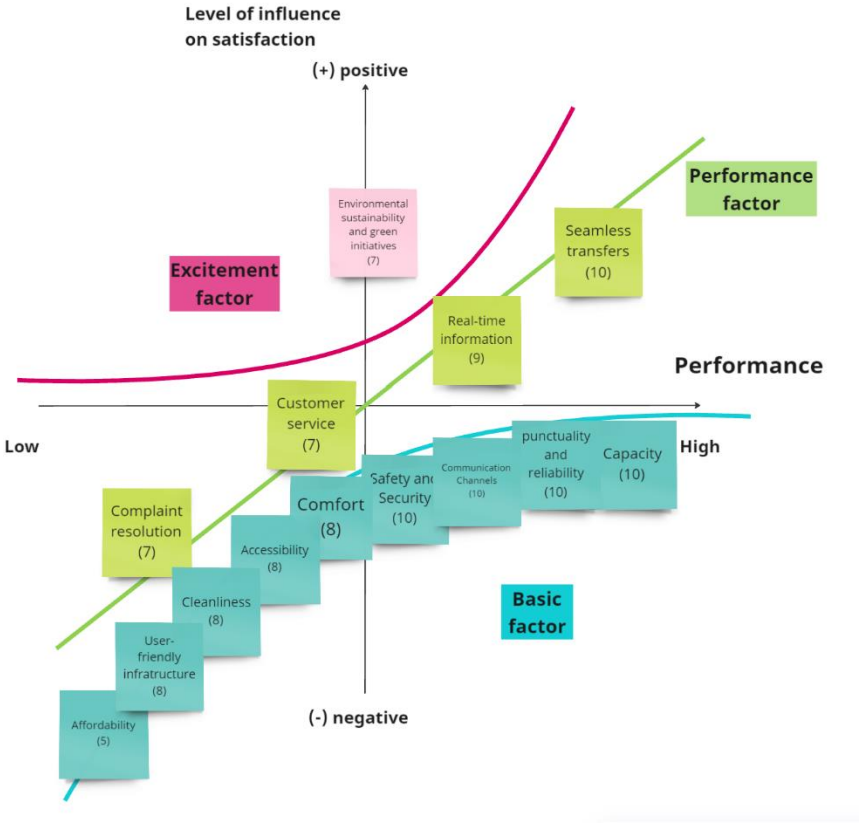

Figure 7 Oslo's three factors theory graph

The Oslo site identifies several basic factors as critical for ensuring user satisfaction, all with high relevance. These include capacity, punctuality and reliability, communication channels, and safety and security. Additionally, comfort, accessibility, cleanliness, and user-friendly infrastructure are rated 8 out of 10, highlighting their importance. Affordability is rated 5 out of 10, indicating a moderate level of relevance.

Performance factors are areas where improvements can significantly enhance user satisfaction. For Oslo, the key performance factors with high relevance are seamless transfers and real-time information. Additionally, customer service and complaint resolution are rated 7 out of 10, underscoring their importance in providing a satisfactory user experience.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Oslo, these include environmental sustainability and green initiatives, which add an extra layer of satisfaction and delight for users.

Key insights from the Oslo site reveal that many factors fall within the basic factors category. Ensuring these basic factors are provided at a high level is an excellent starting point for improving user satisfaction before addressing performance factors. The site did not position the Equity and Social Justice Promotion class within one of the three categories but indicated in the second exercise that this category, along with the environmental one, is included in their reputation tracker.

Notably, there are some absences in the site's survey. For basic factors, user-friendly infrastructure and communication channels are missing. Among performance factors, real-time information, customer service, and complaint resolution are not listed. Both the real-time information and communication channels classes received a score of 8 out of 10 from the qualitative questionnaire, reflecting their high relevance as expressed by the Oslo site. Including these within the site survey would be beneficial to capture a comprehensive assessment of user satisfaction.

In addition to the proposed Quality of Service (QoS) classes, Oslo included several other categories in its survey to enhance the understanding of user needs and preferences. These additional classes are: nearest stop is close to where I work/live, route information about lines and departures at stops, mobile, and internet, information on what to do when experiencing problems in traffic, and a range of ticket types.

3.4. Lisbon

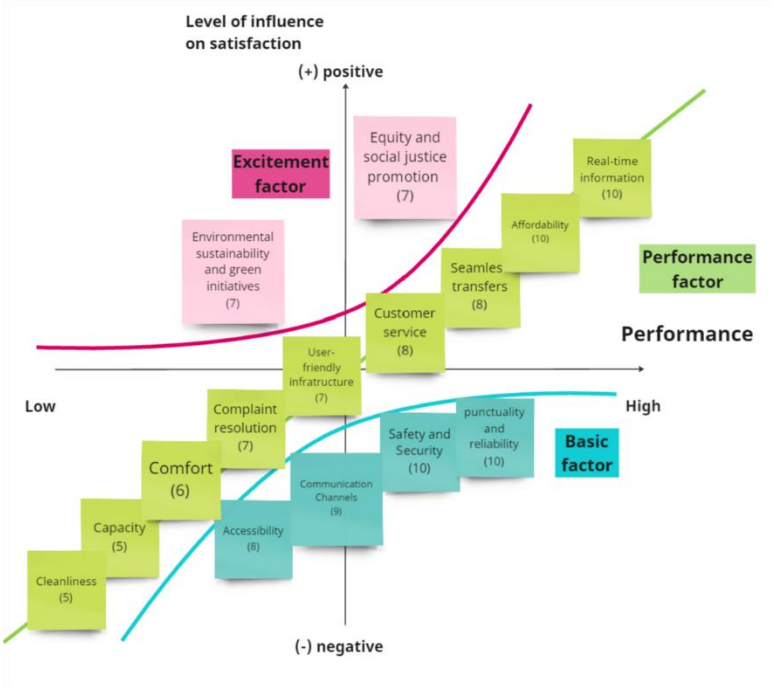

Figure 8 Lisbon's three factors theory graph

The Lisbon site identifies several basic factors as critical for ensuring user satisfaction, all with high relevance. These include punctuality and reliability, safety and security, communication channels, and accessibility. These elements are foundational to providing a reliable and safe service for users.

Performance factors, which are key areas where improvements can significantly enhance user satisfaction, are also highlighted by the Lisbon site. The high relevance performance factors include real-time information, affordability, seamless transfers, and customer service. Additionally, user-friendly infrastructure and complaint resolution are rated 7 out of 10, comfort is rated 6 out of 10, and capacity and cleanliness are rated 5 out of 10.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Lisbon, these include environmental sustainability and green initiatives, as well as the promotion of equity and social justice. These elements can provide an extra layer of satisfaction and delight for users.

Key insights from the Lisbon site reveal some important areas for focus. The classes of real-time information and affordability, which are rated 10 out of 10 in importance by the Lisbon site and categorized within the performance factors, are not represented in the site's questionnaire. From the qualitative survey, real-time information received a score of 8.4 out of 10, and affordability received a score of 8.7 out of 10. To improve user satisfaction, efforts and resources should focus on these performance factors. Additionally, the classes of seamless transfers, which received a score of 9.14 out of 10 in the qualitative survey, and user-friendly infrastructure, rated 9 out of 10, are also not included in the site's questionnaire. Monitoring these factors over time through site questionnaires is crucial for ongoing improvement in user satisfaction.

In addition to the proposed Quality of Service (QoS) classes, Lisbon included the travel time class in its survey, further enhancing the understanding of user needs and preferences. This inclusion reflects Lisbon's commitment to addressing specific user concerns and improving the overall user experience by providing relevant and useful information.

3.5. Thessaloniki

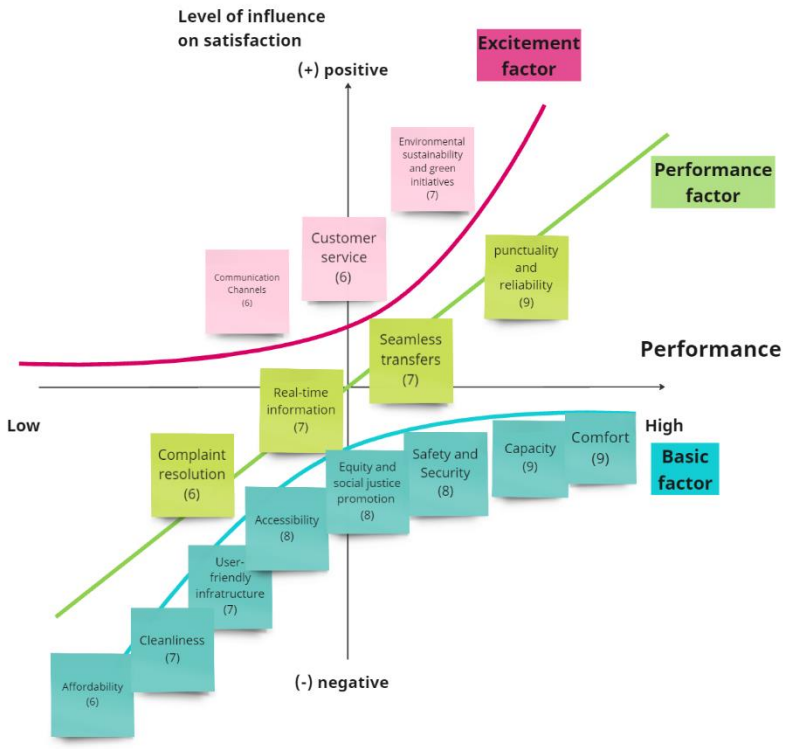

Figure 9 Thessaloniki's three factors theory graph

The Thessaloniki site identifies several basic factors as critical for ensuring user satisfaction, all with high relevance. These include comfort, capacity, safety and security, equity and social justice promotion, and accessibility. Additionally, user-friendly infrastructure and cleanliness are rated 7 out of 10, while accessibility is rated 6 out of 10, indicating their importance in providing a satisfactory user experience.

Performance factors are key areas where improvements can significantly enhance user satisfaction. For Thessaloniki, the identified performance factors are punctuality and reliability, seamless transfers, real-time information, and complaint resolution. These aspects are crucial for improving the overall user experience and ensuring that the service meets user needs efficiently and effectively.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Thessaloniki, these include environmental sustainability and green initiatives, customer service, and effective communication channels. These elements can provide an extra layer of satisfaction and delight to the user experience.

Key insights from the Thessaloniki site reveal that many classes fall within the basic factors category, including the equity and social justice promotion class, which is typically categorized by other sites as an excitement factor. This highlights Thessaloniki's unique approach to integrating social values into their basic service criteria.

However, several proposed Quality of Service (QoS) classes are not represented in the Thessaloniki site survey. This includes basic factors such as the comfort class, rated 9 out of 10, and the equity and social justice promotion class, rated 8 out of 10. Additionally, three out of four classes categorized within the performance factors are not represented in the site’s survey. These are seamless transfers, real-time information, and complaint resolution, which were rated in the qualitative survey of Task 5.3 as 9.2 out of 10, 7.8 out of 10, and 8.7 out of 10, respectively.

Within the excitement factors, the communication channels class, along with the environmental sustainability and green initiatives class, are also not represented in the site’s survey. Including these factors in future surveys would be beneficial for a more comprehensive assessment of user satisfaction and to identify areas for improvement.

3.6. Mannheim

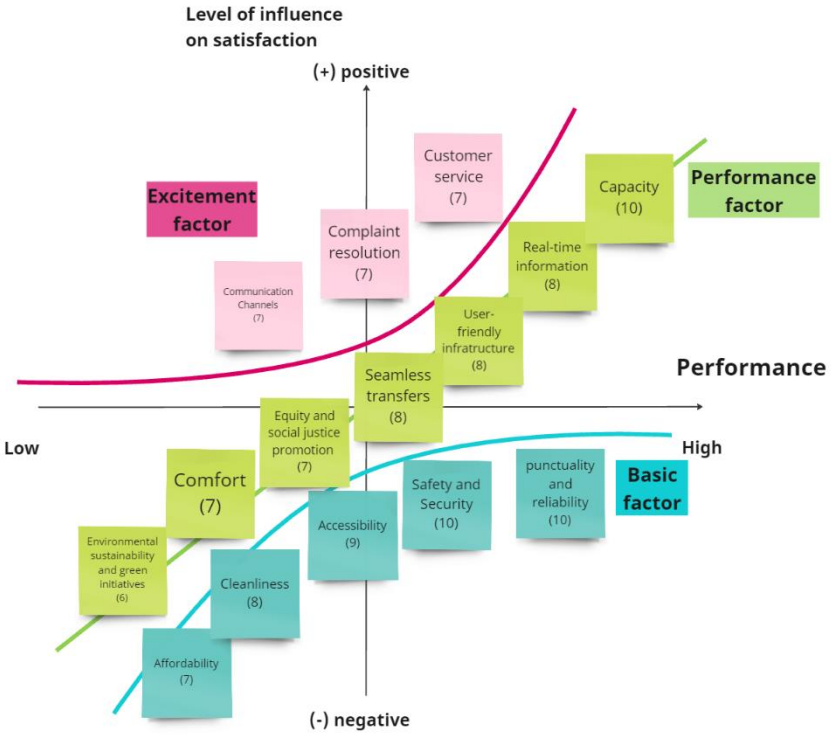

Figure 10 Mannheim's three factors theory graph

The Mannheim site identifies several basic factors as critical for ensuring user satisfaction, all with high relevance. These include punctuality and reliability, safety and security, accessibility, and cleanliness. Additionally, affordability is rated 7 out of 10, indicating its importance in providing a satisfactory user experience.

Performance factors, which are key areas where improvements can significantly enhance user satisfaction, are also highlighted by the Mannheim site. The high relevance performance factors include capacity, real-time information, user-friendly infrastructure, and seamless transfers. Additionally, the classes of equity and social justice promotion and comfort are rated 7 out of 10, while environmental sustainability and green initiatives are rated 6 out of 10.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Mannheim, these include customer service, complaint resolution, and effective communication channels. These elements can provide an extra layer of satisfaction and delight for users.

Key insights from the Mannheim site reveal some interesting points regarding the categorization and relevance of various factors. The site categorized environmental sustainability and green initiatives, as well as equity and social justice promotion, within the performance factors. There is a noticeable mismatch between some of the top four classes with the highest relevance and the responses from the qualitative survey of Task 5.3. Specifically, the capacity class, which received a 10 out of 10 score in the current evaluation, was given a relevance score of 5 out of 10 in the survey. Similarly, the user-friendly infrastructure class, scored 8 out of 10 here, received a 4.7 out of 10 in the survey. However, the real-time information and seamless transfer classes consistently received scores of 8 out of 10 in both evaluations.

This discrepancy suggests a need for further investigation into why there is a difference in perceived relevance between different evaluations. Monitoring these factors over time through site questionnaires and qualitative surveys will be crucial for ongoing improvement in user satisfaction. Ensuring that all critical factors, especially those with high relevance, are accurately represented and addressed in site surveys will help provide a more comprehensive understanding of user needs and preferences, leading to better-targeted improvements.

3.7. Budapest

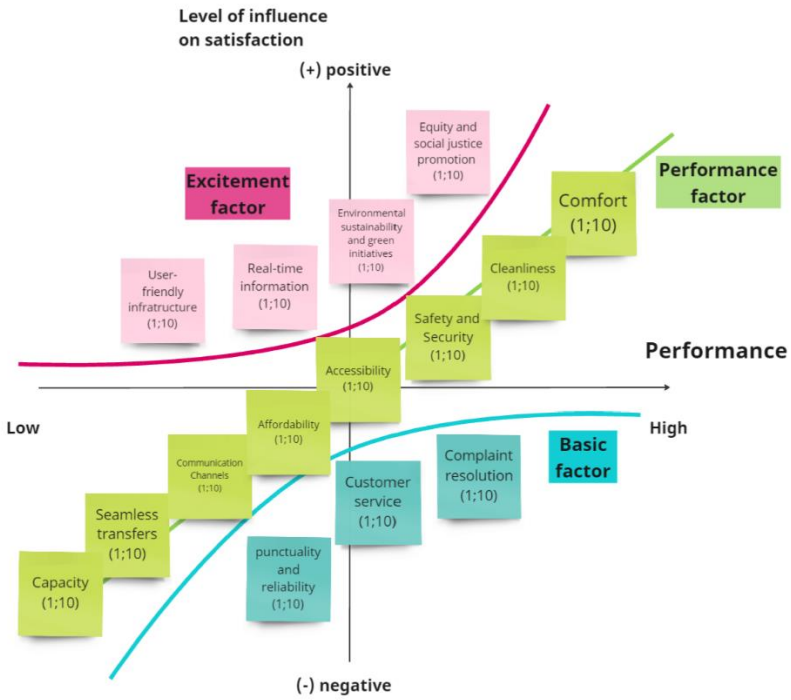

Figure 11 Budapest's three factors theory graph

The Budapest site identifies several basic factors as critical for ensuring user satisfaction. These include complaint resolution, customer service, and punctuality and reliability. These elements are fundamental and ensure that users have a reliable and responsive service.

Performance factors are key areas where improvements can significantly enhance user satisfaction. For Budapest, these include comfort, cleanliness, safety and security, accessibility, affordability, communication channels, seamless transfers, and capacity. These factors are crucial for improving the overall user experience and meeting user needs efficiently and effectively.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Budapest, these include equity and social justice promotion, environmental sustainability and green initiatives, and user-friendly infrastructure. These elements can provide an extra layer of satisfaction and delight for users.

Key insights from the Budapest site reveal that most of the classes have been categorized within the performance factors, with only three part of the basic factors. Comparing the classes proposed here with those used in the site survey, it is notable that seamless transfers, environmental sustainability and green initiatives, and equity and social justice promotion are not included in the site survey. However, the survey does include three additional categories: travel time, level of satisfaction with staff, and sales channels and ticketing.

To improve user satisfaction, it would be beneficial for the Budapest site to consider incorporating the missing classes of seamless transfers, environmental sustainability and green initiatives, and equity and social justice promotion into their surveys. This inclusion would provide a more comprehensive understanding of user needs and help identify areas for targeted improvements. Monitoring these factors over time through site questionnaires and qualitative surveys will be crucial for ongoing enhancement of user satisfaction, ensuring that all critical aspects are addressed.

3.8. Ile-de-France

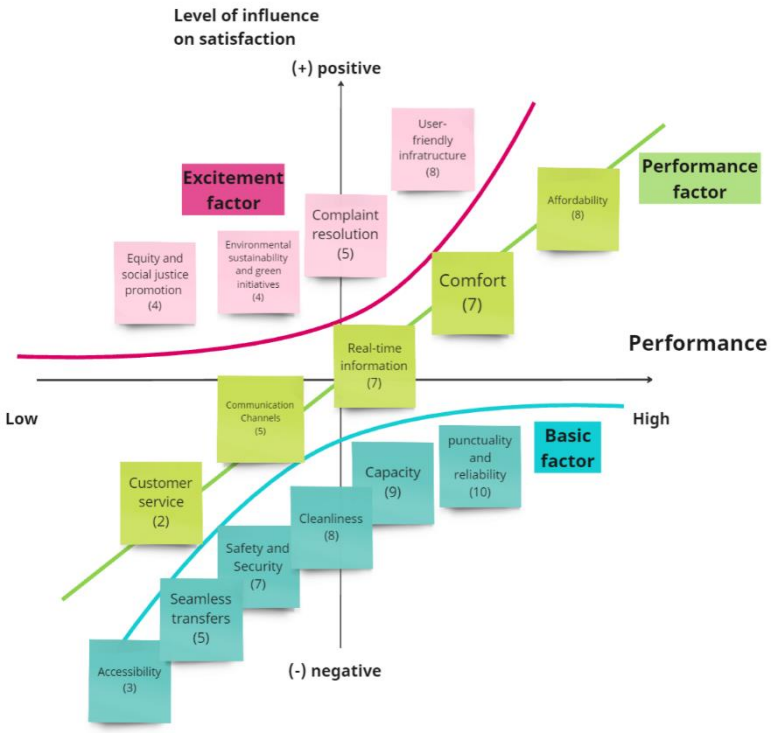

Figure 12 Ile-de-France's three factors theory graph

To improve user satisfaction, it is essential to first assess and address the basic factors, enhancing their performance. Focus should also be placed on improving the performance factors, as they directly contribute to user satisfaction. Lastly, integrating the excitement factors will provide an additional boost to overall user satisfaction.

The Ile de France site identifies several basic factors as critical for ensuring user satisfaction, all with high relevance. These include punctuality and reliability, capacity, and cleanliness. Additionally, safety and security are rated 7 out of 10, seamless transfers are rated 5 out of 10, and accessibility is rated 3 out of 10, indicating their varying levels of importance in providing a satisfactory user experience.

Performance factors, which are key areas where improvements can significantly enhance user satisfaction, are also highlighted by the Ile de France site. The high relevance performance factors include affordability, comfort, and real-time information. Additionally, communication channels are rated 5 out of 10, and customer service is rated 2 out of 10.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Ile de France, these include user-friendly infrastructure, complaint resolution, environmental sustainability and green initiatives, and equity and social justice promotion. These elements can provide an extra layer of satisfaction and delight for users.

Key insights from the Ile de France site reveal that the relevance scores for individual classes are generally lower compared to other sites. This trend is also reflected in the T5.3 qualitative survey, where the distribution of most classes is highly heterogeneous.

Key points of attention include the absence of several categories in the site's survey. Among performance factors, communication channels and affordability are not represented. In the basic factors category, seamless transfers are missing. Within excitement factors, complaint resolution, environmental sustainability and green initiatives, and equity and social justice promotion are also absent.

To improve user satisfaction, it is essential to first assess and address the basic factors, enhancing their performance. Focus should also be placed on improving the performance factors, as they directly contribute to user satisfaction. Lastly, integrating the excitement factors will provide an additional boost to overall user satisfaction.

By ensuring that all critical factors, especially those with high relevance, are accurately represented and addressed in site surveys, Ile de France can achieve a more comprehensive understanding of user needs and preferences. This will lead to better-targeted improvements and a higher level of user satisfaction.

3.9. Hannover

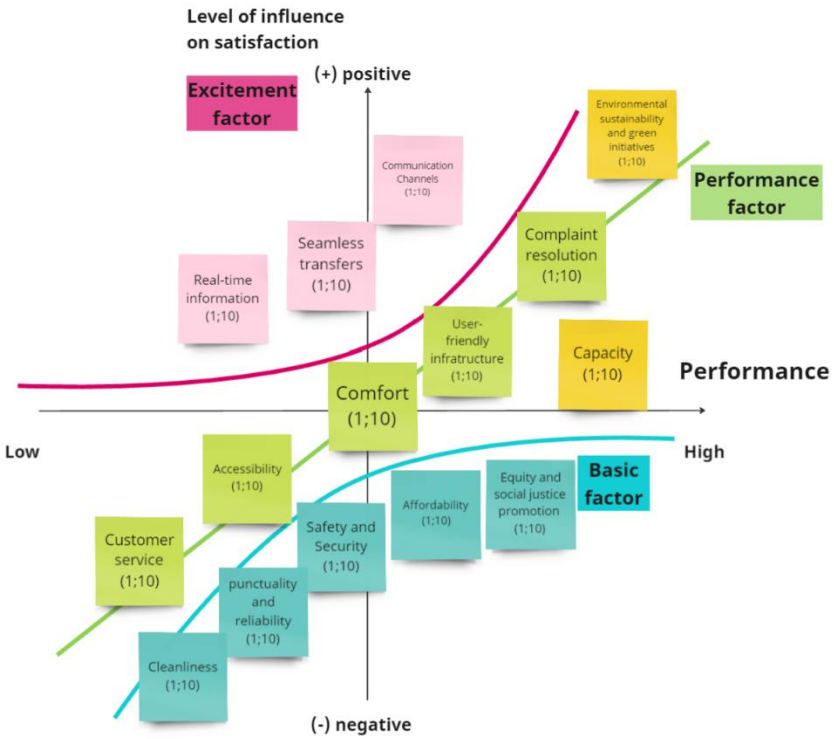

Figure 13 Hannover's three factors theory graph

The Hannover Region site identifies several basic factors as critical for ensuring user satisfaction. These include equity and social justice promotion, affordability, safety and security, punctuality and reliability, and cleanliness. These elements form the foundation of a satisfactory service.

Performance factors are key areas where improvements can significantly enhance user satisfaction. For the Hannover Region, the identified performance factors are complaint resolution, user-friendly infrastructure, comfort, accessibility, and customer service. Enhancing these areas can make a noticeable difference in the user's experience.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For the Hannover Region, these include communication channels, seamless transfers, and real-time information. These elements can provide an extra layer of satisfaction and delight to the user experience.

Key insights from the Hannover Region site reveal interesting categorizations. The capacity class is seen as positioned between a basic factor and a performance factor, while the environmental sustainability class is viewed as between performance factors and excitement factors. This nuanced classification highlights the unique priorities and expectations of users in the Hannover Region. Notably, environmental sustainability is a category included in the Hannover Region survey, which is not represented in surveys from other sites.

Interestingly, for the first time in this exercise, the seamless transfer category is classified as an excitement factor, indicating its significant impact on user satisfaction. Meanwhile, the promotion of equity and social justice continues to be recognized as a basic factor.

However, there are some notable absences in the site's survey. Specifically, in the category of basic factors, equity and social justice promotion is not listed. Among performance factors, user-friendly infrastructure and complaint resolution are missing. In the category of excitement factors, real-time information is not included. These gaps point to areas that might need further attention to ensure a comprehensive assessment of user satisfaction factors. By addressing these absences, the Hannover Region site can enhance its understanding of user needs and improve overall satisfaction.

3.10. Leuven

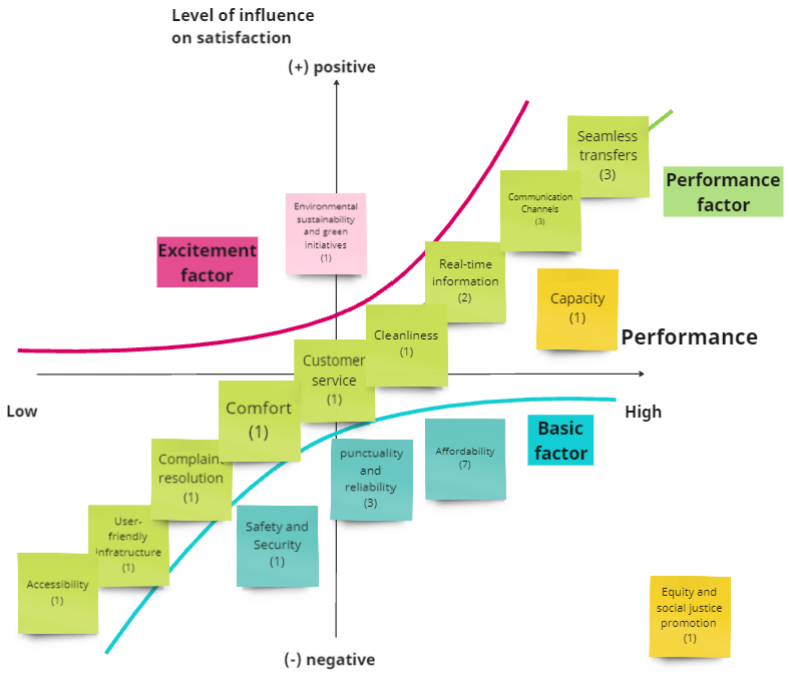

Figure 14 Leuven's three factors theory graph

The Leuven site identifies several basic factors as essential for user satisfaction. These include affordability, punctuality and reliability, and safety and security. These elements ensure that users have access to a reliable, safe, and cost-effective service.

Performance factors are key areas where improvements can significantly enhance user satisfaction. For Leuven, the primary performance factors are seamless transfers, communication channels, and real-time information. Additionally, within the performance factors, the following classes are rated with a relevance of 1/10: customer service, comfort, complaint resolution, user-friendly infrastructure, and accessibility.

Unexpected attributes, known as excitement factors, can greatly elevate user satisfaction when present. For Leuven, these include environmental sustainability and green initiatives, which add an extra layer of satisfaction and delight to the user experience.

Key insights from the Leuven site reveal interesting categorizations. The capacity class is noted on a yellow post-it and positioned between the basic and performance factors, indicating its transitional importance. The equity and social justice promotion class is also noted on a yellow post-it and is indicated by the site as intertwined with other factors such as accessibility, comfort, and safety. This integration highlights Leuven's holistic approach to these important values, and thus, it is not positioned within a specific category.

However, there are several notable absences in the site's survey. Among basic factors, safety and security is not listed. Within performance factors, comfort, cleanliness, customer service, and complaint resolution are missing. For excitement factors, environmental sustainability and green initiatives are also not included. Addressing these gaps is essential for a comprehensive assessment of user satisfaction factors.

By ensuring that all critical factors, especially those with high relevance, are accurately represented and addressed in site surveys, Leuven can achieve a more comprehensive understanding of user needs and preferences. This approach will lead to better-targeted improvements and a higher level of user satisfaction.

4. WP5 workshop

Horizontal partners with effort foreseen in WP5 were asked to critically review the measures proposed by the cities, falling under the various tasks. The partners decided among themselves which measures to review based on their expertise, previous work, etc. Hereby, they took into account various documents already produced in UPPER, including but not limited to the user personas and experience notebooks of D2.1, the SWOT analysis included in D2.2, or the supporting policy frameworks and policy requirements in D2.4.

Based on the critical review of the measures to be developed within Work Package 5, the horizontal partners commonly agreed on a limited number of "Points of attention", areas they consider the cities and measures should be focusing more on or pay more attention to, and which should be addressed when moving into the implementation phase. These points of attention were identified prior to the workshop and communicated to the cities through a dedicated Excel file, where the horizontal partner highlighted them alongside the respective measures. The goal of defining these "Points of attention" was to extract common challenges that are shared in the design/development of several measures within the same work package. Figure 15 represent how many times the point of attentions were emphasized across the measures.

These are the common points of attention identified across measures:

1. Tailored Communication for Increased Acceptance and Buy-In: Emphasized the need for effective communication strategies to gain public acceptance and drive behavioral change
2. Mobility as a Right: Stressed the importance of making mobility universally accessible, especially through local initiatives promoting sustainable behaviors.
3. Active Stakeholder Engagement during Measure Development: Highlighted the need for comprehensive stakeholder involvement to ensure the measures are effective and well-received.
4. Target Groups mainly impacted: Focused on understanding and involving diverse user groups in planning and implementation phases.

5. Seamless Multimodality and Intermodal Connectivity: Raised concerns about improving transitions between different transport modes for a better user experience.
6. Social Impacts (health and wellbeing, coexistence, security/safety): Recognized the importance of ensuring mobility improvements benefit all population segments.
7. Data management and privacy: highlighted the need for an evaluation dimension that could adjust and adapt policies to ensure their continued relevance and prevent abandonment.

On 14th May 2024, an online WP5 workshop took place, bringing together UPPER cities that are working on measures falling within the scope of WP5 and UPPER horizontal partners (IBV, ECF, UITP, EMTA, BKK, FACTUAL, DMM/DEPM). Similar workshops took place in the context of UPPER WP3 and WP4.

The main objectives of the workshop were to:

1. Support cities in their tasks of developing UPPER measures, by challenging, improving and finetuning the initial measure descriptions as presented in UPPER Deliverable 2.2 Annex.
2. Generate actionable recommendations that cities can implement to enhance the proposed measures effectively.

In the WP5 online workshop (duration 1.5 hours), horizontal partners presented the points of attention that they previously identified, along with potential recommendations or best practices for addressing these issues, to representatives from the UPPER partners responsible for the measures preparation, development, and implementation. General coordination was managed by ICLEI with event organization by EUR-UITP, and evaluation coordination by IBV. Cities had the opportunity to review the points of attention related to the measures they are developing in advance, allowing them to respond to them and actively engage with horizontal partners. During the workshop, representatives from UPPER cities with measures under WP5 presented their measure frameworks. Each city highlighted one or two learning points and shared their perspectives and goals for measure development. Following a plenary introduction of the points of attention by UITP, two breakout sessions were organized in parallel, fostering engagement and lively exchanges among participants. Each session was run and moderated by the horizontal partners assigned to this WP. IBV led breakout session 1, while FIT led breakout session 2. A Mentimeter poll was created for each breakout session, asking eight questions regarding each point of attention per group. The workshop concluded with a plenary feedback and wrap-up session, recapping the key outcomes from the workshop. The online workshop was recorded, and a short report is included in deliverables D5.1, D5.2, D5.3, D5.4. The results related to the discussion on UPPER measures falling under Task 5.3 are presented in this chapter.

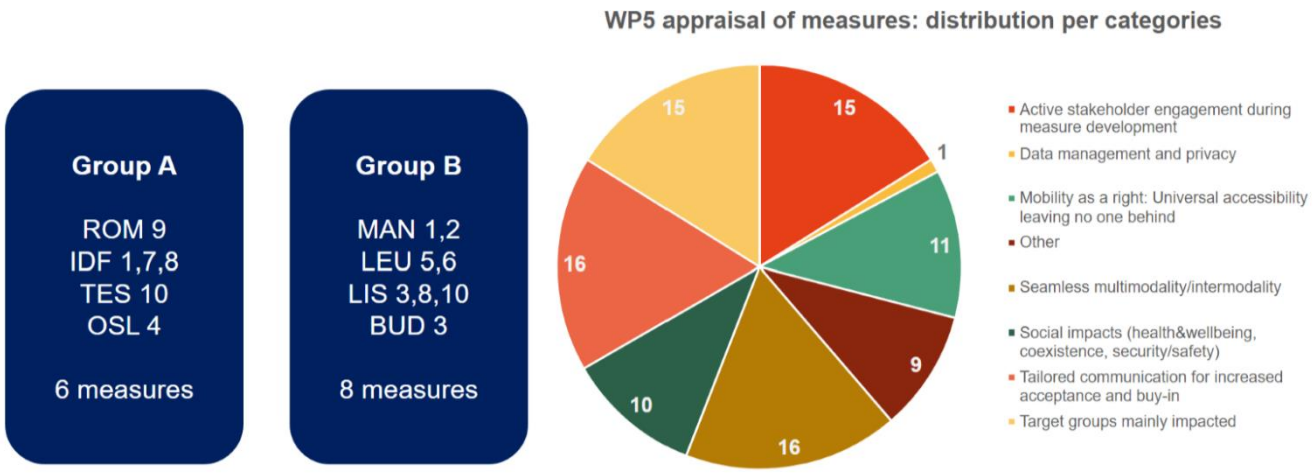

Figure 15 WP5 Workshop: points of attention and measures distribution

The discussion in **Room A** (**Rome, Ile-de-France, Thessaloniki, Oslo**) centred on enhancing **multimodality** and improving public transport satisfaction. The group outlined key strategies, starting with the need to simplify payment

systems and introduce incentives to encourage the use of sustainable transport modes. Oslo stressed the importance of reducing payment barriers, while Thessaloniki emphasized the role of incentives in promoting eco-friendly travel options. Additionally, the group recognized the crucial need for better data collection on walking and cycling habits to inform more effective planning.

Social inclusivity was another significant focus. The cities acknowledged the broader social benefits of public transport, such as improved health, well-being, and increased freedom for those without access to private vehicles. To better understand these impacts, the group proposed conducting focus groups with a diverse range of users and non-users, including local NGOs.

Stakeholder engagement was deemed essential for the successful implementation of these measures. Thessaloniki's app, which directly involves citizens as end-users, was highlighted as an innovative tool for gathering valuable data on travel patterns.

A key point of discussion was the importance of ensuring **public transport accessibility** for people with disabilities. The group underscored the need for substantial incentives and infrastructure improvements, citing Oslo's "Mind the Gap" initiative as a model for creating a more inclusive public transport system.

Concerns about **equity** in the context of **monetary incentives** were also raised. The group suggested that efforts should focus on providing free or affordable tickets to disadvantaged groups. They also emphasized the importance of adhering to GDPR regulations when implementing these schemes.

Communication strategies were another central topic. The group stressed the need for tailored approaches, recommending the use of different platforms to reach various demographics. For example, TikTok could effectively engage younger audiences, while newspapers might be more appropriate for older individuals. Additionally, the group noted the influential role of housing cooperatives and mobility managers in promoting sustainable transport behaviors.

Finally, the discussion addressed the broader challenge of **changing travel behaviors**. While the primary focus was on reducing private car usage, the group recognized the importance of planning for all types of trips, not just commuting. They also discussed promoting remote work as a strategy to further reduce reliance on cars.

In **Room B** (Mannheim, Leuven, Lisbon, Budapest), the discussion focused on **inclusivity, stakeholder engagement, communication channels, and overcoming regulatory challenges**. The group emphasized the importance of including a wide range of **target groups** in their planning efforts. These groups included not only young people, the elderly, and those with reduced mobility but also LGBTQI+ individuals, nonbinary persons, ethnic minorities, migrants, and night-time workers. To ensure adequate representation, the cities recommended developing tailored communication strategies that incorporate both digital platforms and more traditional methods.

Regarding **communication channels**, the group highlighted the need for versatile strategies that encompass non-digital communication, traditional marketing, social media, and other channels. Examples included Leuven's integration of digital and non-digital approaches, Lisbon's multi-channel engagement campaigns, and Budapest's personalized, in-home interviews to ensure inclusive survey representation.

Stakeholder engagement was also a key focus. The group stressed the importance of tailored participation strategies, involving local associations and shops, which were engaged through their larger associations and lobby groups.

Addressing **MaaR and accessibility**, the group discussed concerns among users who are unable or unwilling to access digital platforms. Cities ensured the availability of traditional formats, such as bus stop displays and call centers, alongside digital options.

The promotion of **micromobility and soft mobility** modes was emphasized for their significant **social impacts**. Leuven's efforts included financial incentives for bikes and bus passes, underlining the importance of quality implementation for sustainability. The cities concentrated on enhancing accessibility and visibility of walking and cycling options near public transport hubs. Lisbon, for instance, emphasized universal accessibility in interface design and the integration of public transport with bike-sharing to provide comprehensive mobility solutions.

Another key topic was **regulatory challenges**, particularly compliance with GDPR privacy regulations and new AI acts. Cities, exemplified by Leuven, stressed the necessity of clear consent practices to ensure data protection while still benefiting from AI technologies.

5. Measures development under task 5.3 and the Measures Support Leaders Group.

Task 5.3 in UPPER addresses the preparation of three measures aimed at defining innovative strategies to improve the public perception of public transport (PT). This involves analyzing different aspects and categories related to the quality of service and understanding the correlation with service level and passenger satisfaction. The following UPPER measures fall under this category: BUD_03 (Budapest), LIS_10 (Lisbon) and IDF_8 (Île-de-France).

To actively support the implementation of measures, the partners, along with the horizontal partner and WP leaders, decided to join forces and designed a collaborative approach. This effort aimed to ensure that all partners involved in measure development, including cities and horizontal partners, are aware of their responsibilities and timelines. To facilitate this, a group called the "Measures Support Leaders Group" (MSLG) was established at the beginning of these tasks, in month 8 (M8).

CERTH being the leader of WP4, under which most of the measures are prepared, was appointed leader of the MSLG. The group consisted of the leaders of the tasks under which the measures are developed (T3.4, T3.5, T4.2, T4.3, T4.4, T4.5, T5.2, T5.3, T5.4), while meetings were held in a monthly basis. The table below presents the UPPER partners forming the MSLG.

Table 1. Members of the Measures Support Leaders Group.

Task	Leader
T3.4 "Re-design the urban mobility space to promote the use of PT"	ETRA
T3.5 "Definition of new operational and policy-based measures and solutions regarding zonal and network-based UVAR and parking"	POLIS
T4.2 "New services for users and PT operators based on the existing mobility data collection and sharing"	IFPEN
T4.3 "Improved PT efficiency addressing specific needs and situations such as expected an unexpected events"	FACTUAL
T4.4 "Improved information and added-value services enhancing multimodality"	CERTH
T4.5 "Improved comfort, convenience, safety and attractiveness of transit services"	UITP
T5.2 "Incentivize PT offer and active modes in the living labs"	FACTUAL
T5.3 "Innovative strategies and solutions to improve public perception of PT"	FIT
T5.4 "Behaviour-change oriented mechanisms to promote the use of PT"	IBV

The aim of the group may be summarized as follows:

- To meet the goals foreseen in the Grant Agreement, in relation to the aforementioned Tasks;
- To provide meaningful support to the cities' representatives during the development of their measures;
- To ensure that all task leaders provide the same level of support to the cities developing measures under their task;

- For the cities to acquire a clear understanding of the steps needed to develop their measures and the support they will receive from task leaders (and other horizontal partners involved in the task);
- To monitor the progress of the measures' preparation process and timely identify any challenges/delays.

To achieve all these, a template entitled Monitoring Template was created and used in order to monitor the progress of all measures' development. The first draft was created by the group's leader but was then circulated among all members to review it. Once it was finalized, each member of the MSLG had to fill it in for all the measures under their Task. The aim of the template is to briefly present each measure and its expected outcomes (extensive measures' descriptions are included in D2.2) and to identify all steps needed to develop the measures. For each step a responsible partner is assigned as well as specific deadline. In addition, each step should be accompanied by a monitoring indicator; this indicator is not related to the evaluation process but it refers to the main output of the step so that the step is considered completed. The fields to be defined for each step in the Monitoring template are shown in the figure below:

Steps to ready-to-demo measure

Steps	Description	Involved partners/externals	City contact person	Category of action	Deadline	Monitoring indicator	Comments
1	Define the step e.g., Definition of the area and the use cases	Define the partners responsible for this step	Email of the responsible person (Partner's name)	Choose from Data/Infrastructure/Legal/Safety/Social/ Technical/Software	Define the data when the step should be completed	Define what the output of the step will be e.g., Description of area and use cases	Include any clarifications etc.
2							
3							
4							
5							
LAUNCH OF THE DEMO (please fill in the date)							

Figure 16. Table of steps to be defined by Project partners in the Monitoring template.

Once the task leaders had filled the templates in, the templates were sent to the corresponding cities to review and finalize them. One monitoring template was created per measure. These templates were then utilized by each task leader to track the progress of the defined steps for the measures under their task. This was done through the following procedure: prior to each monthly MSLG meeting, each task leader contacted the partners responsible for the measures' development to ask about the progress of each measure under their Task. A short but concrete presentation was then created and presented during the meeting in order to report the progress and any challenges or delays (if applicable).

The completed monitoring templates for the three measures under Task 5.3 are available in Annex D. The following section provides descriptions of the measures BUD_03, LIS_10, IDF_08 and highlights the major updates.

5.1. BUD_03 : Understanding on a deeper level the connection between the service level and passenger satisfaction

BKK is developing a Public Transport Network Development Strategy to assess Budapest's current public transport system. This strategy will identify areas needing intervention and propose new elements to enhance the network in line with development principles.

Budapest's transport system is characterized by its radial structure, with routes extending outward from the city centre, resulting in a generally dense network in this direction. However, analyzing tangential travel patterns – routes connecting neighboring districts without heading toward the city centre – has not been previously addressed by BKK. The results from the UPPER BUD_03 measure will contribute to refining the basic network development principles.

The primary objective of this measure is to understand tangential travel patterns in Budapest's suburban areas and identify gaps in the public transport network. Additionally, the measure aims to provide a deeper qualitative assessment of the factors influencing mobility mode choices for these tangential journeys. This includes evaluating network coverage and user perceptions of the public transport service level. Planned activities involve conducting surveys and analyzing mobility data to gain insights into travel patterns and identify key issues related to the quality of public transport service.

*Tangential travel: travelling to the neighbouring districts bordering (usually from 2 sides) the given district, but not towards the city centre (to radial direction). E.g., travelling from the district XV to the district XVI or IV, but not the district XIV. or without going through the city center. (Figure 17)

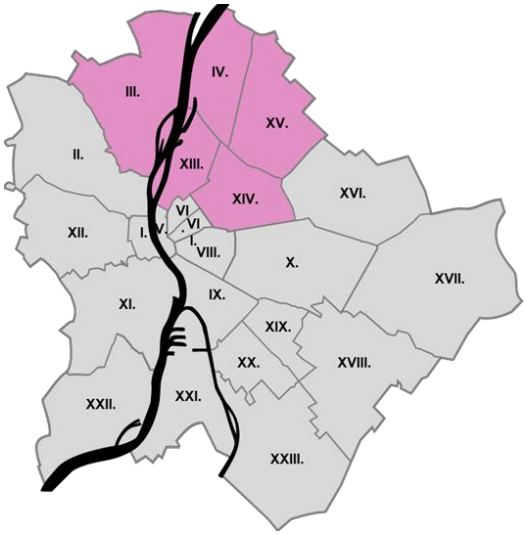

Figure 17 Districts of Budapest (coloured purple for the selected districts analysed in the measure)

As part of the Public Transport Network Development Strategy, BKK has evaluated the current public transport service in Budapest, analysing the supply of public transport (seats per day) and the share of trips (percentage of total trips made by public transport) broken down into smaller zones defined in the Unified Transport Model of Budapest. From these analyses, BKK has identified well-served, relatively underserved and poorly served urban, suburban and backbone areas (Figure 18).

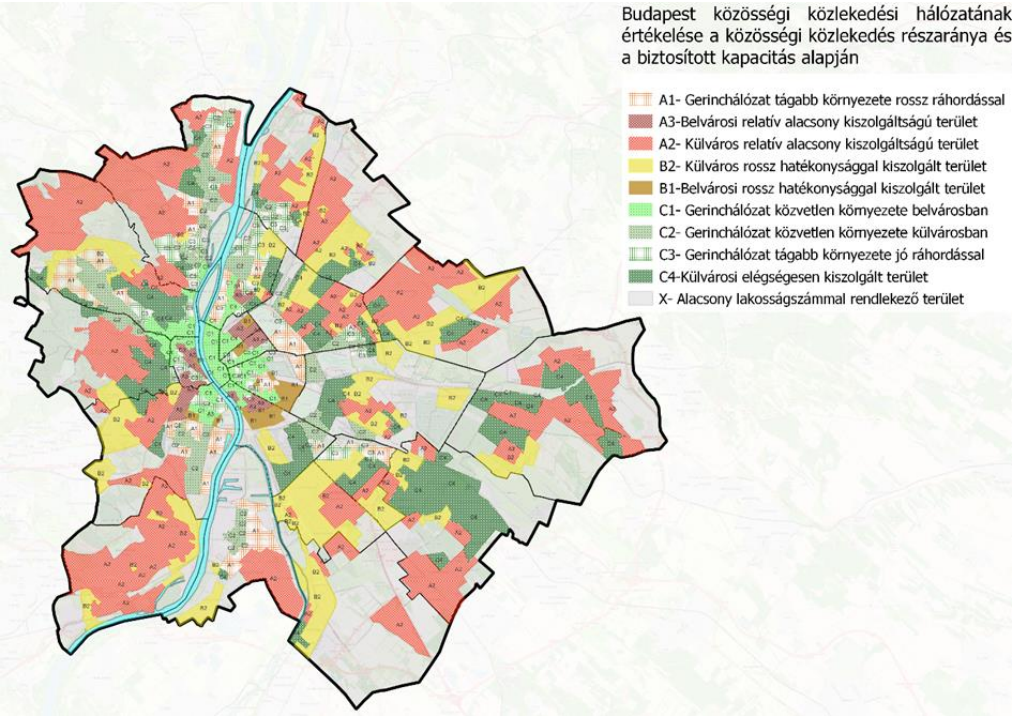

Figure 18 Evaluation of Budapest's public transport network based on the share of public transport and the number of seats provided

Based on these findings, BKK has selected five districts for a detailed examination of tangential travel habits and needs through a questionnaire survey. The survey, targeting a sample of 3,000 to 5,000 people (depending on bid prices), will be representative of the selected districts in terms of residence, gender, and age. It will be conducted by a subcontractor via in-home interviews. The technical specifications for the survey are finalized, the procurement process has begun, and data collection is scheduled to start in September 2024.

The survey aims to address several key issues: the number of people traveling tangentially at least weekly, the time spent on both radial and tangential journeys, the modes and purposes of travel, unmet travel demands due to inadequate transport links, and the incentives needed to encourage more frequent tangential travel. Additionally, it will explore travel patterns during weekends, weekdays, and peak times.

BKK is progressing with the implementation of this measure, albeit with a slight delay from the initial action plan. The procurement process is currently on-going, and data collection is set to start in September 2024. Following this, a study summarizing the survey results is expected to be completed by November/December 2024.

5.2. LIS_10: To improve the quality and efficiency of the bus service

This measure aims to explore the perceived quality of public transport in Lisbon to address the need for a systematic approach to measuring the perceived QoS among different operators, as well as to improve the service performance in critical areas to promote a modal shift. This measure is composed of the following 3 actions:

1. Sub-task 1: Passenger Satisfaction Surveys (CARRIS & TML) – aims to create a working group involving different PT operators in the Lisbon Metropolitan Area, to exchange methodologies for assessing Passenger Satisfaction and past results. The main goal is to help understand how passenger satisfaction and operational performance are measured, identify gaps between passenger experience and service quality assessments, and promote the standardization of passenger satisfaction evaluation among operators.

2. Sub-task 2: New special tickets for large events (TML) – aims to address the bias of non-users or occasional users regarding the quality of PT services by promoting their experimentation during large-scale events in the city. It involves developing novel ticketing products designed for event participants, offering optimized fare and convenience. These ticketing products may evolve into digital ticketing solutions, to further enhance convenience for participants.
3. Sub-task 3: Analyse and implement PT improvements (CARRIS) – this sub-measure shall draw from the learnings of other measures to develop an analysis of the feasible solutions that can be implemented to make PT more attractive to both users and non-users.

Preparation of each sub-task is described in more detail below.

Sub-task 1: Passenger Satisfaction Surveys

Discussions between Carris and TML have begun to plan the creation of a working group among different public transport operators in Lisbon, starting with bilateral meetings between Carris and Carris Metropolitana. Initial meetings successfully facilitated discussions about their respective Passenger Satisfaction Surveys.

Carris, the bus and tram operator within Lisbon, uses a standardized survey since 2018, while Carris Metropolitana, operating since 2022, is finalizing its survey design. The comparison of Passenger Satisfaction Surveys from Carris and Carris Metropolitana highlighted both similarities and differences. Both surveys assess common indicators such as service quality, trip duration, and overall satisfaction, and they both include open-ended questions for improvement suggestions.

Differences include Carris's deeper focus on communication channels, while Carris Metropolitana's survey includes detailed sections on trip frequency and user motivations. Although aligning some aspects like customer profiling could improve comparability, the core survey structures need to remain stable for consistency and certification. Understanding these points helps in analyzing and comparing the survey results more effectively.

Sub-task 2: New special tickets for large events

In August 2023, Lisbon hosted World Youth Day (WYD), a major event that put considerable strain on the city's transport system. To encourage public transport use and avoid overwhelming the ticket sales network, Transportes Metropolitanos de Lisboa (TML) and other operators introduced special tickets for WYD participants and volunteers.

These special tickets were valid for specific consecutive days, designed exclusively for the event's attendees, and covered the entire Lisbon metropolitan area like the Navegante Metropolitano pass. TML issued the tickets, and the WYD Foundation distributed them. Revenue was based on ticket validations, with no compensation for sales.

After discussions with the WYD Foundation, five types of tickets were created to cater to different needs:

- **WYD Ticket 4D**: 4 days from 04/08/2023 to 07/08/2023, priced at €14.40.
- **WYD Ticket 8D**: 8 days from 23/07/2023 to 30/07/2023, priced at €21.31.
- **WYD Ticket 9D7**: 9 days from 30/07/2023 to 07/08/2023, priced at €23.04.
- **WYD Ticket 9D8**: 9 days from 31/07/2023 to 08/08/2023, priced at €23.04.
- **WYD Ticket 16D**: 16 days from 23/07/2023 to 07/08/2023, priced at €35.14.

The WYD Mobility and Transport Plan estimated around 1 million pilgrims, with 45% expected to use public transport. Based on this estimation, the WYD Foundation ordered 437,000 tickets but used only 389,977. The remaining tickets were returned to TML as the two entities had beforehand agreed that up to 30% unsold tickets could be returned.

During the event, there were 4,025,524 ticket validations from July 23 to August 8, with usage peaking on August 4, when WYD tickets accounted for up to 43% of daily validations. The most popular tickets were the WYD 8D, making up 71% of all validations, followed by WYD 9D8 tickets at 12%. In terms of transport modes, the metro was the most used, accounting for 44% of validations, followed by buses at 28%, trains at 22%, and ferries at 4%.

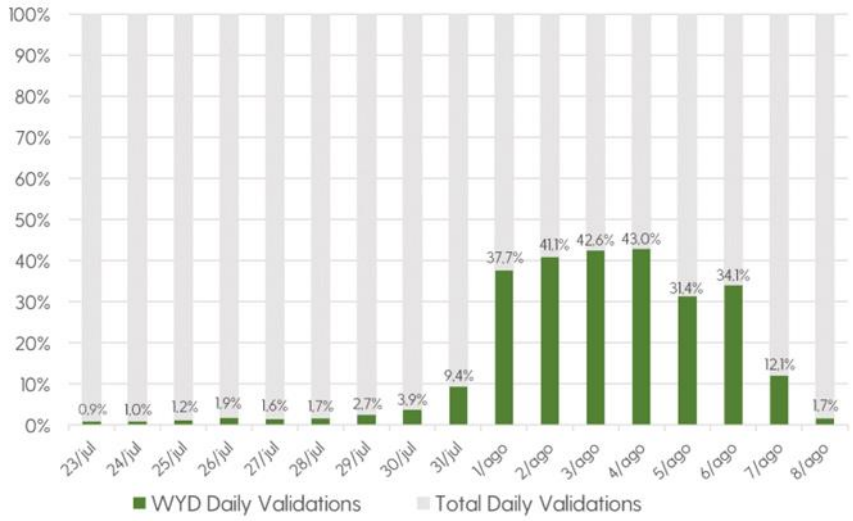

Figure 19 Daily WYD ticket validations compared to total daily validations [Carris data]

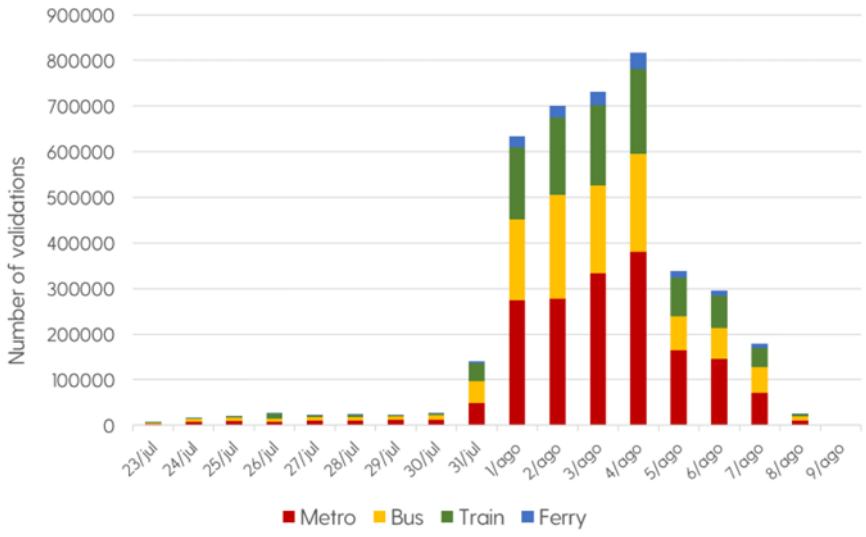

Figure 20 Daily WYD ticket validations evolution per mode [Carris]

Sub-task 3: Analyzing and Implementing PT Improvements

This sub-measure will draw from the learnings of the other two sub-measures to develop an analysis of the feasible solutions that can be implemented to make PT more attractive to users and non-users. During the development of the measure, several challenges arose, requiring corresponding mitigation efforts.

Standardizing passenger satisfaction surveys was found unfeasible due to the need for certification and consistency. However, understanding the existing commonalities and differences allows for a more nuanced analysis and emphasizes the importance of including other passenger experience indicators like complaints and service features.

The development of new special tickets for large events faced several challenges such as the lack of an intermodal occasional ticket for all Lisbon operators. Simulations set a reference value of €12 per day, with discounts based on event duration, ticket usage days, and the number of sold tickets.

Another challenge was the adaptation of ticketing systems, as a single API was unavailable. Each operator had to adapt their systems to recognize WYD tickets, with specifications defined by TML. Fortunately, the implementation proceeded without major issues. The revenue distribution led to an agreement: 75% based on validation counting and 25% on the type of ticketing system.

Next steps

Next steps towards implementing Sub-task 1, Passenger Satisfaction Surveys, involve CARRIS and TML continuing inter-operator discussions and data sharing, engaging more public transport operators, and introducing new topics such as customer complaints.

Concerning the sub-task 2, New Special Tickets for Large Events, no further steps are needed since the measure has been fully implemented. The methodology used will serve as a basis for future large event ticketing.

As for sub-task 3, Analyzing and Implementing PT Improvements, this task will proceed once other measures are in place and start producing results.

5.3. IDF_8: Improve public perception of PT

This measure aims to reduce the gap between the perception of PT quality and the actual PT quality of service. The QoS is already monitored by the regional transport authority every trimester through several quantitative indicators: regularity, punctuality, information, nudget, comfort, safety, accessibility for disabled people, etc. To encourage people to shift from private cars to PT or to retain current PT users, the measure aims to communicate more effectively about the positive QoS indicators. Communication and education activities are the main actions of measure IDF_8.

To evaluate the communication and educational actions, which started at the end of 2023 and will continue until 2026, the perception of QoS (not the QoS itself) will be measured at the start and again at the end of the project. To fulfill this task, l'Institut Paris Region will lead various surveys.

The surveys are qualitative and aim to provide a comparable starting point regarding modal share and quality of service (punctuality, regularity, cleanliness, passenger information, etc.) on VGP's territory for comparison at the end of the UPPER project. This measure plannes several surveys and focus group:

- Baseline quality of service survey in 2023/2024
- Comparative quality of service survey in 2026, at the end of UPPER, to see evolutions
- Baseline modal split survey in 2023 through counts and a quick survey
- Comparative modal split survey in 2026, at the end of UPPER, to see evolutions
- Serious games in August-September 2023.

The final objective is to have a better understanding of users' expectations in terms of QoS and to better align with their needs, ultimately improving the perception and use of PT through enhanced QoS.

The baseline survey was launched in May 2024, and the answers are currently being collected. VGP initiated a campaign through their channels to recruit more respondents. A communication campaign has been planned with the objective of communicating more precise QoS indicators and gaining a better understanding of user expectations.

The survey was built on 3 types of users to cover the most prevalent use case on the territory of VGP:

- Inhabitants of VGP/people that work in VGP, students/ both
- Respondents must be at least 16 years of age to be GDPR compliant
- And they must use at least 2 times per week the transport system to be presented the whole survey.

Different channels of diffusion and various pools of respondents were utilized as follows:

- Known and identified sources were employed, including an internal panel with local stakeholder and a panel shared with involved partners.
- Social media were used to reach users outside of the known panels. A recruitment campaign was launched on Facebook and Instagram, with a localization factor based on VGP's territory to target public transport users.
- Additionally, with the assistance of VGP, institutional sources were reached, such as the local chamber of commerce, communes, and the communauté d'agglomération, which could connect with users through newsletters and social media.

The survey covered 5 main themes:

- Transport Category usage and frequency of usage
- Bus theme
- Train theme
- Tramway theme
- And user profile.

Per transport mode (bus, train, tramway), the following sub-themes were addressed:

- Offer
- User information
- Comfort/cleanliness
- User service
- Security
- Global impressions.

Each question in these themes is responded using a Likert scale.

The purpose of this questionnaire is to gain a deeper understanding of users' evaluations of the transportation system and their overall impressions. These insights will be compared with the Key Performance Indicators (KPIs) as assessed in contracts with the transport authority, to identify differences and similarities. This comparison aims to explore the reasons behind any discrepancies and to better align services with users' expectations.

One of the challenges is represented by the communication campaign which requires authorization from local operators, the regional railway operator, and possibly the regional mobility authority, as well as support from VGP, making its approval uncertain. The survey's completion has been postponed to mid-July 2024, with the next step being the analysis of the results in July 2024.

6.High-level recommendations and Conclusions

Analysing the results derived from the 2 exercises proposed in toolbox and the QoS survey reveals a highly heterogeneous situation, despite identifying a few common patterns across different sites. Research on UPPER highlights the complexity of offering a universal solution, as satisfaction levels are influenced by a multitude of socio-political, cultural, and economic factors. These factors are part of an extensive array of policies that extend beyond transportation to the administration of all services (e.g., sprawling vs. green belt). The heterogeneity of the UPPER sites underscores the difficulty in developing a common approach that achieves a 25% increase in user perception

universally. Each city and region has a distinct division of administrative responsibilities, with different entities managing various sectors of transportation.

Nevertheless, we observed a few patterns within this task that align with some findings from the WP5 workshop on key areas of attention:

- Environmental Sustainability and Green Initiatives: This category was frequently classified as an excitement factor. The environmental impact of promoting behavioral change varied among cities.
- Equity and Social Justice Promotion: Predominantly identified as an excitement factor, this category was also recognized as a basic or performance factor in some sites. As highlighted by Mannheim, this category is intertwined with multiple factors, explaining the variability in perception. Its relevance was generally high, reflecting the social impact and transport poverty issues raised in WP5. The workshop results underscored the project's recognition of the potential social impact of public transport, with cities addressing social inclusivity and ensuring that mobility improvements benefit all segments of the population. This is connected to the MaaR (Mobility as a Right) point of attention, which was emphasized 11 times in WP5, highlighting the importance of universal accessibility in mobility initiatives.
- Communication Channels: Often identified as highly relevant and frequently classified among the excitement factors, communication channels were raised as a key point of attention in WP5. Cities planned versatile communication strategies encompassing non-digital communication, traditional marketing, social media, and other channels. Building an effective and tailored communication strategy can significantly encourage behavioral change towards public transport usage among cities.

To effectively address these patterns and enhance user satisfaction, adopting a more **user-centered perspective** is essential. This involves placing the passengers' needs at the forefront of public transport planning, ensuring that diverse user needs are considered. By doing so, public transport can become more viable and appealing to a broader range of users. Motivating people to switch to public transport requires addressing both basic and higher-level needs to attract new customers and keep existing ones satisfied. Public transport needs to be not only appropriate but also attractive. While some needs are universal, it is crucial to recognize that not all users are the same. It is important to adopt a good mix of basic, performance, and excitement factors to match user and new user needs, providing them with the most efficient combination of modes in social, environmental, and economic terms. Thus, inclusion and accessibility are key to reducing reliance on cars. Factors such as age, income, education, ethnicity, mobility restrictions, location, context, and life-changing events must be considered, as these can influence people's choices.

What emerged both from the toolbox and the point of attention identified within WP5 workshop is the emphasis on inclusivity, equity, and accessibility. It is crucial to increase customer satisfaction and attract new users by involving groups vulnerable to exclusion within public transportation (PT) planning. This can be achieved by offering monetary incentives to make tickets more affordable for disadvantaged groups. Additionally, it is important to highlight the social impact of PT and soft mobility modes (walking and cycling) on health, well-being, and increased freedom for users without access to cars.

As pointed out during the Online MaaR Workshop " Restoring people's dignity inn public transport"[6], it is important to consider the concept of transport poverty to avoid to have a segment of people that might represent an important bias in any research on QoS of public transport. This refers to situations where people lack access to essential services or employment due to inadequate, unaffordable, or unavailable transport options. This prevents full participation in society. An individual is considered transport poor if he/she cannot satisfy his/her basic needs due to mobility issues.

It is crucial to develop inclusive and accessible mobility services that prioritize end users and involve them in every phase. Engaging citizens, listening to their needs, and effectively addressing them are vital, as citizens know best

[6] MaaR Workshop – Restoring people's dignity in public transport. Held Online on 23 April 2024.

what can help them transition from car usage to public transport. Additionally, engaging stakeholders, avoiding silo thinking, and fostering public-private cooperation are essential. Collaborative efforts often lead to innovative ideas that improve public transport performance and attractiveness. Educating and empowering people by sharing knowledge and providing feedback is important for the success of public transport initiatives. Finally, although it is impossible to develop a customised solution for each and every user, market segmentation (i.e. carving up the market into customer groups that have similar needs and respond similarly to changes in the proposed marketing mix), can help to better understand and approach different user groups, increase customer satisfaction and attract new users.

By addressing these recommendations and focusing on both universal and specific needs, cities can revise their user satisfaction surveys that are site specific and that might allow them to have a better understanding on how to create a more inclusive and affordable public transport system that meets the diverse needs of all users, ultimately leading to a higher satisfaction rate and reduced reliance on private cars.

Following the COVID-19 pandemic, a strong stigma against public transport has taken root. This study focused on identifying service quality categories for and helping UPPER cities to prioritize them, to guide their application in any surveys they are conducting, or planning to conduct, on PT user satisfaction. Within UPPER, such surveys will be customized for specific purposes, as demonstrated by the three measures included in Task 5.3: IDF focusing on the Olympics, Budapest integrating a new service in peripheral areas, and Lisbon using large-scale events with special ticketing formulas to increase satisfaction with public transport.

Research demonstrates the complexity of offering a single QoS hierarchy, due to the convergence of various socio-political, cultural, and economic factors on PT user satisfaction. These factors are part of a long history of policies related not only to transport but also to urban planning / distribution of services (e.g., sprawling vs. green belt). We have noted the heterogeneity of the UPPER sites, making it difficult to develop a single approach that leads to a 25% increase in user perception for everyone (e.g., Oslo with different satisfaction levels). Each city/region has a different division of administrative responsibilities, with various entities managing different transport sectors.

In conclusion, a self-assessment toolbox we developed to enable the UPPER sites to prioritize the Quality of Service classes most relevant to them. This approach aims to lead to customized measures targeting points of greatest interest for each site from a replicability perspective. Findings, supported by the three factor theory as a guiding framework, suggest that increasing user satisfaction requires a focus not only on basic service aspects and excitement factors but primarily on the programmatic aspects of performance. The next steps involve identifying a mix of factors (basic, performance and excitement) to address based on the site's local environment. These factors should be implemented while refining the quality and the focus of the surveys to ensure they accurately represent each site's situation. Throughout all phases, the principles of inclusivity, equity and accessibility should be maintained.

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8. Annex

ANNEX A Survey

ANNEX B Survey Results

ANNEX C Toolbox Guide

ANNEX D Measure template

Annex A – QoS Survey

UPPER quality of service classes and user perceptions

UPPER- Survey T5.3

Welcome to the UPPER quality of service classes and user perceptions SURVEY.
Scope of this survey is to collect opinions from different types of public transport users (daily commuters, seldom user, occasionally user) on their last trip experience with public transport. The results will support the ten cities that are participating to the European Mission project UPPER (https://www.upperprojecteu.eu/) to better understand which are the quality of service categories that might improve a better user experience and an increase adoption of public transport.
The questionnaire is referred to your last public transport trip within the last few weeks. You will have to specify the transport modes (bus, tram, metro, train, taxi,..) you used and in which area the trip took place: city center, metropolitan, or outskirts. You will have also to specify your occupation, your gender and your age.
In the context of UPPER project research, FIT is collecting personal data from willing participants, such as contact details (e-mail address), and necessary opinions to the specified scope. The collection, access and processing of personal data is limited to the exclusive use of the project, within the scope of research of the UPPER project.
By filling in this questionnaire, you consent the provision of your personal data for the scope of UPPER Project

* Indicates required question

Skip to question 1

Start of the Questionnaire

Your participation consists of filling out a 15-minute questionnaire, divided in 2 first sections related to your personal data and your trip data, followed by 40 questions divided into 15 sections. The survey is completely anonymous. The information will be analyzed in aggregate and grouped form.

Personal Data

1. Gender *

Mark only one oval.

- Male
- Female
- Non Binary

2. Age *

3. Driving Licence *

Mark only one oval.

- Yes
- No

4. City of Residence *

5. Occupation *

6. Household composition *

7. Yearly Income *

8. N° of cars per household *

9. Personal bike *

Mark only one oval.

- Yes
- No

10. Personal e-scooter or micromobility device

Mark only one oval.

- Yes
- No

11. Number of trips using public transport per week *

_____

12. Public transport subscription *

Mark only one oval.

- Yes
- No

Trip Data

13. Transport mode/modes of your last trip. For transport mode we consider the means of transport in each trip segment *

Mark only one oval.

- Bus
- Metro
- Train
- Tram

14. Area covered by the last trip (e.g. district, urban area, peri-urban area) *

Mark only one oval.

- Neighborhood
- Urban Area
- Peri Urban Area
- City centre
- Outskirts

15. For which purpose did you carried out this trip for? *

Punctuality and Reliability

16. Was your last public transport commute on time? *

Mark only one oval.

- On time by schedule
- Short delay: - 5min
- Long delay: +5 min

17. Is the public transport in your residence area reliable in comparison to the schedule? *

Mark only one oval.

- Always
- Often
- Sometimes
- Rarely
- Never

18. What is your perception of the punctuality of public transport services in your area? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Neg	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	Positive

Comfort and Cleanliness

19. How would you rate the cleanliness of the vehicles on your last trip? *

Mark only one oval.

- ◯ Excellent
- ◯ Good
- ◯ Average
- ◯ Poor
- ◯ Terrible

20. Was your last trip comfortable? (enough seats on the vehicle, USB C/recharging plugs on the vehicle, air circulation) *

Mark only one oval.

- ◯ Very comfortable
- ◯ Comfortable
- ◯ Neutral
- ◯ Uncomfortable
- ◯ Extremely uncomfortable

21. How important is comfort and cleanliness in your decision to take public transport? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Safety and Security

22. Do you think the security enforcement offered at bus, metro, train stations and on the vehicle are sufficient? *
By security measures, we mean the presence of proper lighting, surveillance cameras, security personnel, emergency buttons and numbers, etc.

Mark only one oval.

- ◯ Yes, they are sufficient
- ◯ Neutral
- ◯ No, they are not enough
- ◯ No, there are no security methods

23. Do you feel safe while waiting at bus, train and metro stations? *
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you

Mark only one oval.

- ◯ Very safe *Skip to question 25*
- ◯ Safe *Skip to question 25*
- ◯ Neutral
- ◯ Unsafe
- ◯ Very unsafe

24. Can you explain what makes you feel unsafe? *

_____

Accessibility - Access to information and physical accessibility

25. Do you often encounter obstacles in accessing information related to public transport stops and your trip? *

Mark only one oval.

- ◯ Always
- ◯ Often
- ◯ Sometimes
- ◯ Rarely
- ◯ Never

26. Do you find it easy to access public transport stops and steps into the vehicle? *

Mark only one oval.

- ◯ Very easy
- ◯ Easy
- ◯ Neutral
- ◯ Difficult
- ◯ Very difficult
- ◯ I don't have experience of it

27. How important is for you the removal of physical and informative barriers to allow easy access to different public transport services? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

User-Friendly Infrastructure

28. Which information do you expect to be provided on board? You can choose more than one option. *

Check all that apply.

- [ ] Next stop
- [ ] Final destination
- [ ] Expected arrival time
- [ ] Other transport connections
- [ ] Emergency button (break, alarm,...)

29. Are you satisfied with the infrastructure at your usual stop? *
By infrastructure we include: seats, covered station shelters, trash bins, proper lighting etc.

Mark only one oval.

- ◯ Very satisfied
- ◯ Satisfied
- ◯ Neutral
- ◯ Not satisfied
- ◯ Very dissatisfied

30. How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Real-time Information

31. Which information would you find useful at the public transport stop? *
You can choose more than one option.

Check all that apply.

- [ ] Approaching vehicle position
- [ ] Predicted arrival times
- [ ] Presence of assistive technologies for persons with a disability (ex. Wheelchair ramp)
- [ ] Number of seats available on the vehicle
- [ ] Other: _____

32. What kind of difficulty did you have in finding information in real time? *

Mark only one oval.

- ◯ There are no digital screens at the stop with real time information
- ◯ The real time information are just on the app (I don't have it)
- ◯ The real time information are just on the app but this doesn't work well
- ◯ There are no real time voice announcements
- ◯ Other: _____

33. How much are you relying on real time information while taking public transport? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Communication Channels

34. How satisfied are you with the communication channels available for public transportation inquiries or complaints? *

Mark only one oval.

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

35. Have you ever faced challenges in accessing information about public transportation services? *

Mark only one oval.

- Yes, frequently
- Yes, occasionally
- No, never
- Not sure

36. Are easy to use real time apps and other communications relevant for improving your travel experience? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Affordability

37. Do you find the fare of public transportation (ticket, carnet...) related to your income reasonable? *

Mark only one oval.

- Yes, very reasonable
- Yes, somewhat reasonable
- Neutral
- No, somewhat unreasonable
- No, very unreasonable

38. Is public transport affordable to all user groups? *

Mark only one oval.

- Very affordable
- Affordable
- Neutral
- Somewhat affordable
- Not affordable

39. How much does the transportation fare impact your mobility choices? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Capacity

40. Have you ever experienced overcrowding or capacity issues while using public transportation? *

Mark only one oval.

- Yes, frequenty
- Yes, occasionally
- No, never
- Not sure

41. Would you find it useful to receive information in advance about the seats available on the vehicle? *

Mark only one oval.

- Yes
- No
- I wouldn't mind

42. How much overcrowding and limited capacity influence your travel choice? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Customer Service

43. How would you rate the courtesy of the staff on public transportation (drivers, information desk, etc.)? *

Mark only one oval.

- Excellent
- Good
- Average
- Poor
- Very poor

44. How important is the assistance of the Customer Service for you? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low											High

Complaint Resolution

45. Have you ever lodged a complaint about public transportation services? If so, were you satisfied with the resolution? *

Mark only one oval.

- Yes, and I was satisfied with the resolution
- Yes, but I was not satisfied with the resolution
- No, I have never lodged a complaint
- I prefer not to answer

46. Is the efficiency of the complaint resolution important for you? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Seamless Transfers

47. How many changes with public transport (bus, train,metro) did you had to undertake to reach your destination? *

Mark only one oval.

- ◯ I don't need to change, there is a direct route
- ◯ One change
- ◯ More than one
- ◯ A change plus bicycle
- ◯ A change plus a micromobility mode (e.g. e-scooter)
- ◯ I must use the car for part of the route because there is no way to reach it with public transport

48. What kind of difficulties have you experienced most during your transfer? (You can choose more than one option) *

Check all that apply.

- ☐ Missed connections
- ☐ Not finding where the right stop is
- ☐ Long waiting times
- ☐ Wrong connection information
- ☐ Need to change the ticket
- ☐ None
- ☐ Other: _____

49. How relevant is it for you to have direct transport to your destination? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

Environmental Sustainability and Green Initiatives

50. How important is environmental sustainability in your choice of transportation? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	High

51. Are you aware of any green initiatives implemented by public transportation providers? *
(i.e: change of the bus fleet in electric)

Mark only one oval.

- ◯ Yes, very aware
- ◯ Yes, somewhat aware
- ◯ No, not aware
- ◯ Not sure

Investment Cost

52. In which category do you think public transport should invest more? *

Mark only one oval.

- Infrastructures (stops, stations)
- Vehicles
- Frequency
- Real time information
- Accessibility for people with disabilities
- Different fare solutions
- Other: _____

Equity and Social Justice Promotion

53. Do you believe public transport coverage in your site is widespread? * By widespread we mean that the public transport reaches even the most remote and marginalized suburban areas

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

54. Are you aware of campaigns and special fares aimed at meeting the diverse needs of public transportation users? *

Mark only one oval.

- Very aware
- Somewhat aware
- Not very aware
- Not aware at all

55. Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership? *

Mark only one oval.

- Yes
- Neutral
- No

Annex B –Survey Results

ANNEX B

Quality of Service classes

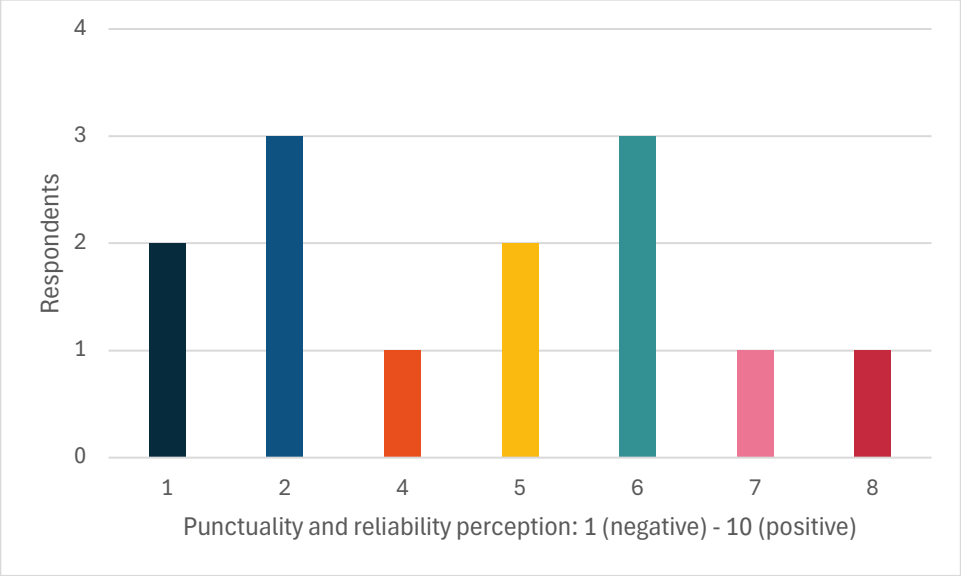
Survey Results

1. ROME

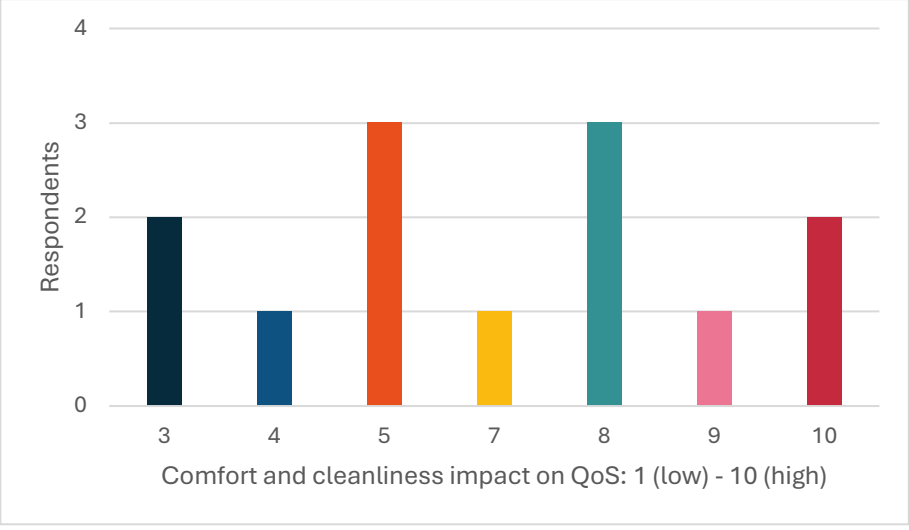
Categorie di qualità del servizio di UPPER e percezione degli utenti

Asse x: valori da 1 a 10 / opzioni di risposta
Asse y: frequenza delle risposte

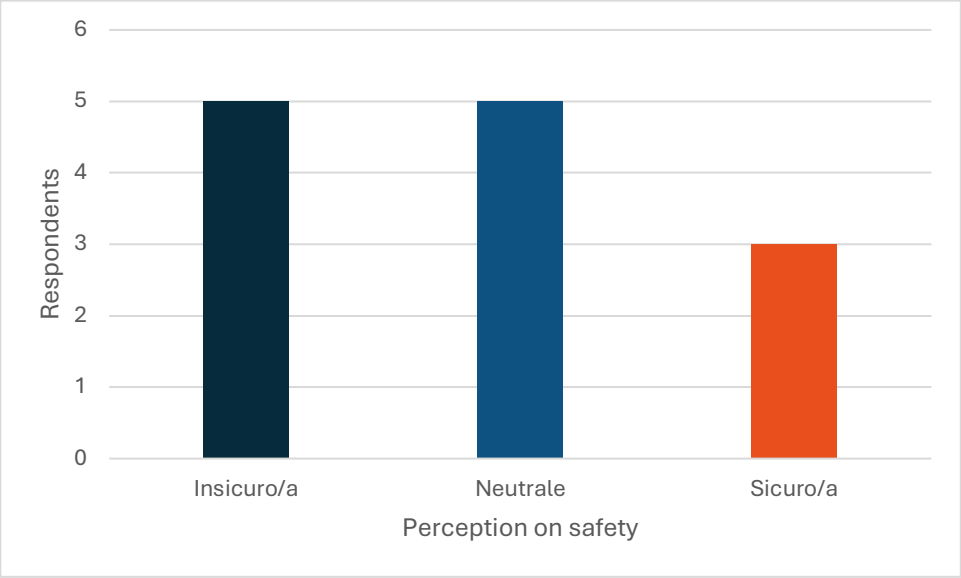
1. **Puntualità e affidabilità: valori da 1 (poco) a 10 (tanto)**
   Qual è la tua percezione della puntualità dei servizi di trasporto pubblico nella sua zona?



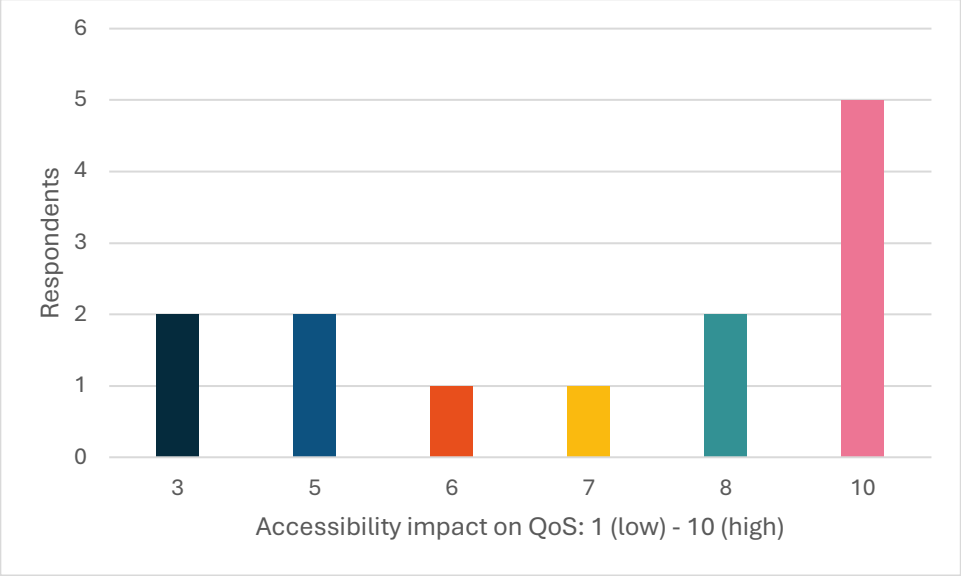
2. **Comfort e Pulizia: valori da 1 (poco) a 10 (tanto)**
   Quanto sono importanti per te comfort e pulizia nella tua scelta di utilizzare i mezzi pubblici?



3. **Sicurezza: molto sicuro/a, sicuro/a, neutral, insicuro/a, molto insicuro/a**
   Ti senti al sicuro mentre attendi alla fermata di autobus, treno o metropolitana?
   Per sicurezza si intende la sensazione di essere protetti o di non essere esposti a pericoli o rischi durante l'utilizzo del trasporto pubblico per voi stessi e per le persone che viaggiano con voi.

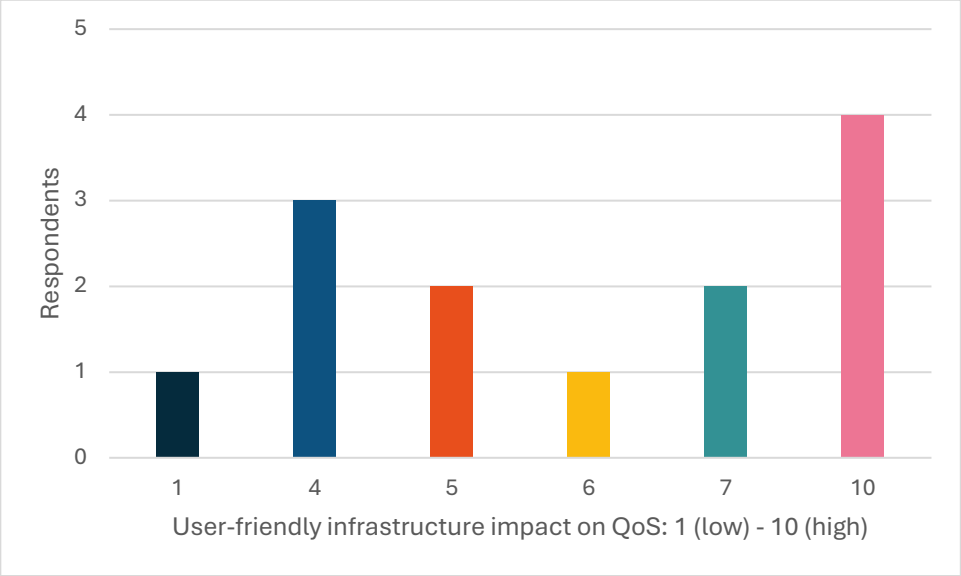


4. **Accessibilità- Accesso alle informazioni e accessibilità fisica: valori da 1 (poco) a 10 (tanto).**
   Quanto è importante per te la rimozione di barriere fisiche e informative per consentire un accesso facile ai servizi di trasporto pubblico?

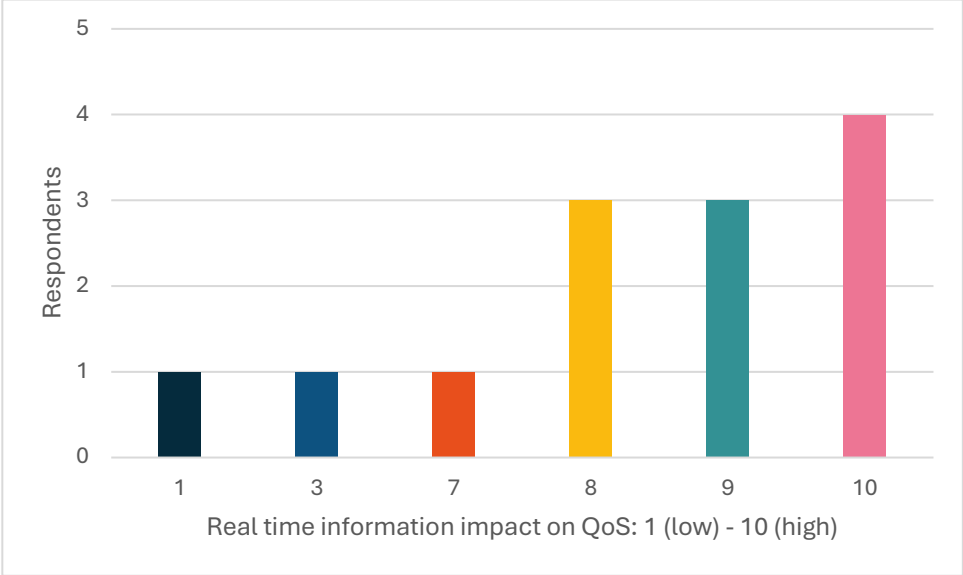


5. **Infrastrutture user-friendly: valori da 1 (poco) a 10 (tanto).**

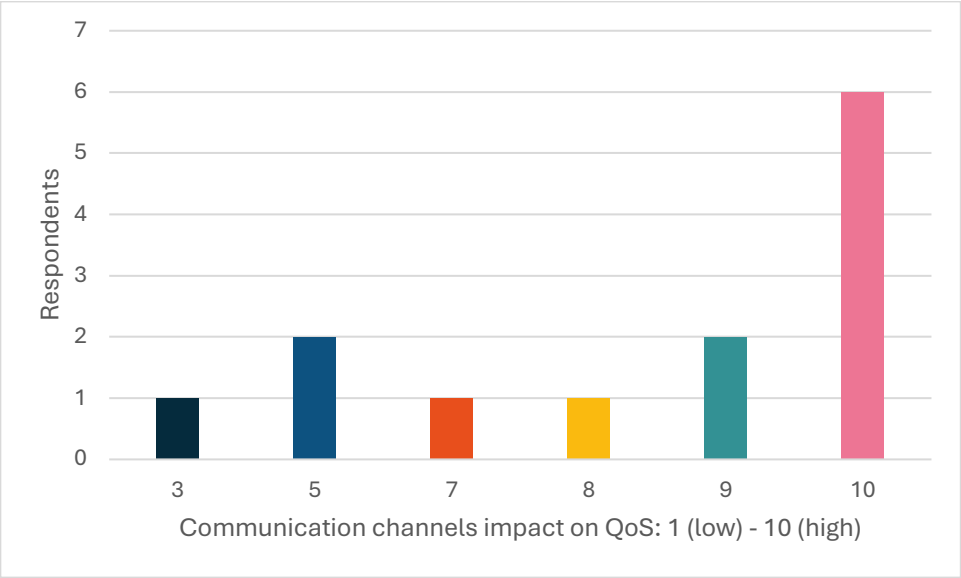
Quanto consideri importanti le strutture incentrate sull'utente (disponibilità di acqua, ristoro, servizi igienici, ...) e le informazioni sui trasporti (annunci vocali) nelle tue scelte di viaggio?



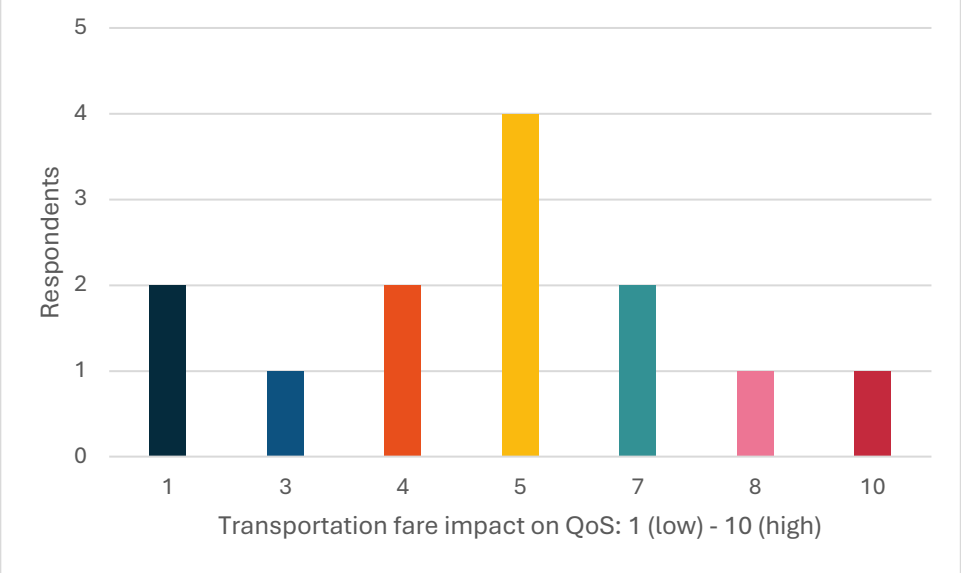
6. **Informazioni in tempo reale: valori da 1 (poco) a 10 (tanto).**
   Quanto ti affidi alle informazioni in tempo reale durante l'utilizzo dei mezzi pubblici?



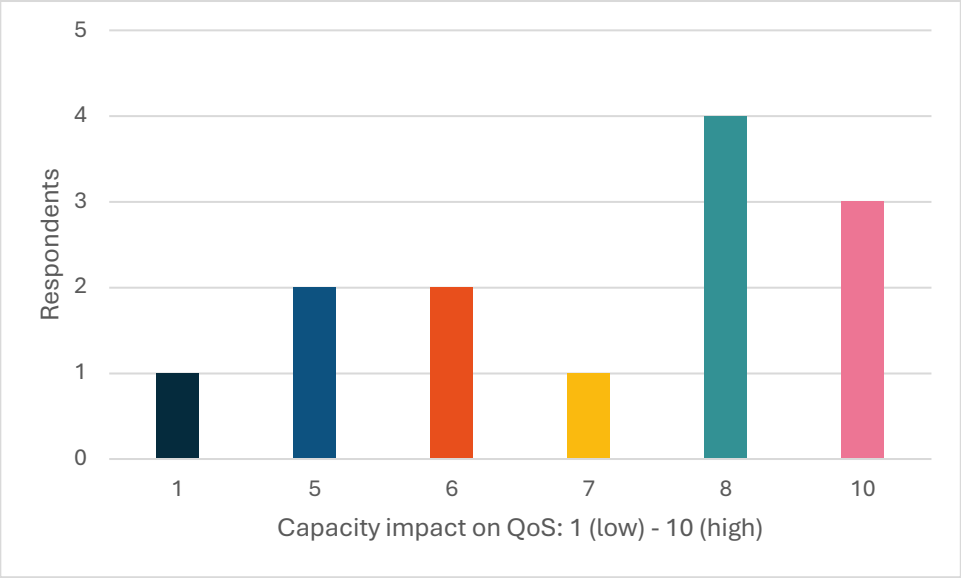
7. **Canali di comunicazione: valori da 1 (poco) a 10 (tanto).**
   Le app con informazioni in tempo reale e altri mezzi comunicazioni facili da usare, sono rilevanti per migliorare la tua esperienza di viaggio?



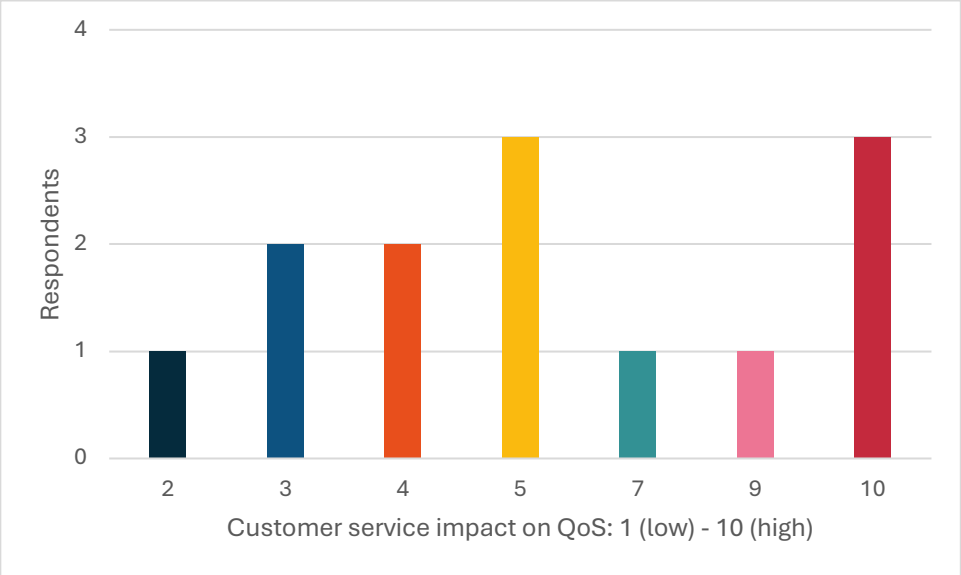
8. **Convenienza economica: valori da 1 (poco) a 10 (tanto).**
   Quanto influisce il costo del trasporto pubblico sulla tua scelta di mobilità?



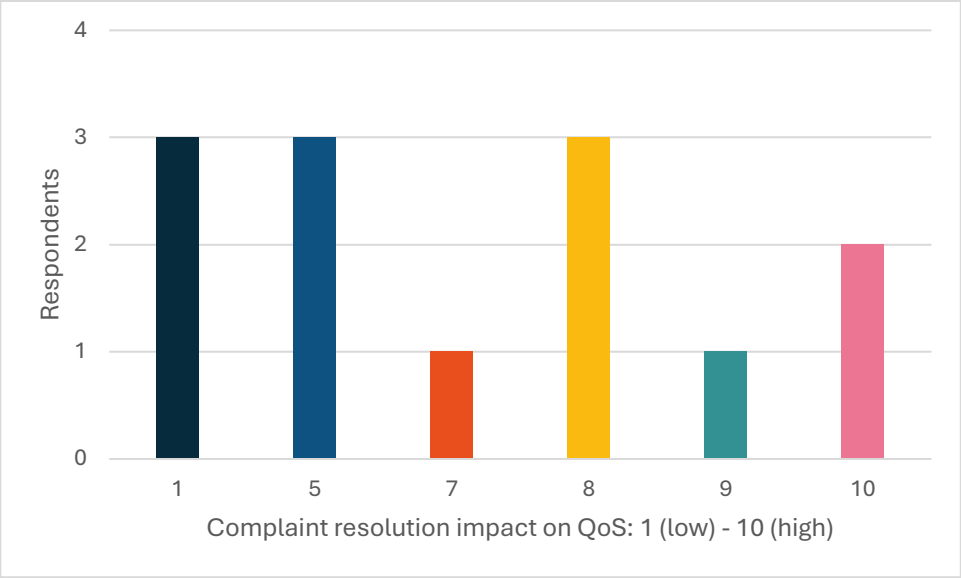
9. **Capacità del veicolo: valori a 1(poco) a 10 (tanto).**
   Quanto influenzano le tue scelte di viaggio il sovraffollamento e la capacità limitata del veicolo?



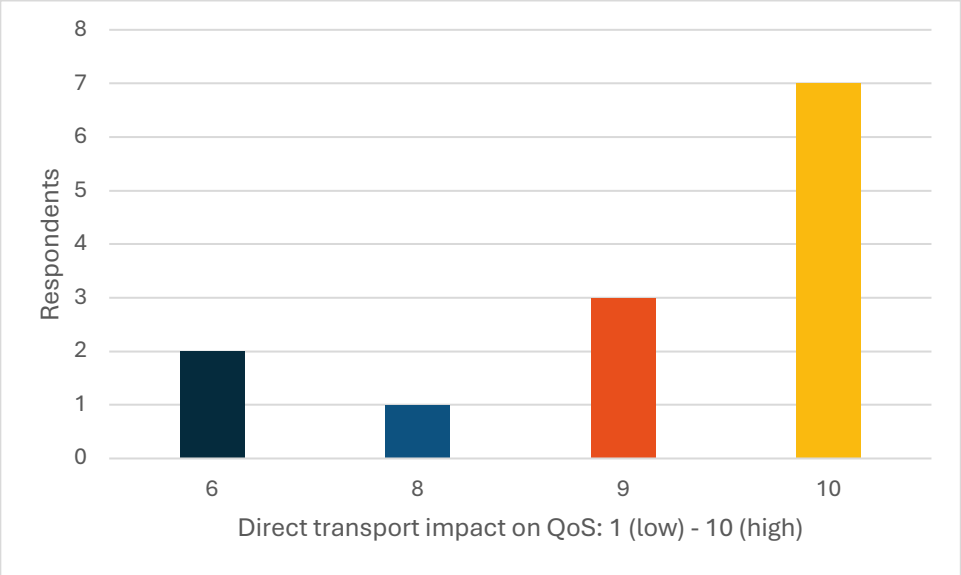
10. **Servizio client: valori da 1 (poco) a 10 (tanto).**
    Quanto è importante per te l'assistenza del servizio clienti?



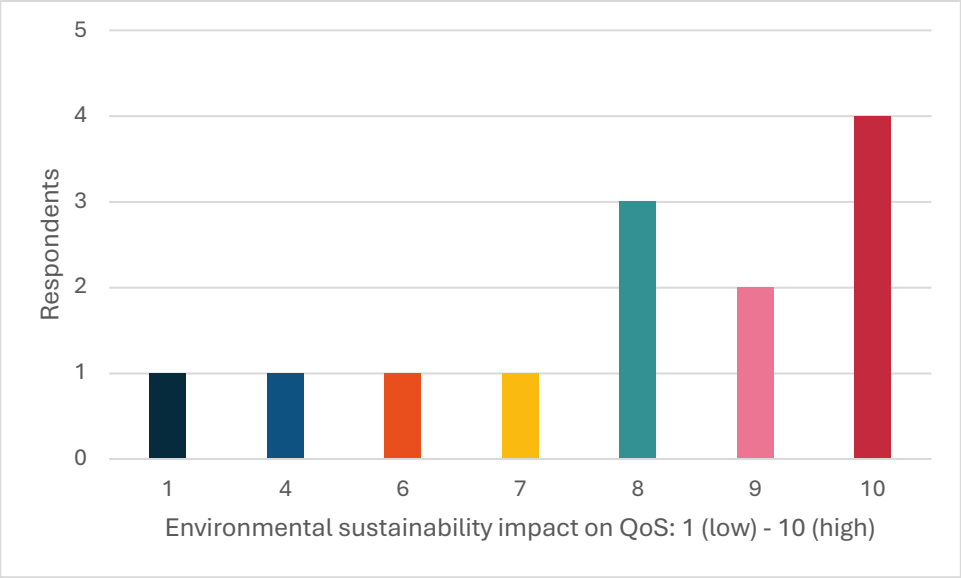
11. **Risoluzione dei reclami: valori da 1 (poco) a 10 (tanto).**
    Quanto è importante per te l'efficienza della risoluzione dei reclami?



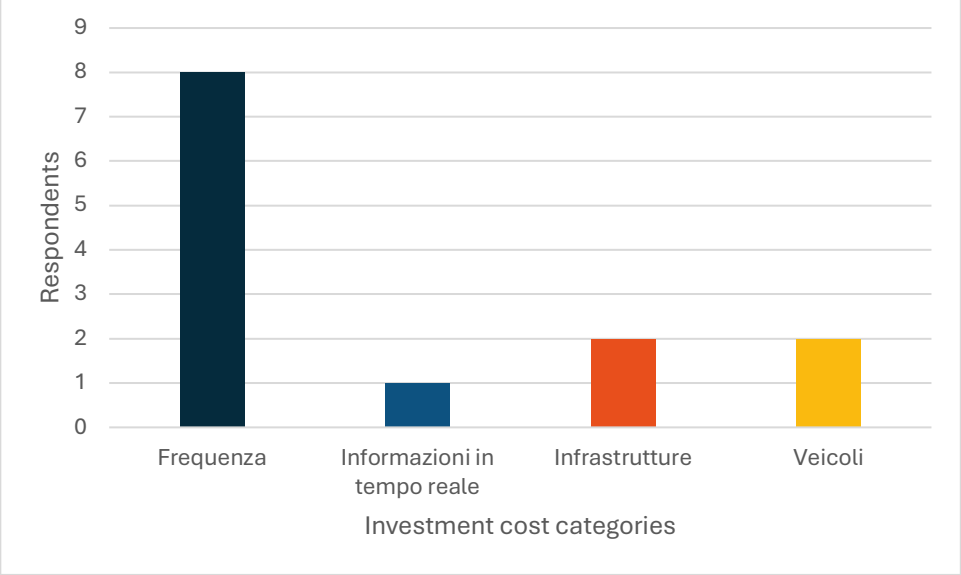
12. **Trasferimenti senza cambi: valori da 1 (poco) a 10 (tanto)**
    Quanto è rilevante per te avere un trasporto pubblico diretto verso la tua destinazione?



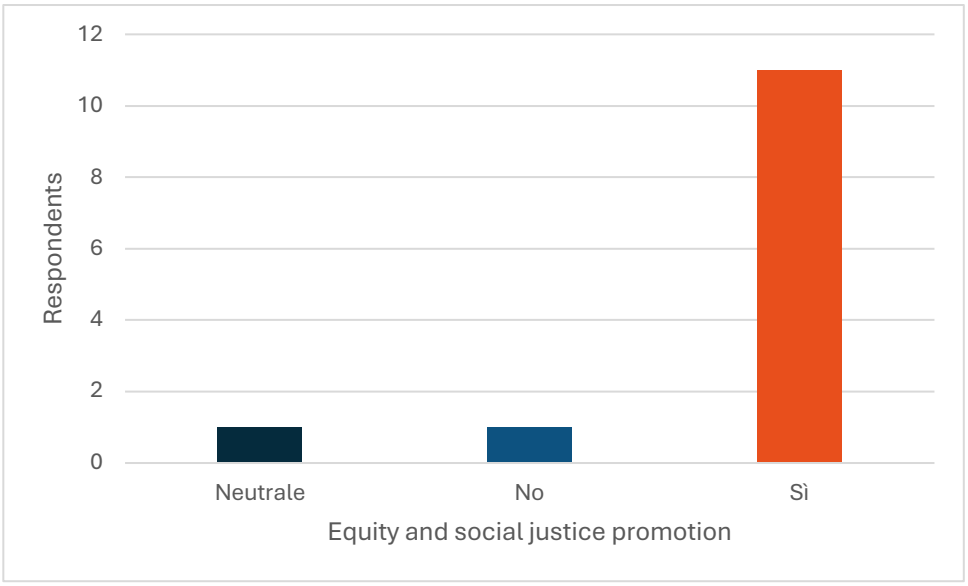
13. **Sostenibilità ambientale e iniziative green: valori da 1 (poco) a 10 (tanto)**
    Quanto è importante la sostenibilità ambientale nelle tue scelte di trasporto?



14. **Costi d'investimento. Opzioni di scelta: infrastrutture, veicoli, frequenza, informazioni in tempo reale, accessibilità per le persone con disabilità, diverse soluzioni tariffarie.**
    In quale categoria pensi che il trasporto pubblico debba investire di più?



15. **Promozione dell'equità e delle giustizia sociale. Opzioni di scelta: sì, neutrale, no.**
    Pensi che l'autorità pubblica debba promuovere la copertura, la frequenza e l'accessibilità del trasporto pubblico riducendo al contempo il possesso di veicoli privati?


12
10
8
6
4
2
0
Respondents
Neutrale
No
Sì
Equity and social justice promotion

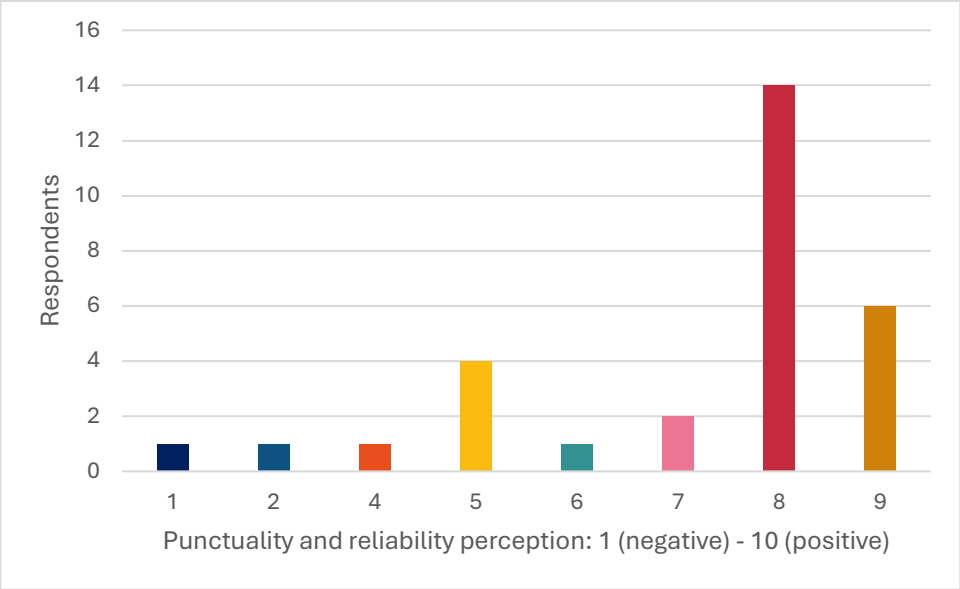
2. VALENCIA

UPPER quality of service classes and user perceptions

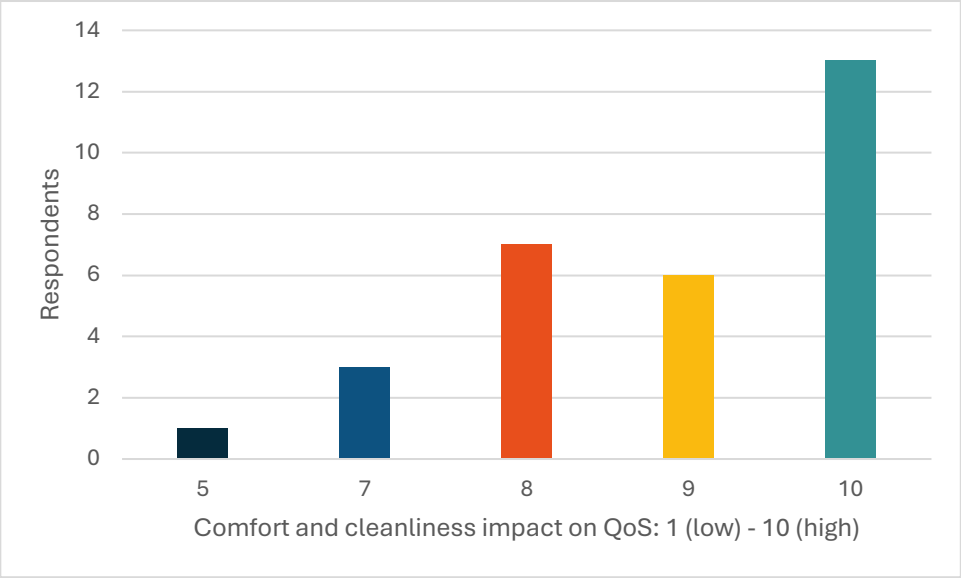
X: Values from 1 to 10 / Response options

Y: Frequency of responses

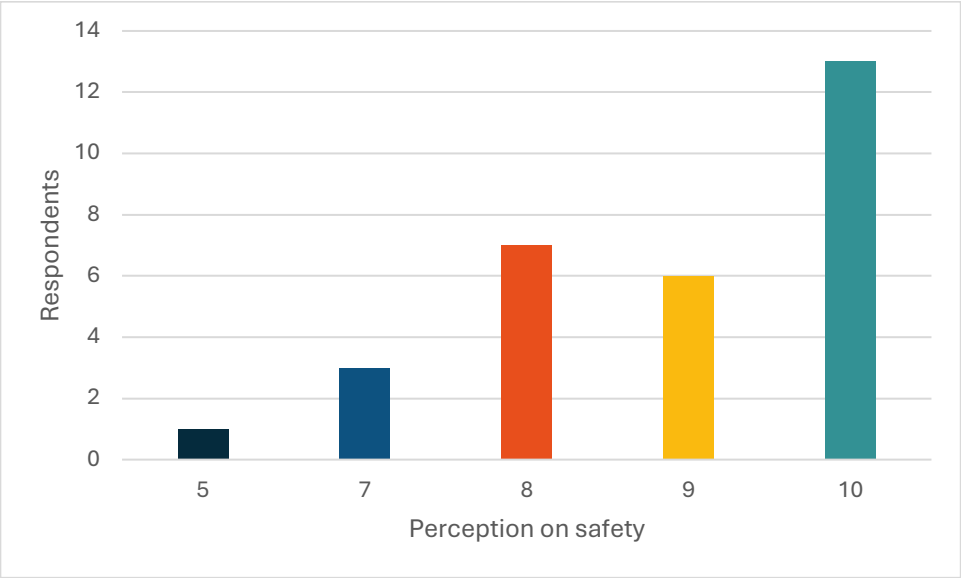
1. **Punctuality and Reliability: values from 1 (negative) to 10 (positive).**
   What is your perception of the punctuality of public transport services in your area?



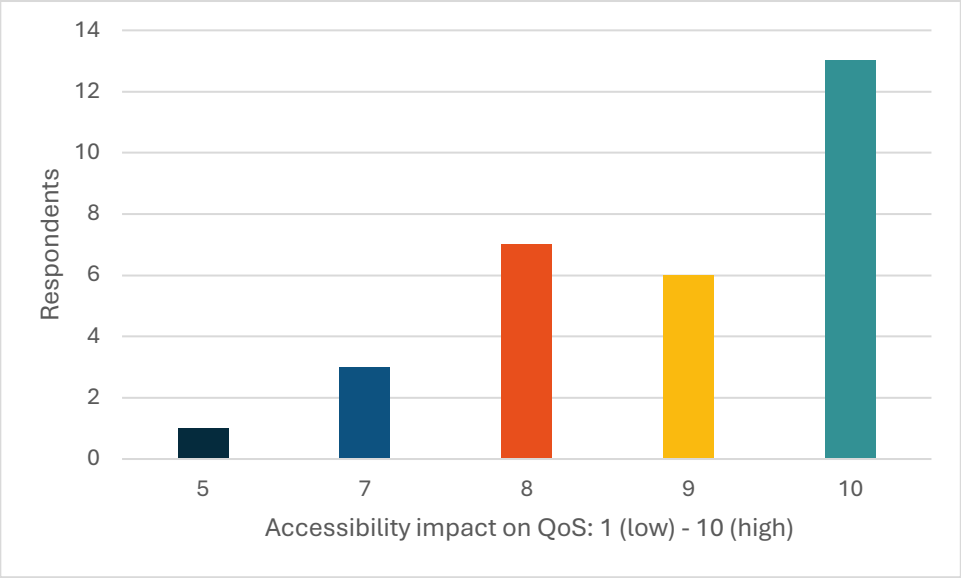
2. **Comfort and cleanliness: values from 1 (low) to 10 (high).**
   How important is comfort and cleanliness in your decision to take public transport?



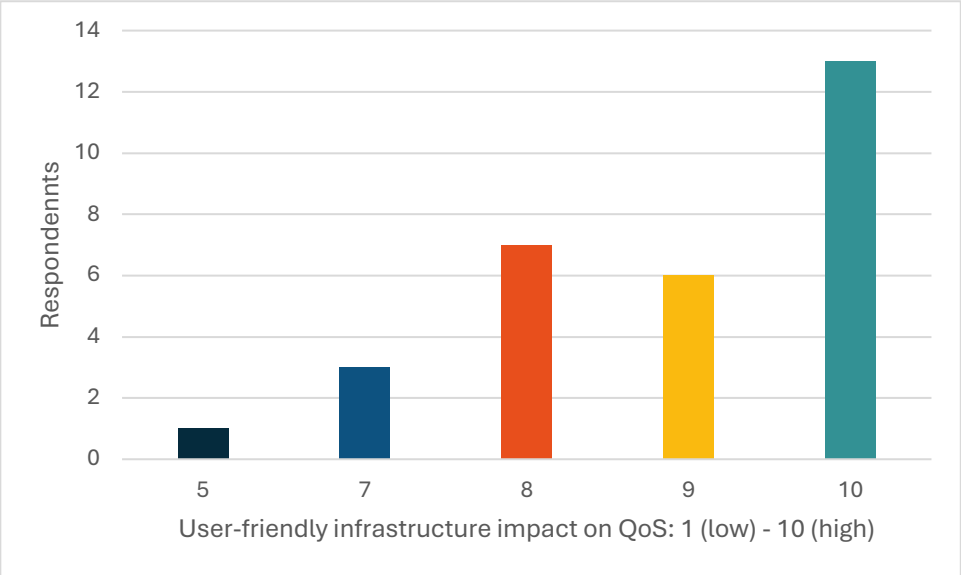
3. **Safety and security: very safe, safe, neutral, unsafe, very unsafe.**
   Do you feel safe while waiting at bus, train and metro stations?
   By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



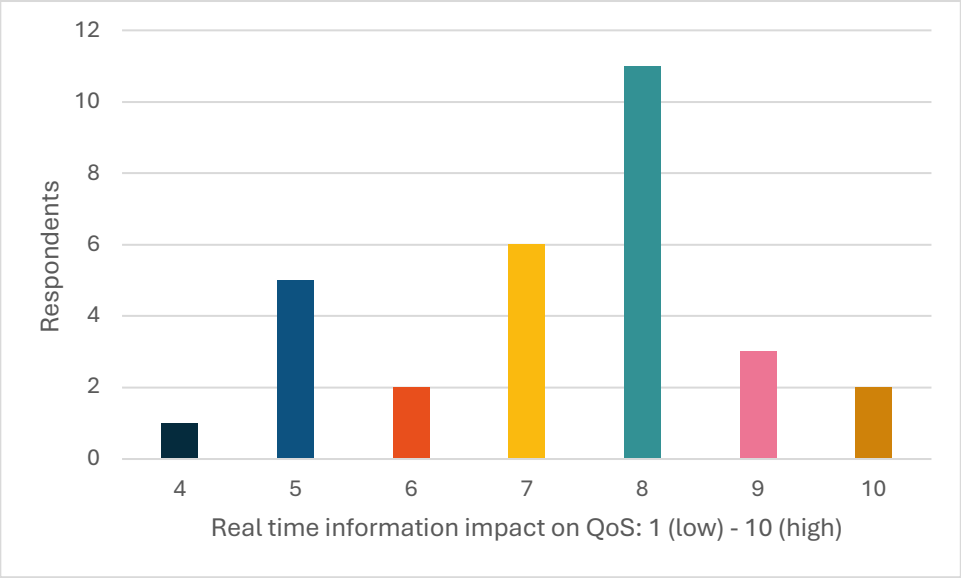
4. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
   How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



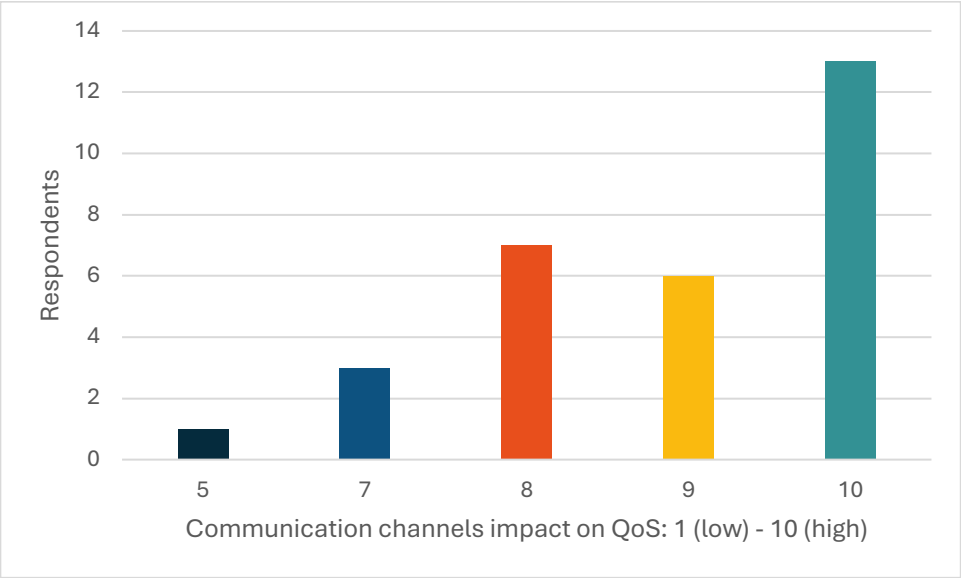
5. **User-friendly Infrastructure: values from 1 (low) to 10 (high)**
   How much do you consider user
   centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



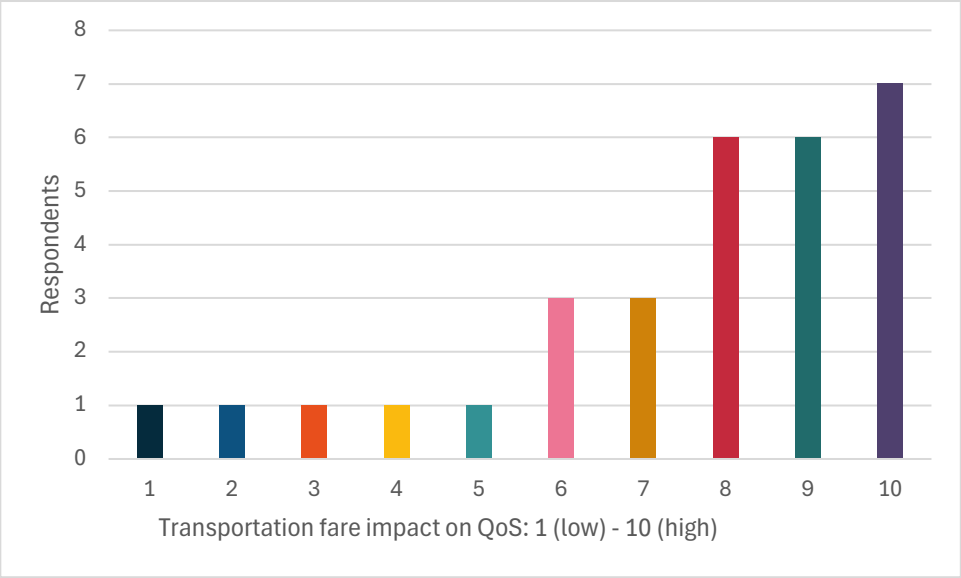
6. **Real time information: values from 1 (low) to 10 (high)**
   How much are you relying on real time information while taking public transport?



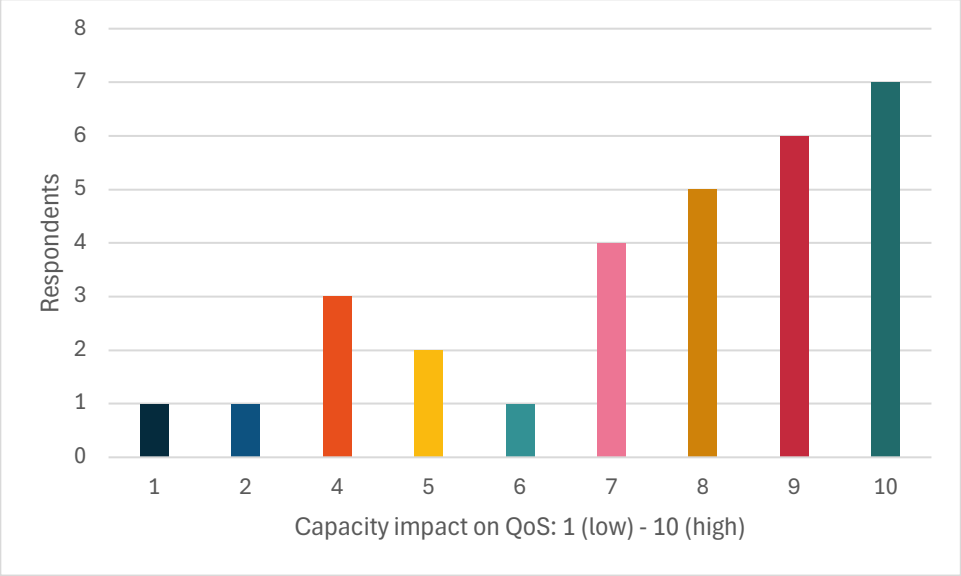
7. **Communication Channel: values from 1 (low) to 10 (high)**
   Are easy to use real time apps and other communications relevant for improving your travel experience?



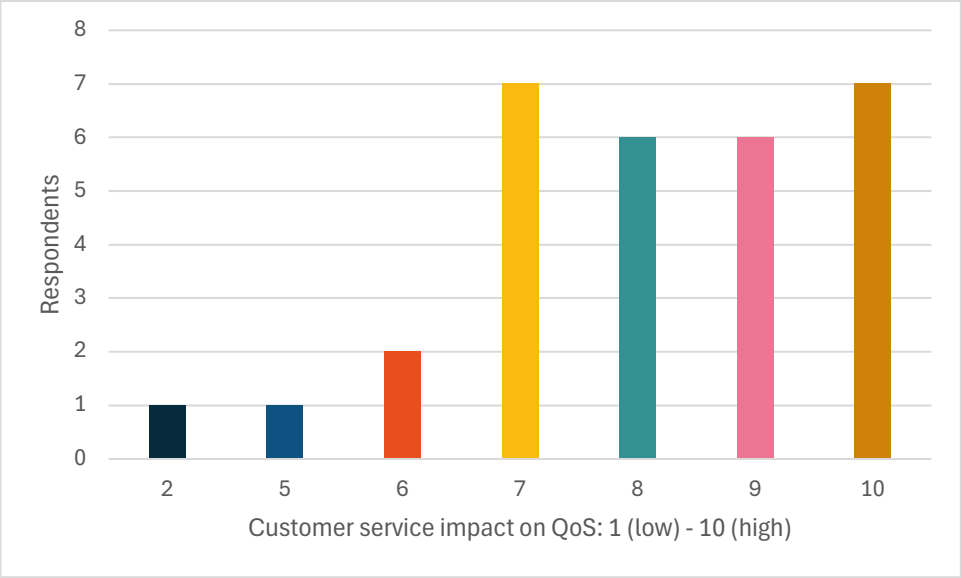
8. **Affordability: values from 1 (low) to 10 (high).**
   How much does the transportation fare impact your mobility choices?



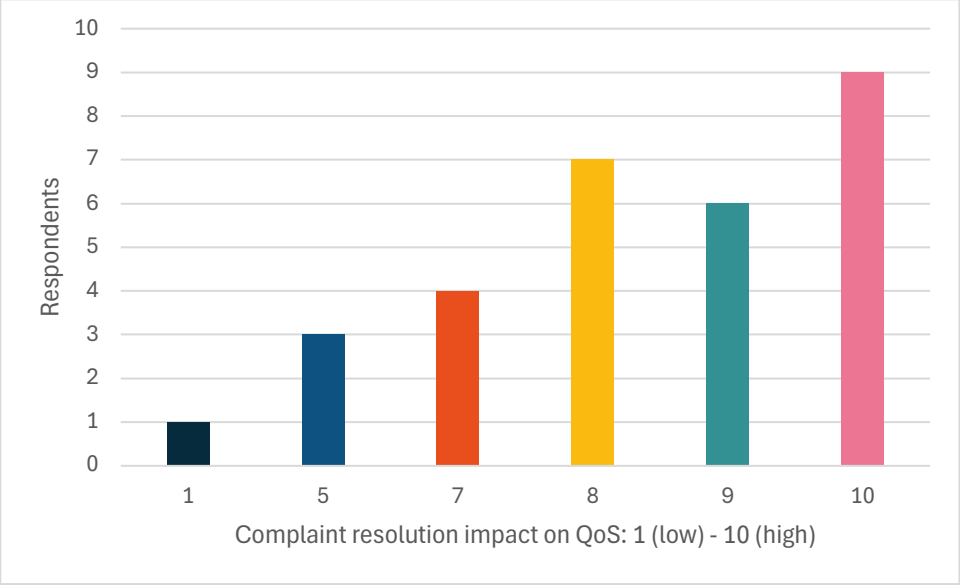
9. **Capacity: values from 1 (low) to 10 (high).**
   How much overcrowding and limited capacity influence your travel choice?



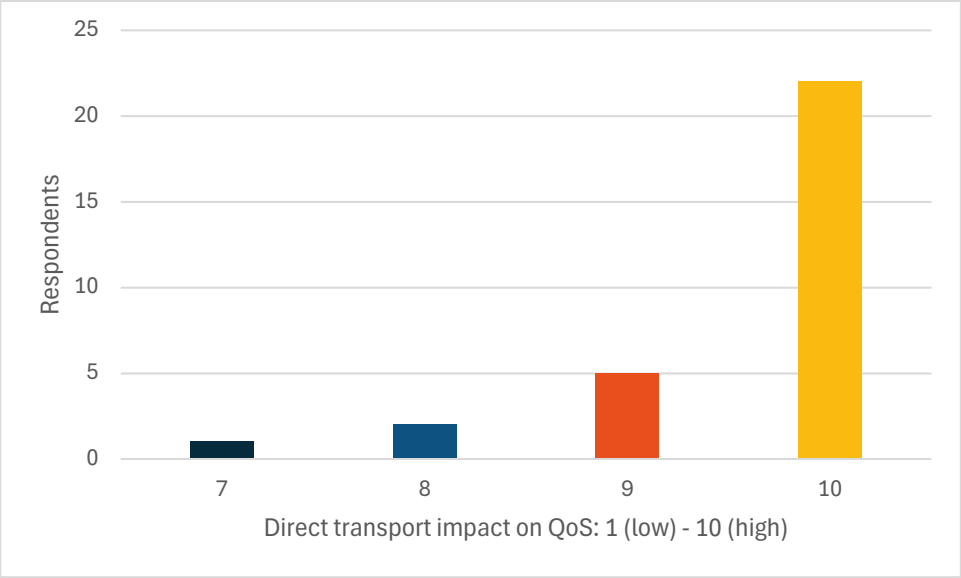
10. **Customer service: values from 1 (low) to 10 (high).**
    How important is the assistance of the Customer Service for you?



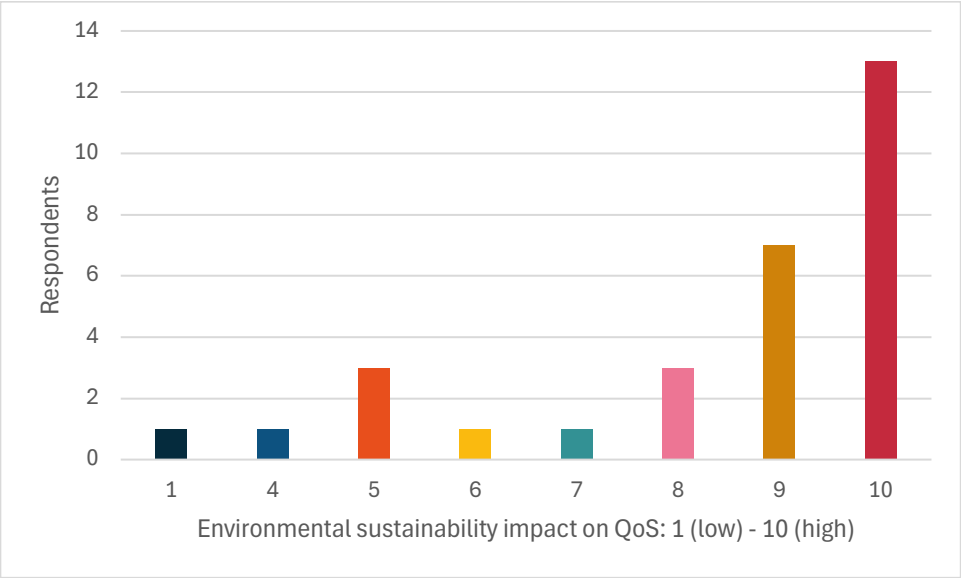
11. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



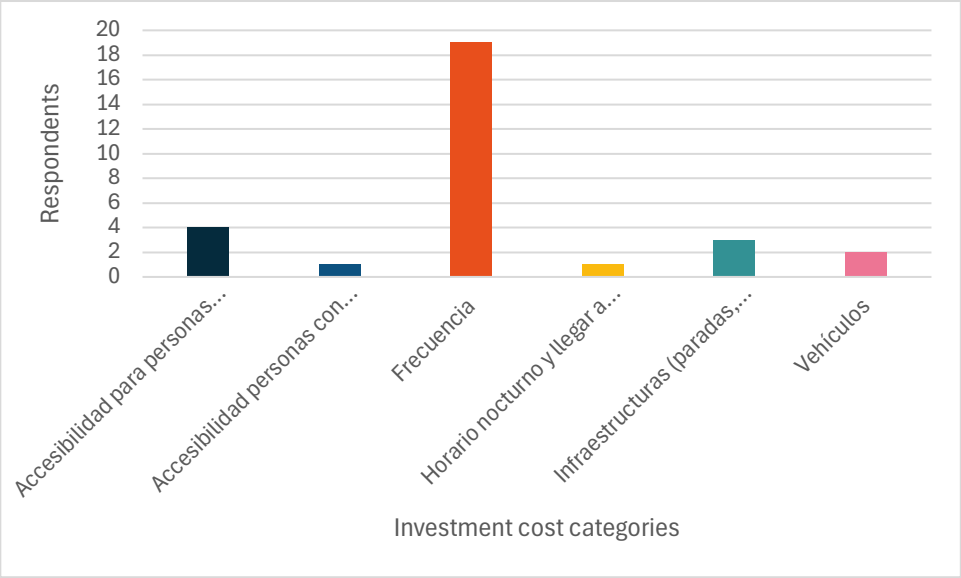
12. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



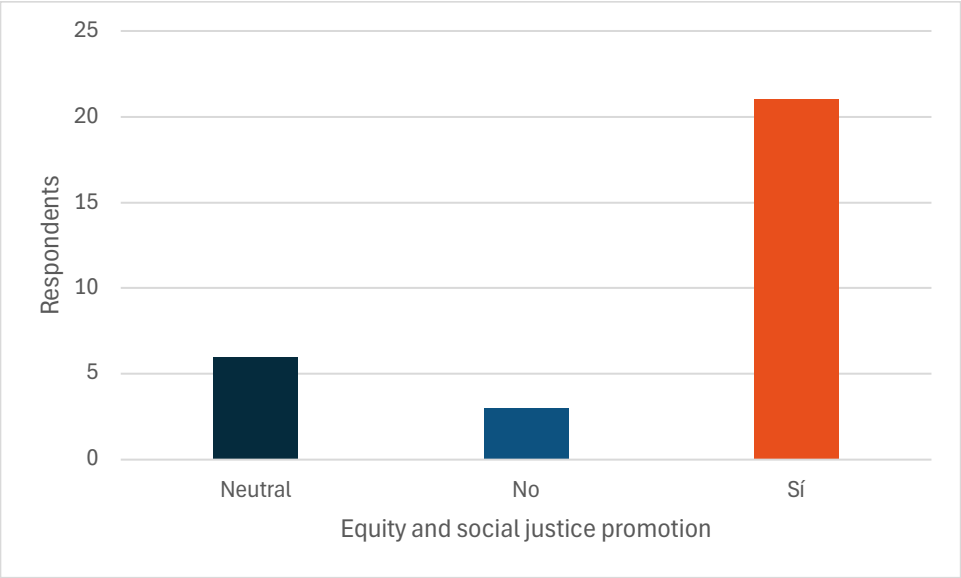
13. **Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)**
    How important is environmental sustainability in your choice of transportation?



14. **Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.**
    In which category do you think public transport should invest more?



15. **Equity and social justice promotion. Choice options: yes, no, neutral. Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?**



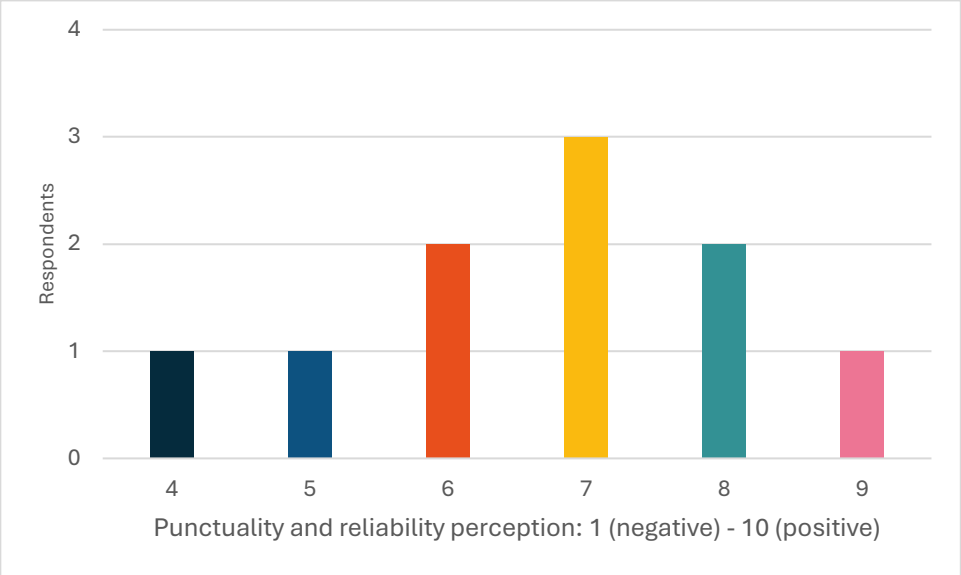
3. OSLO

UPPER quality of service classes and user perceptions

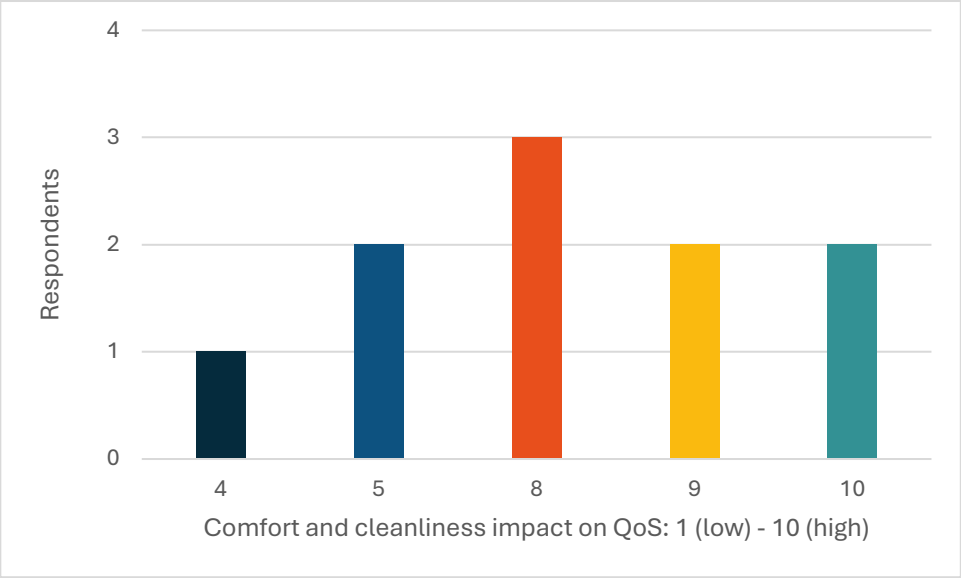
X: Values from 1 to 10 / Response options

Y: Frequency of responses

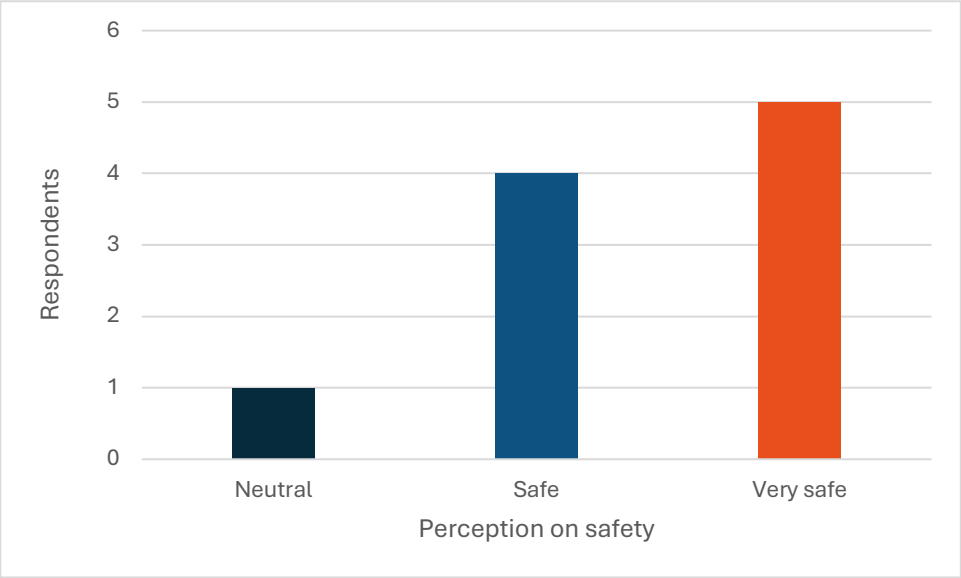
16. **Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?**



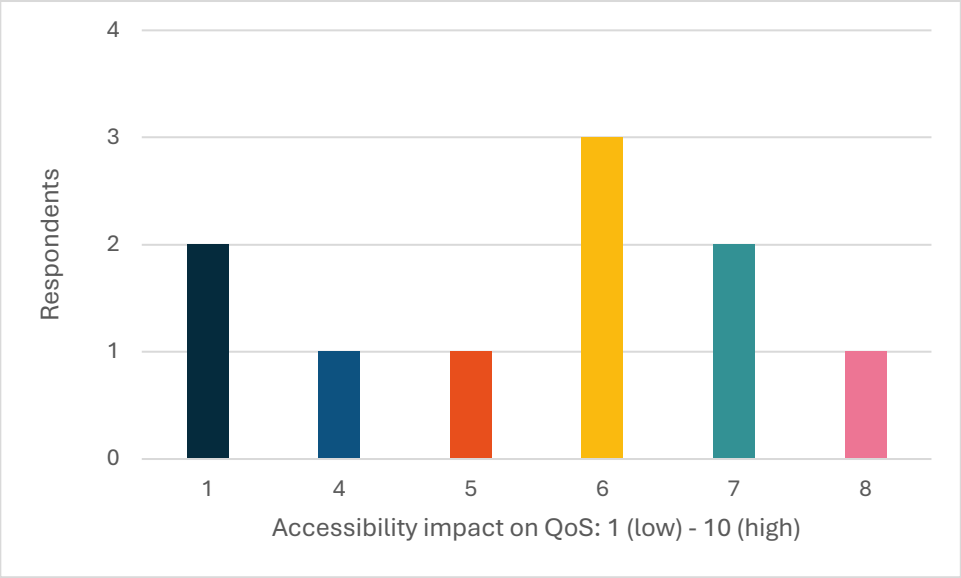
17. **Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?**



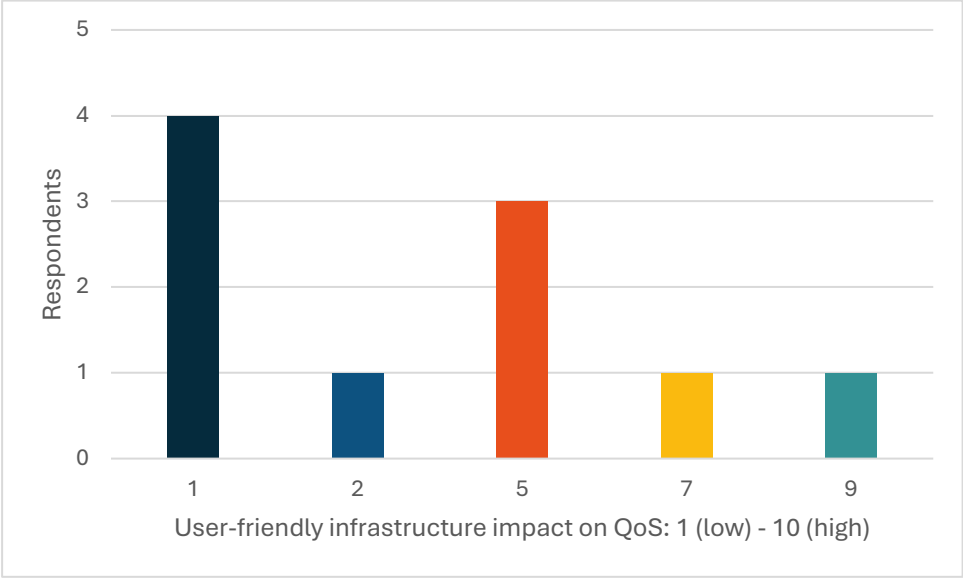
18. **Safety and security: very safe, safe, neutral, unsafe, very unsafe.**
    Do you feel safe while waiting at bus, train and metro stations?
    By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



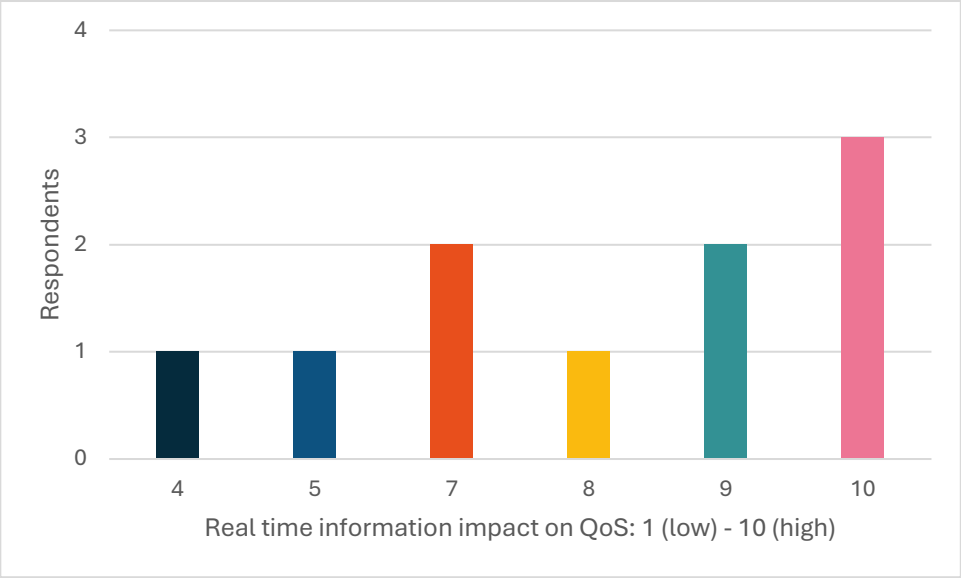
19. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
    How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



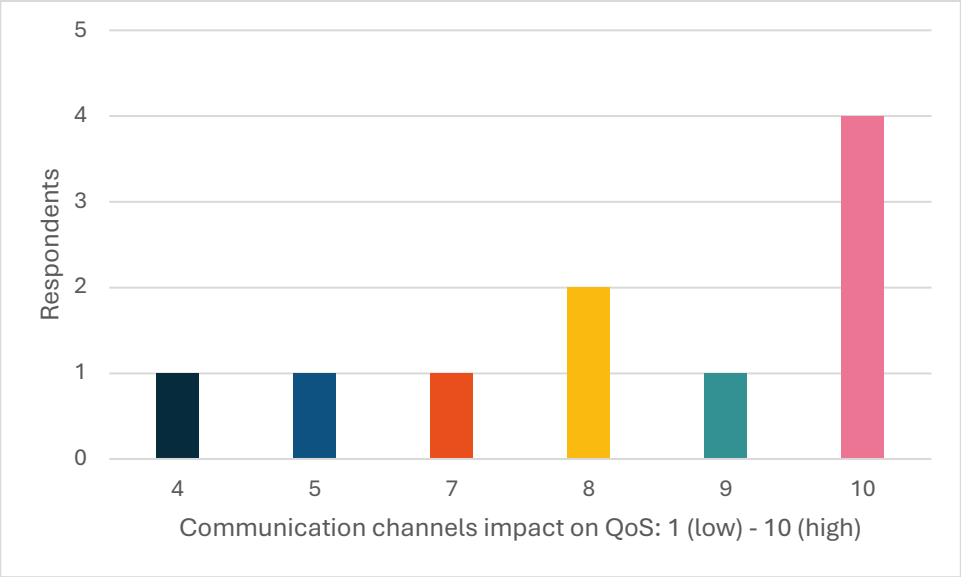
20. **User-friendly Infrastructure: values from 1 (low) to 10 (high)**
    How much do you consider user
    centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



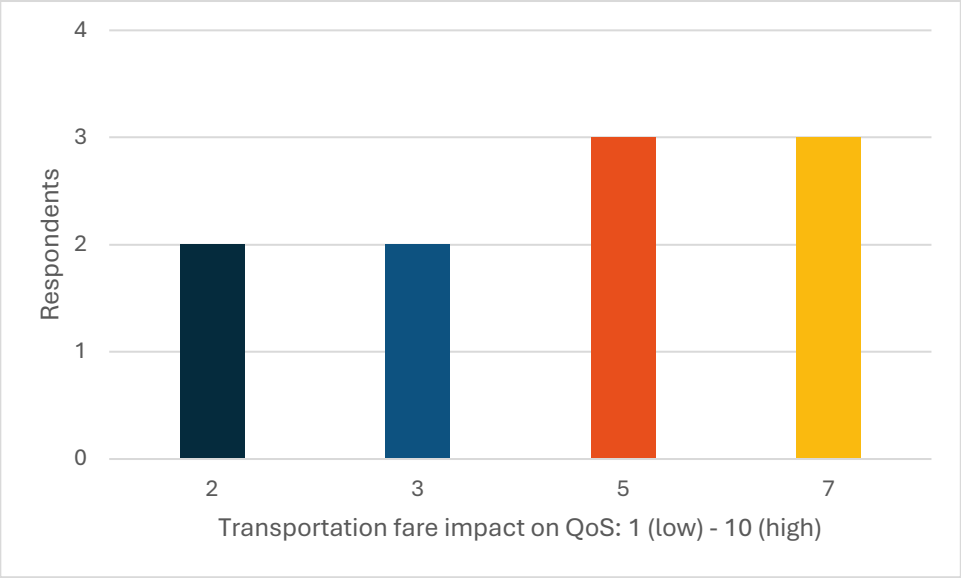
21. **Real time information: values from 1 (low) to 10 (high)**
    How much are you relying on real time information while taking public transport?



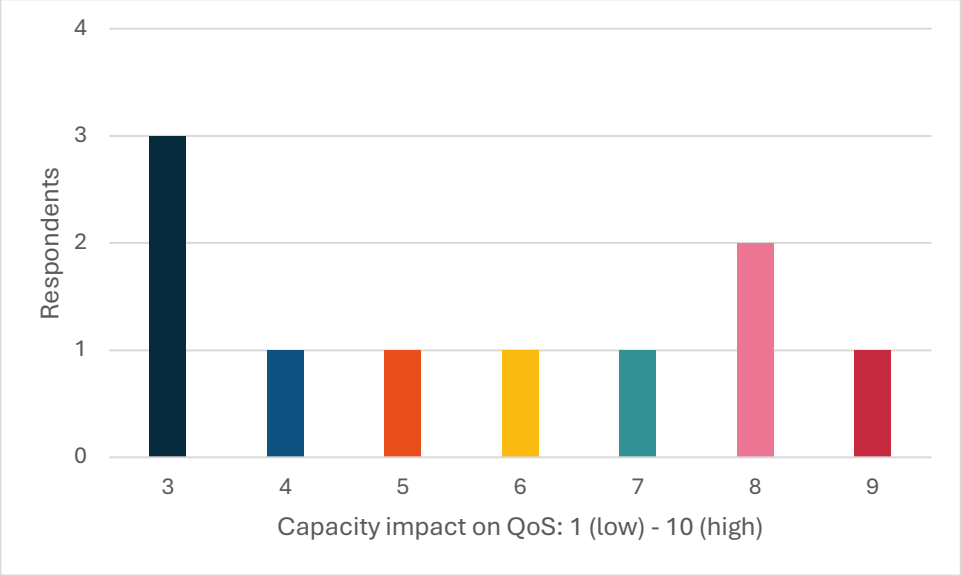
22. **Communication Channel: values from 1 (low) to 10 (high)**
    Are easy to use real time apps and other communications relevant for improving your travel experience?



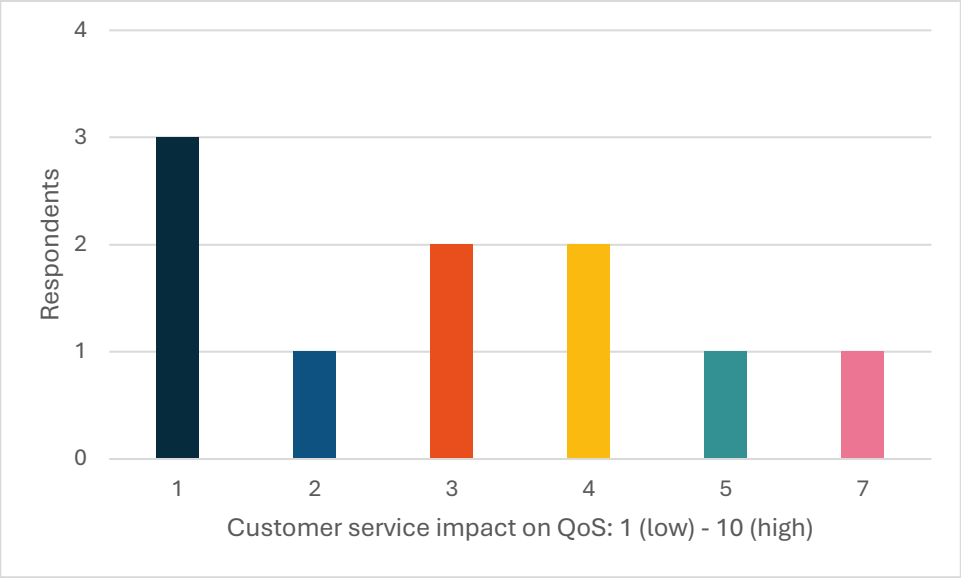
23. **Affordability: values from 1 (low) to 10 (high).**
    How much does the transportation fare impact your mobility choices?



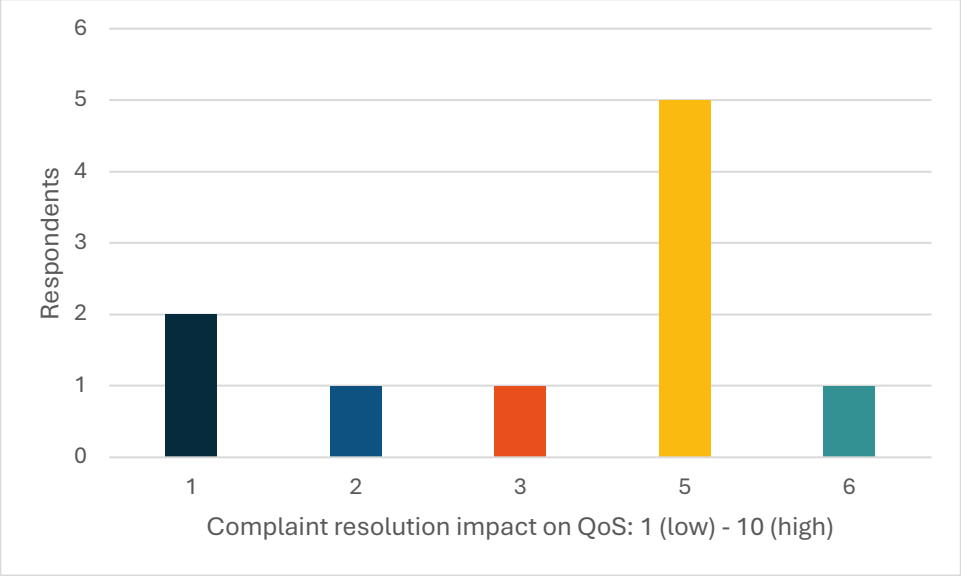
24. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



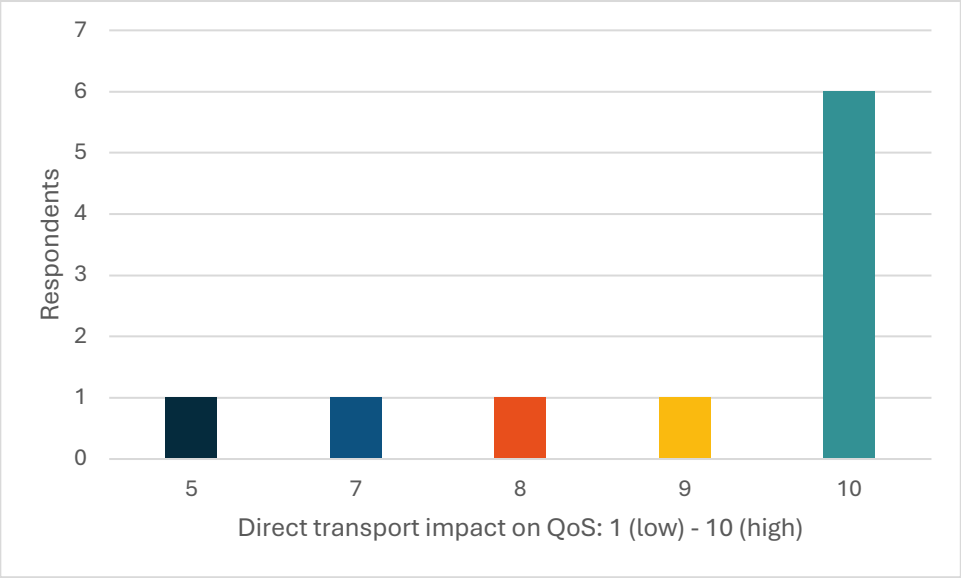
25. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



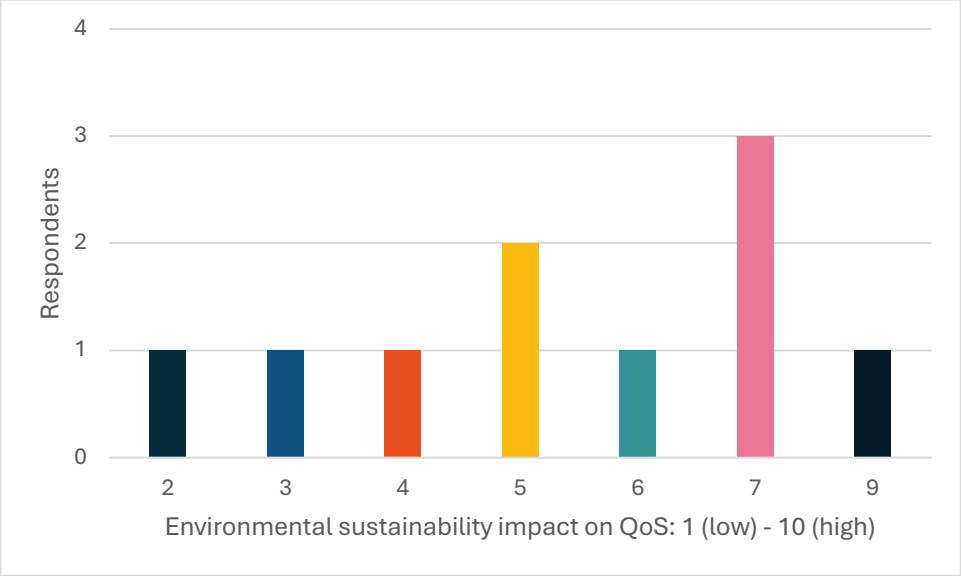
26. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



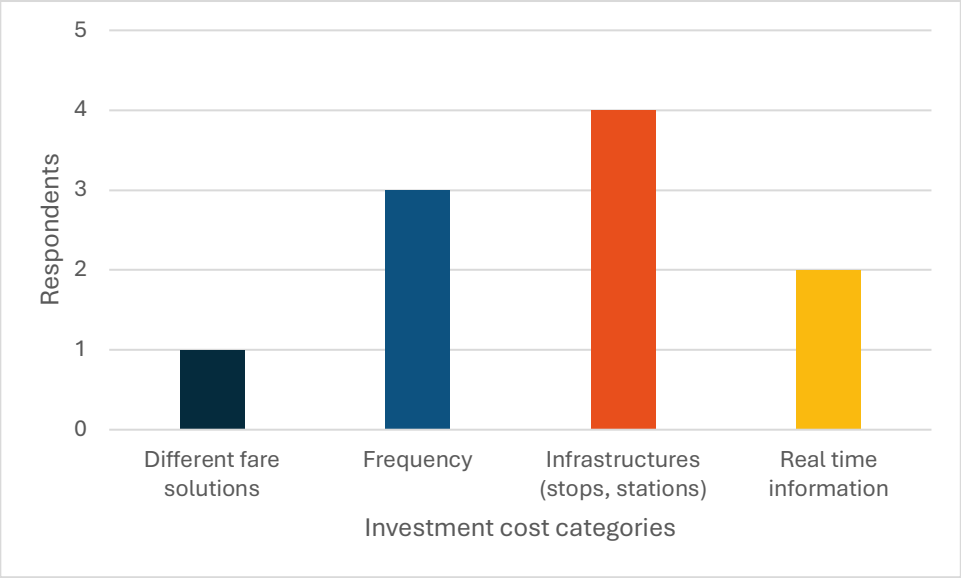
27. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



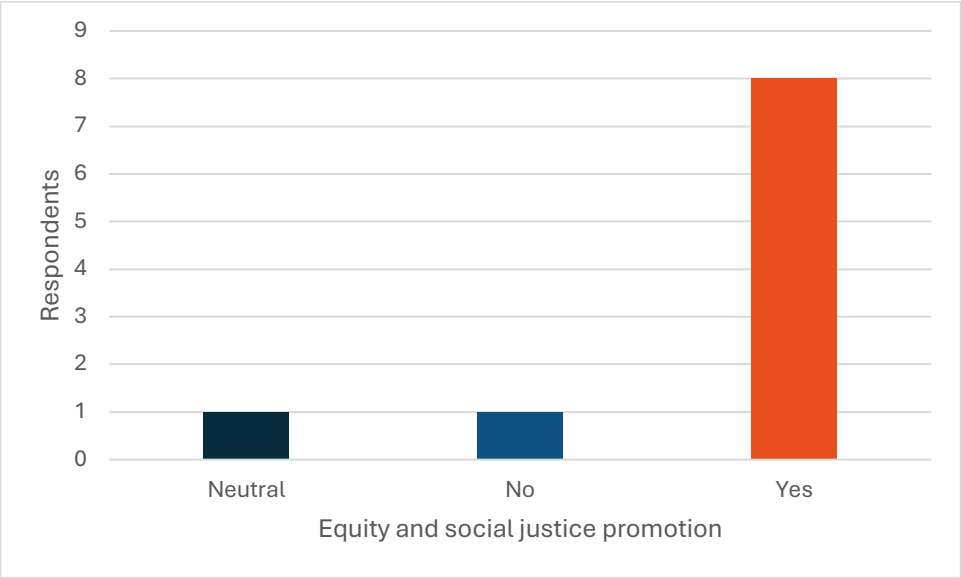
28. Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)
How important is environmental sustainability in your choice of transportation?



29. Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.
In which category do you think public transport should invest more?



30. **Equity and social justice promotion. Choice options: yes, no, neutral. Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?**



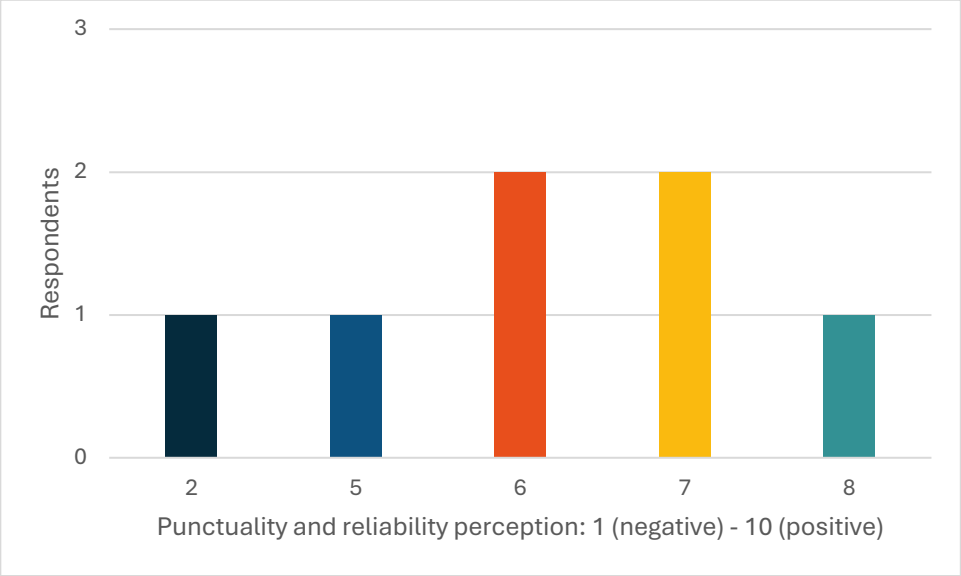
4. LISBON

UPPER quality of service classes and user perceptions

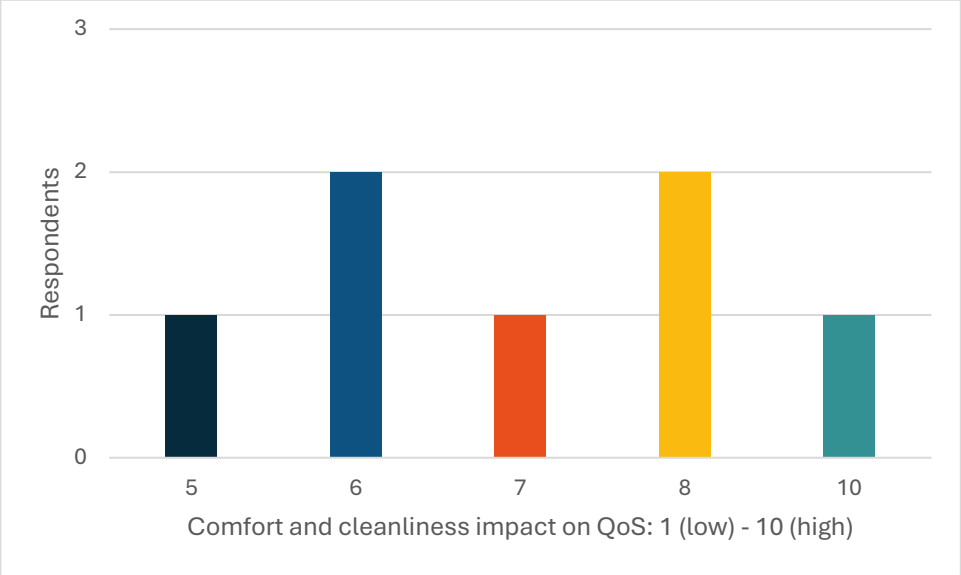
X: Values from 1 to 10 / Response options

Y: Frequency of responses

31. **Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?**

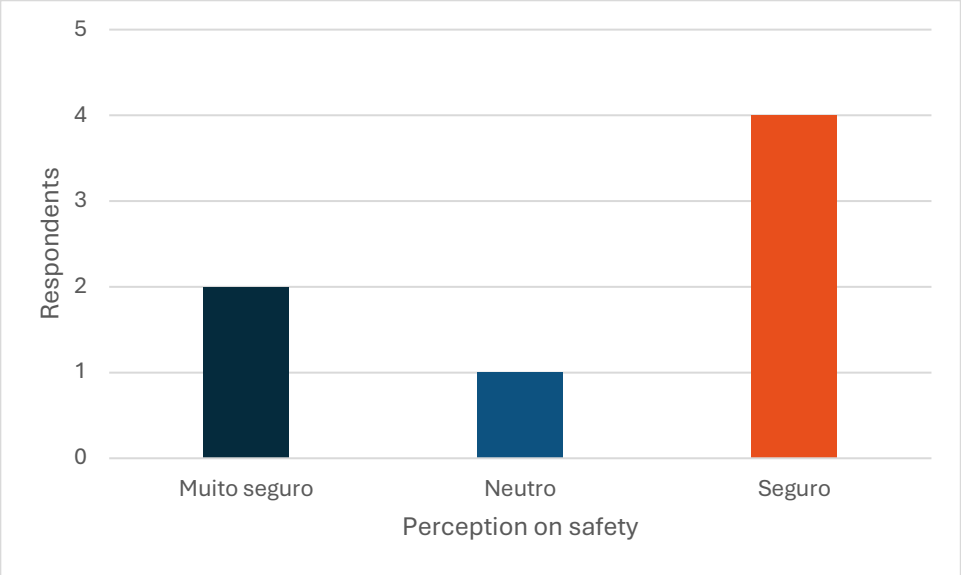


32. **Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?**

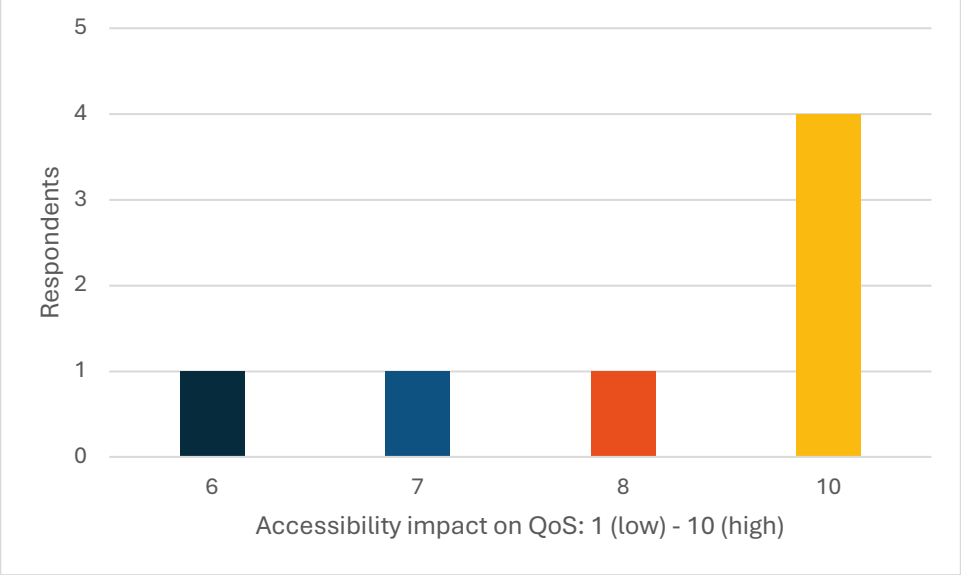


33. **Safety and security: very safe, safe, neutral, unsafe, very unsafe. Do you feel safe while waiting at bus, train and metro stations?**

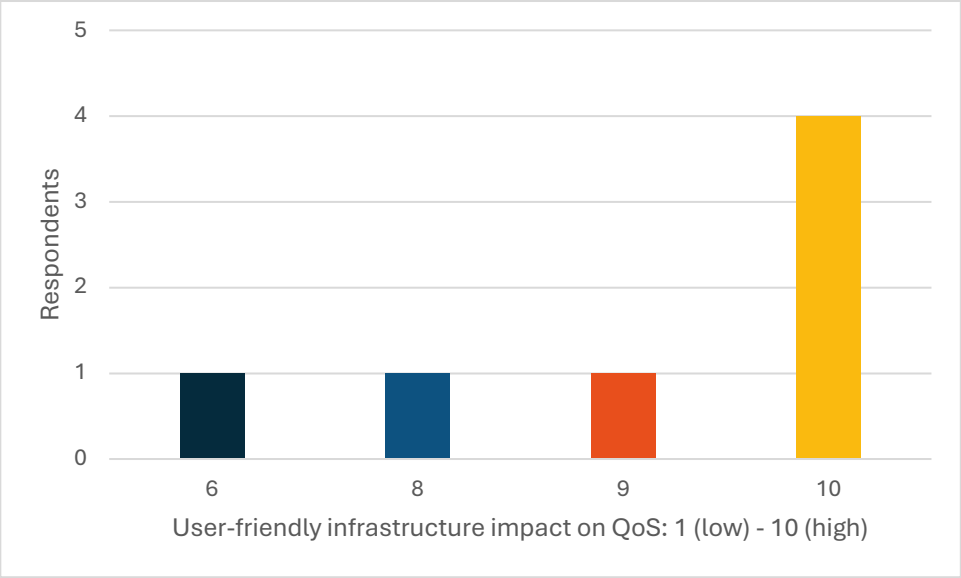
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



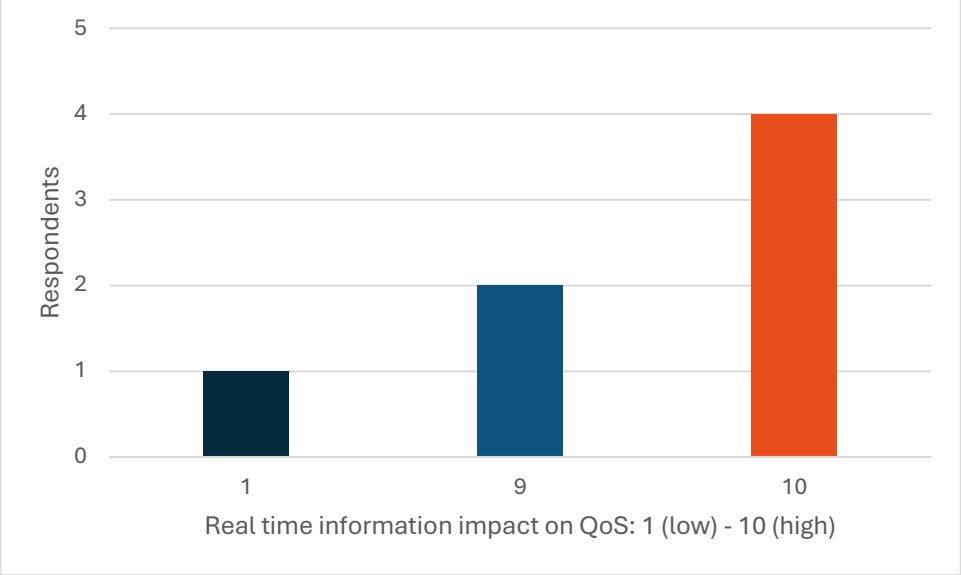
34. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
    How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



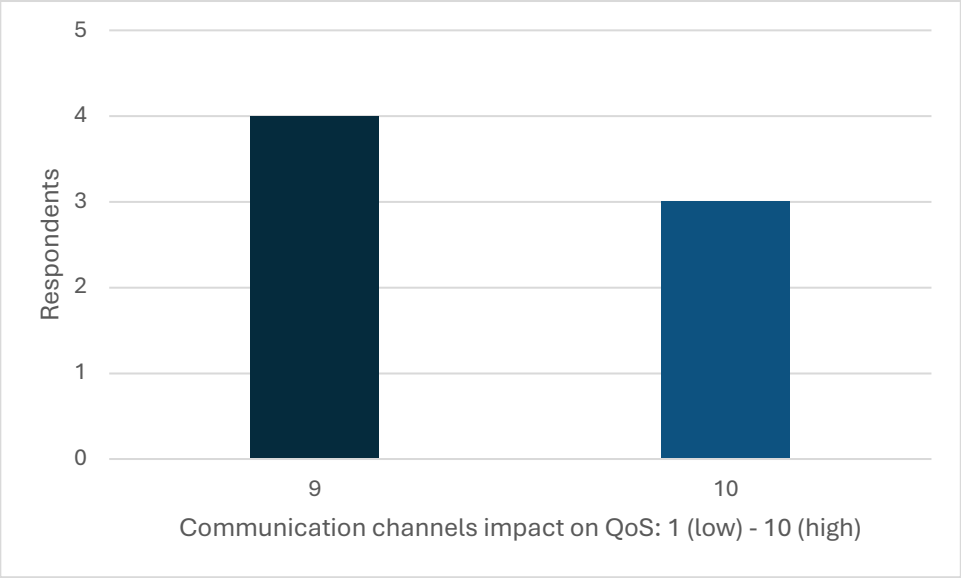
35. **User-friendly Infrastructure: values from 1 (low) to 10 (high)**
    How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



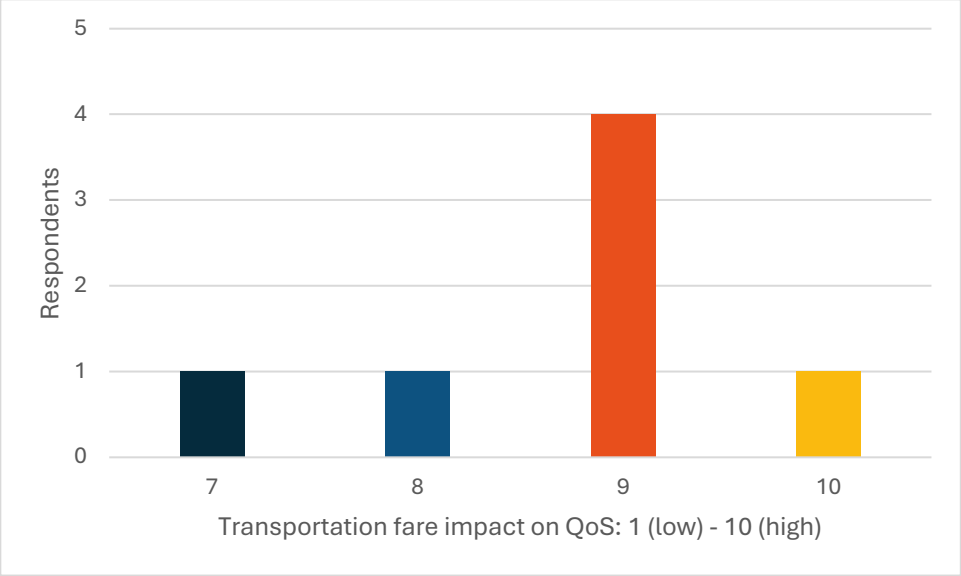
36. **Real time information: values from 1 (low) to 10 (high)**
    How much are you relying on real time information while taking public transport?



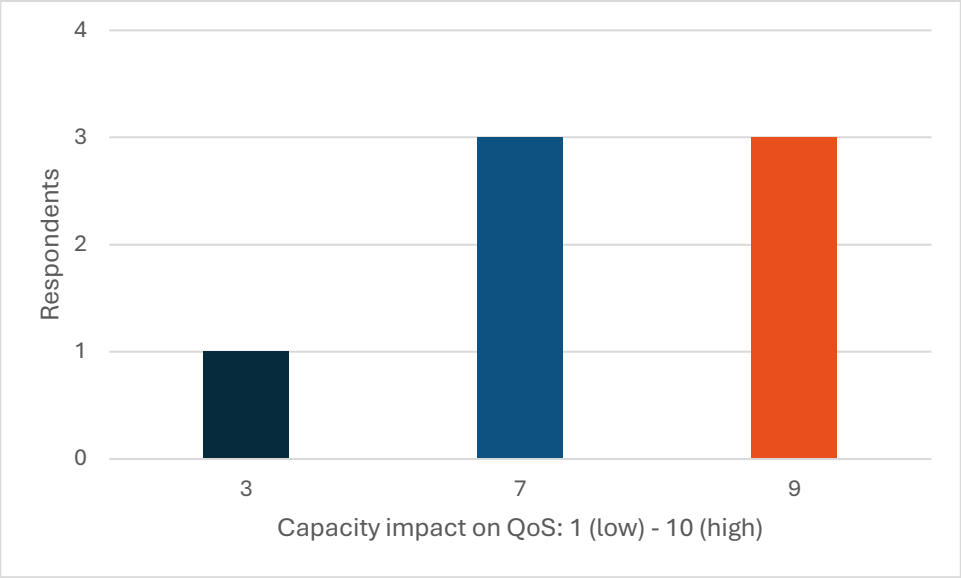
37. **Communication Channel : values from 1 (low) to 10 (high)**
    Are easy to use real time apps and other communications relevant for improving your travel experience?



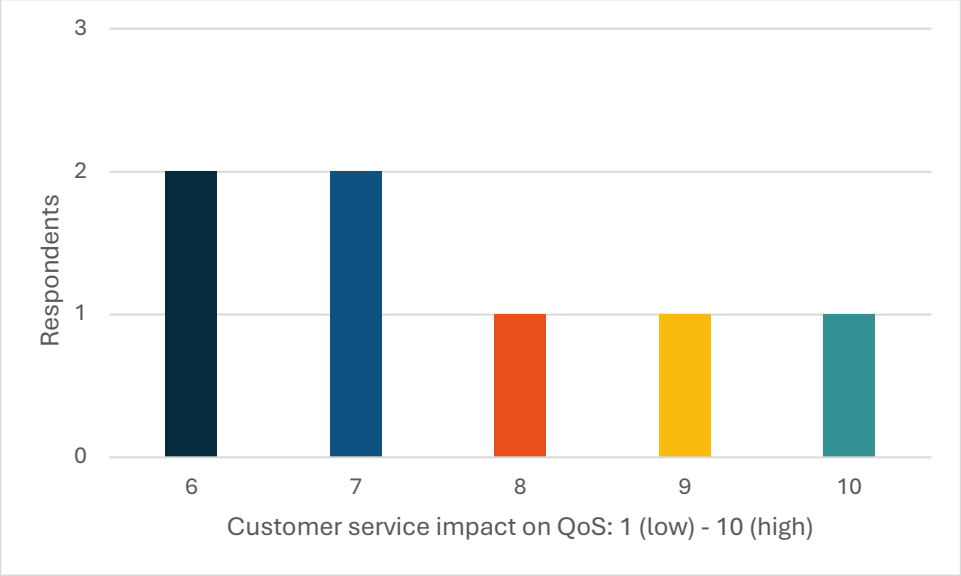
38. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



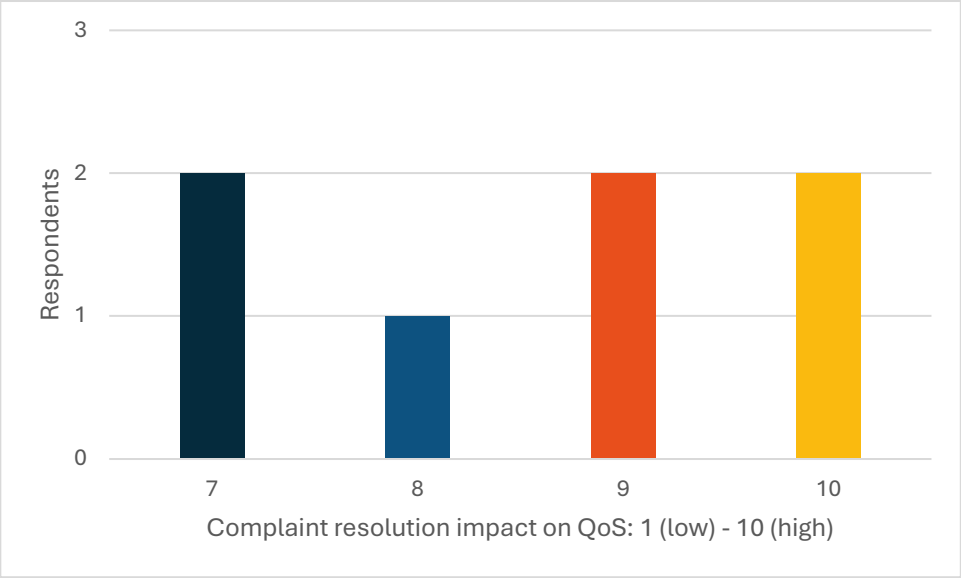
39. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



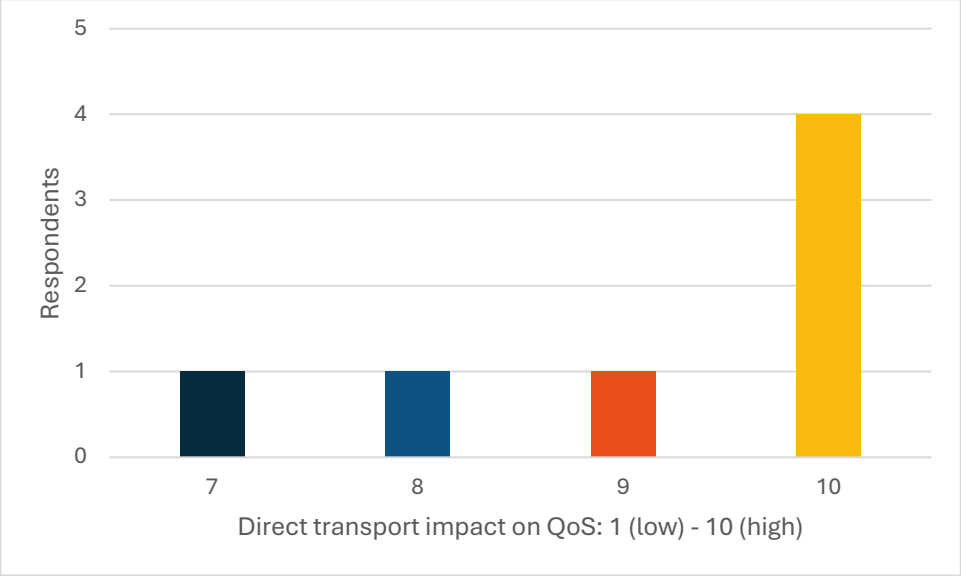
40. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



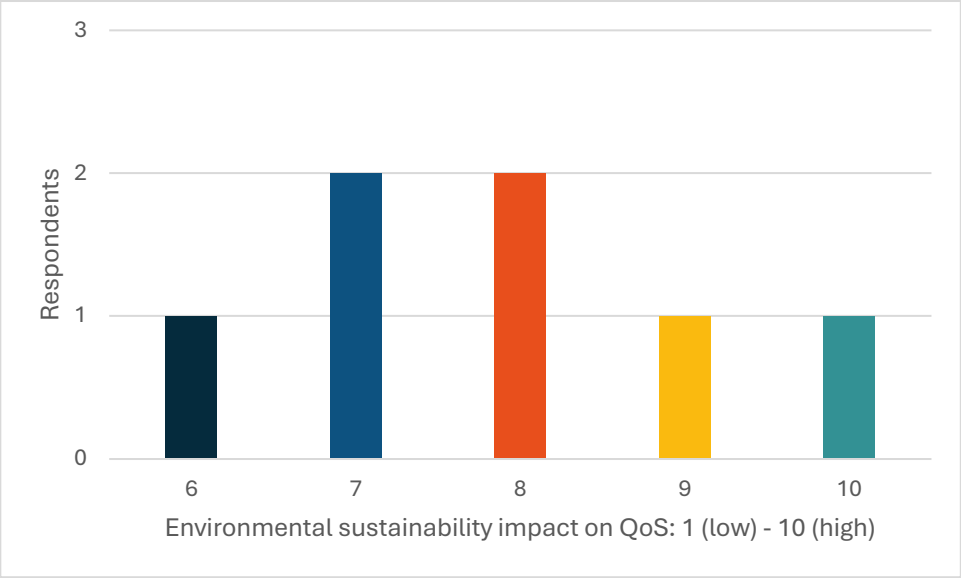
41. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



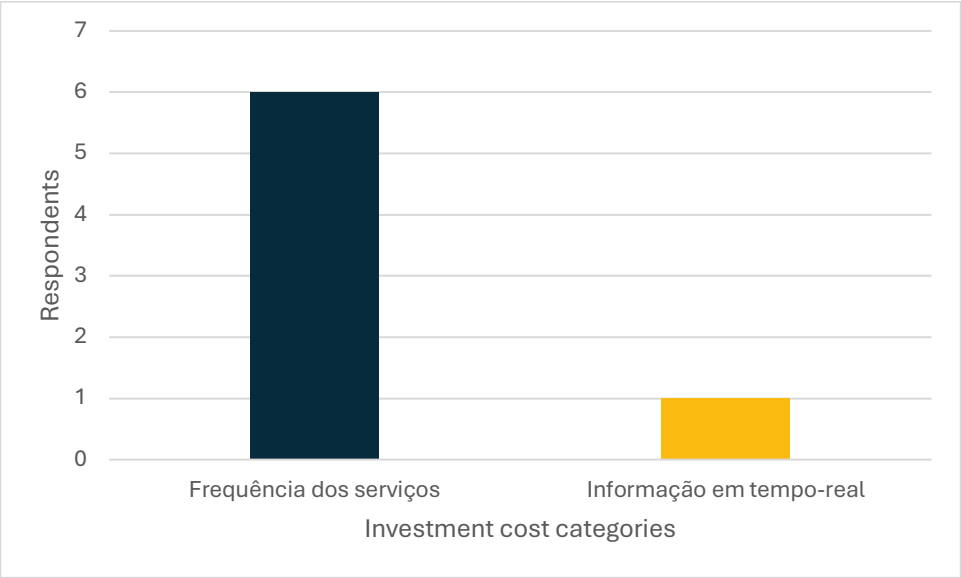
42. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



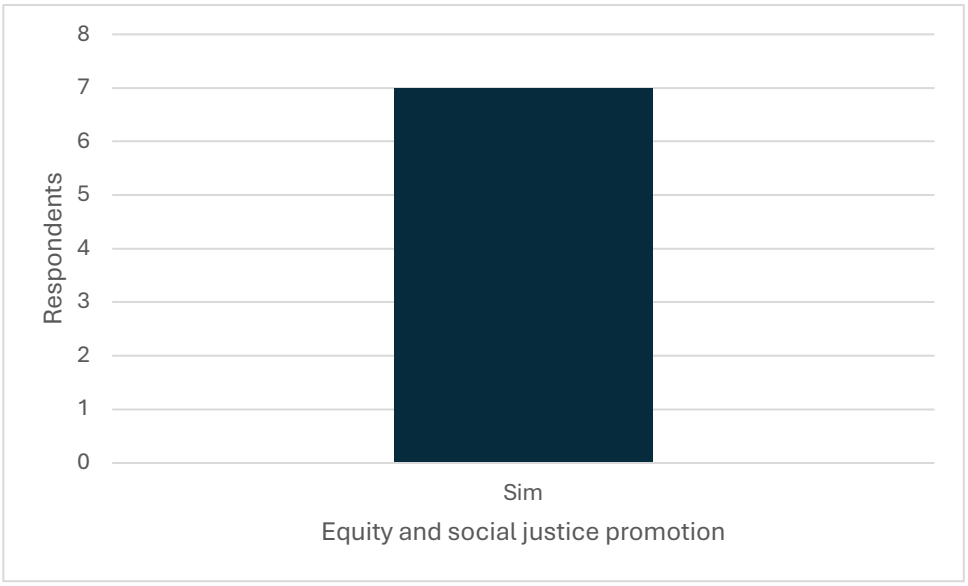
43. Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)
How important is environmental sustainability in your choice of transportation?



44. **Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.**
In which category do you think public transport should invest more?



45. **Equity and social justice promotion. Choice options: yes, no, neutral.**
Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?


8
7
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Respondents
Sim
Equity and social justice promotion

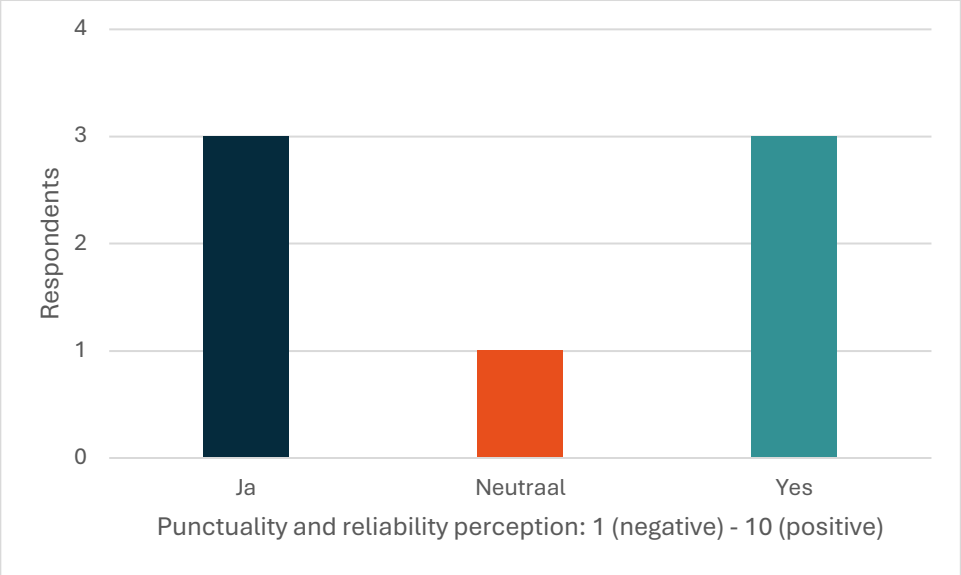
5. LEUVEN

UPPER quality of service classes and user perceptions

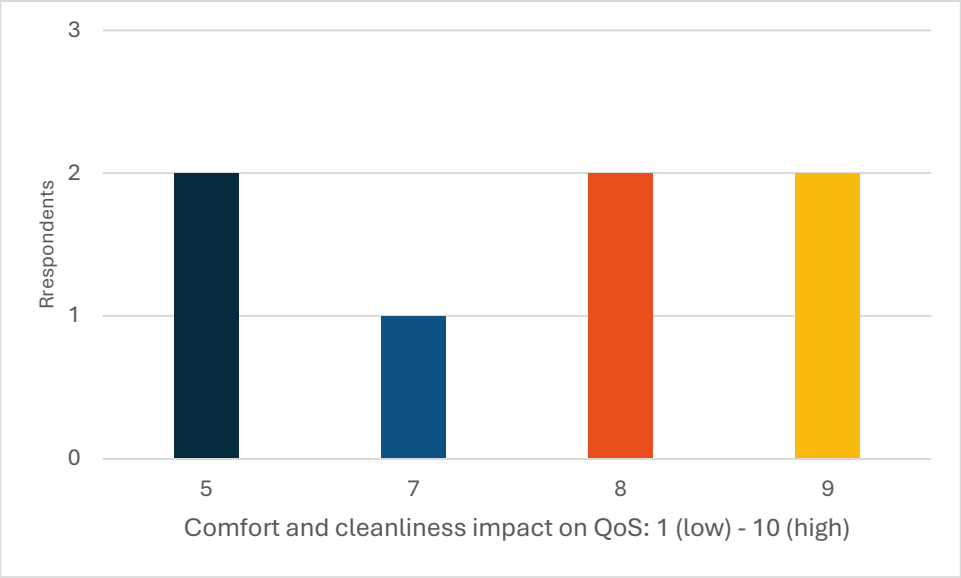
X: Values from 1 to 10 / Response options

Y: Frequency of responses

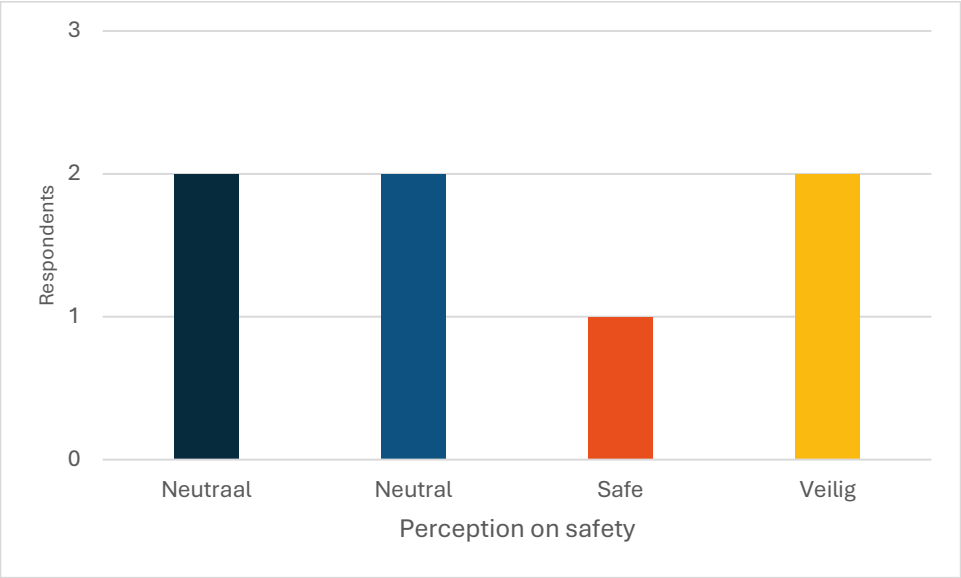
46. **Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?**



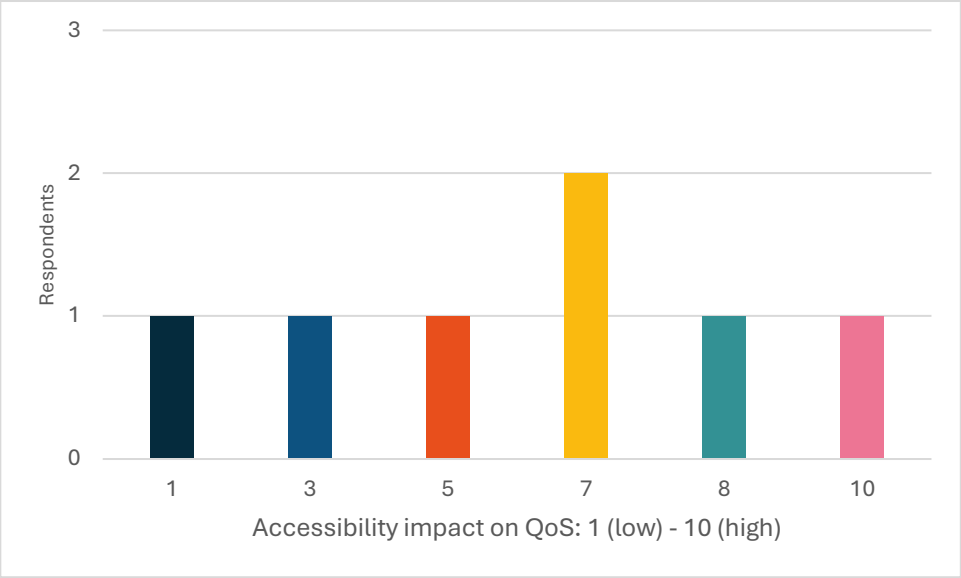
47. **Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?**



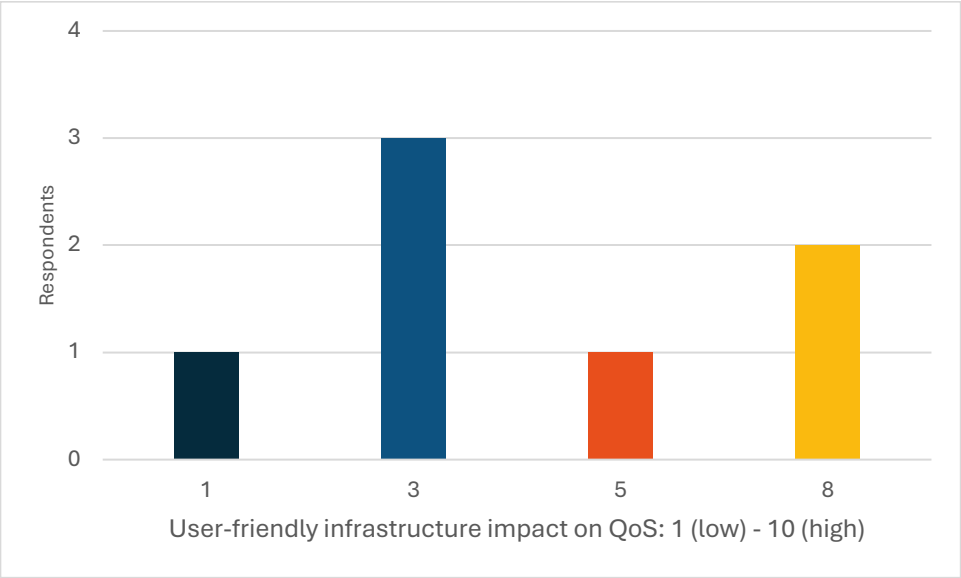
48. **Safety and security: very safe, safe, neutral, unsafe, very unsafe.**
Do you feel safe while waiting at bus, train and metro stations?
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



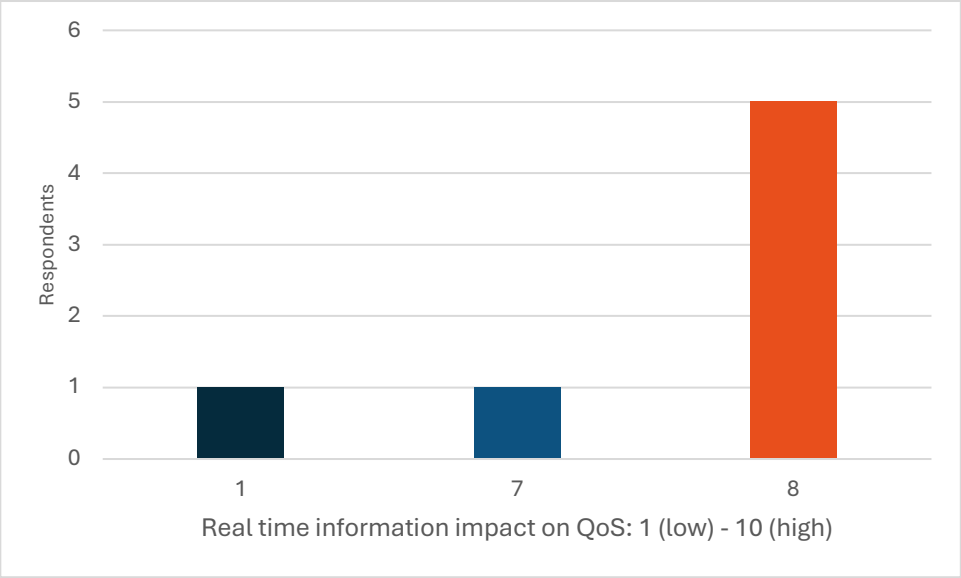
49. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



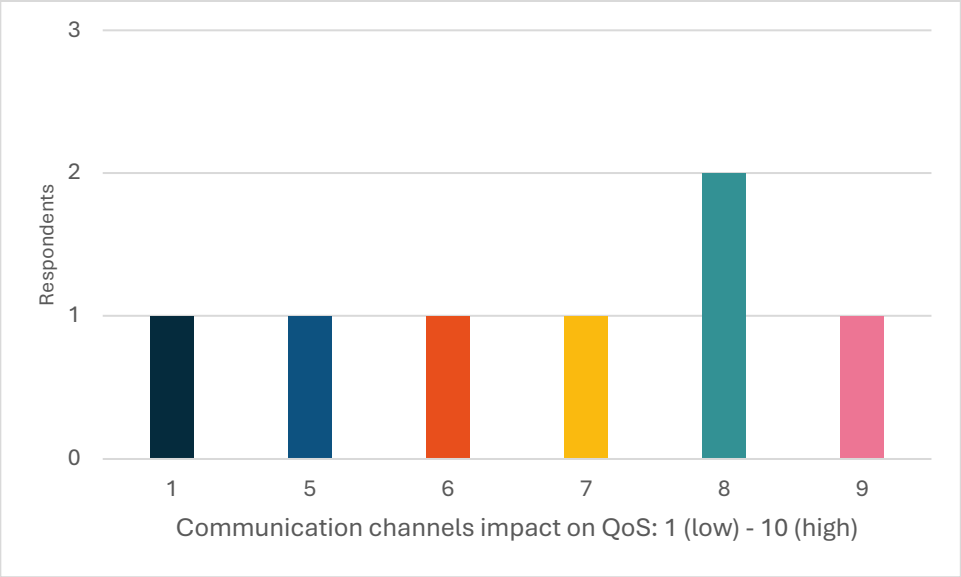
50. User-friendly Infrastructure: values from 1 (low) to 10 (high)
How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



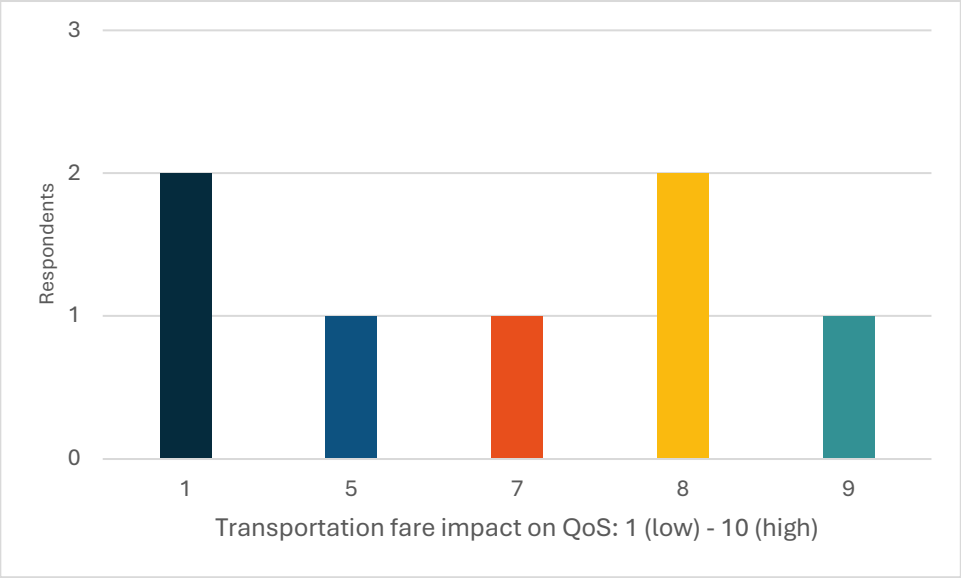
51. Real time information: values from 1 (low) to 10 (high)
How much are you relying on real time information while taking public transport?



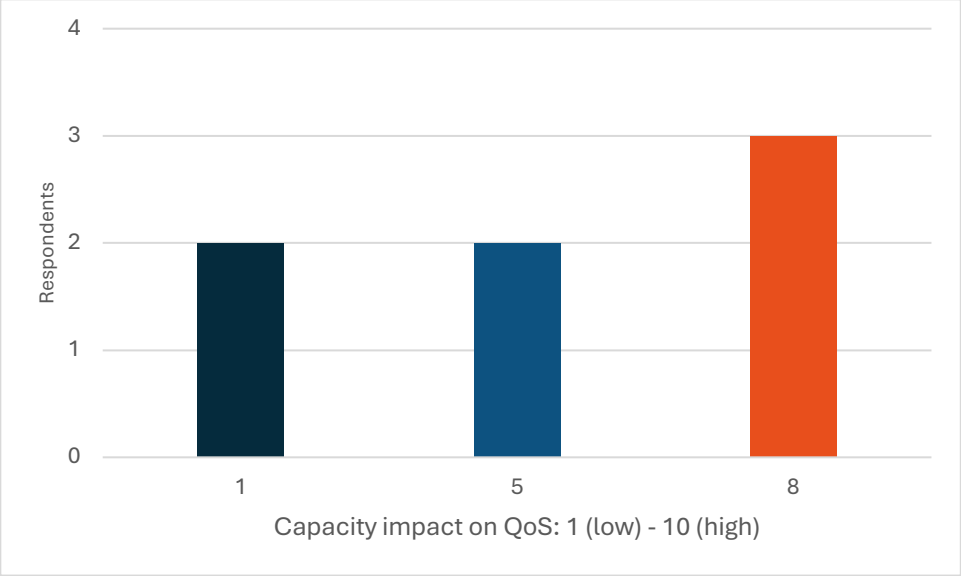
52. Communication Channel: values from 1 (low) to 10 (high)
Are easy to use real time apps and other communications relevant for improving your travel experience?



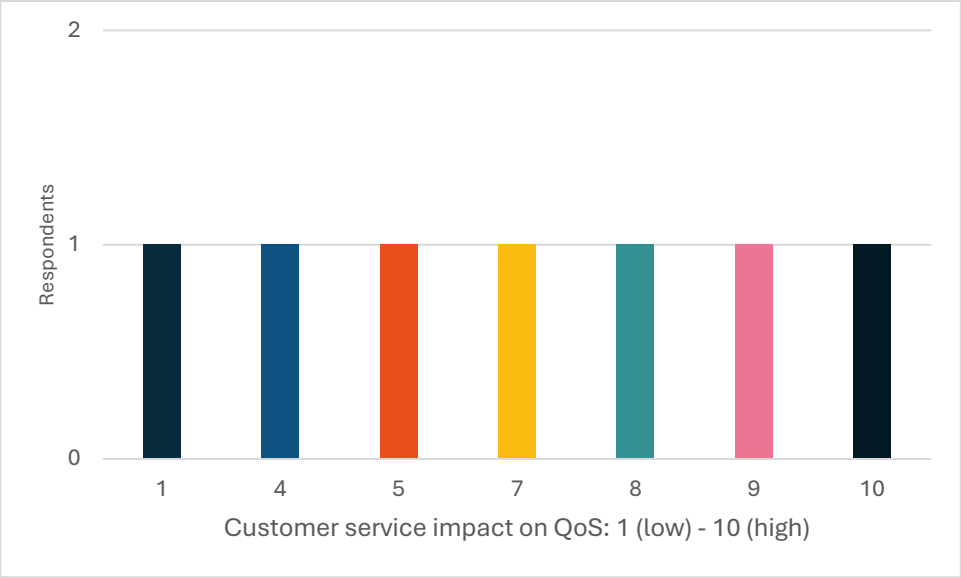
53. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



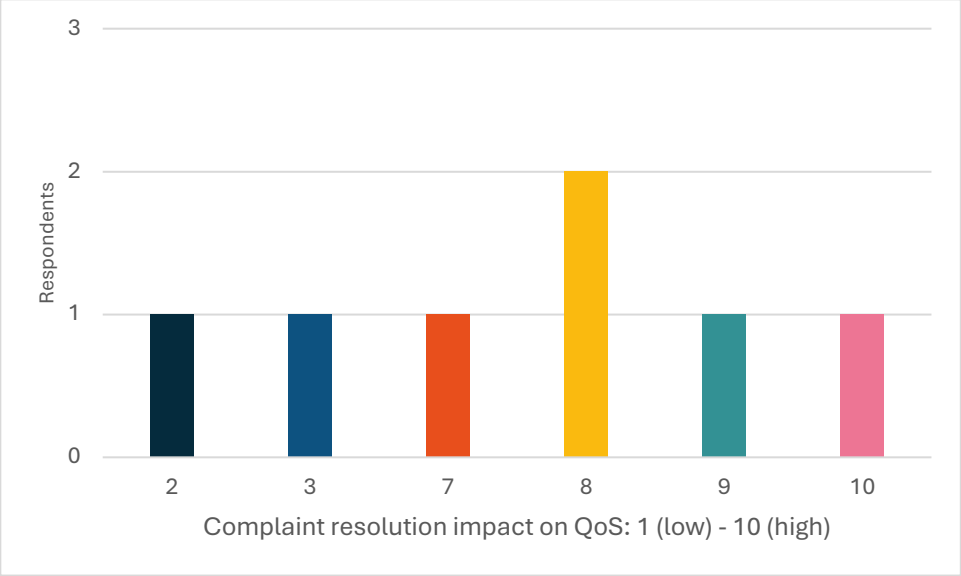
54. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



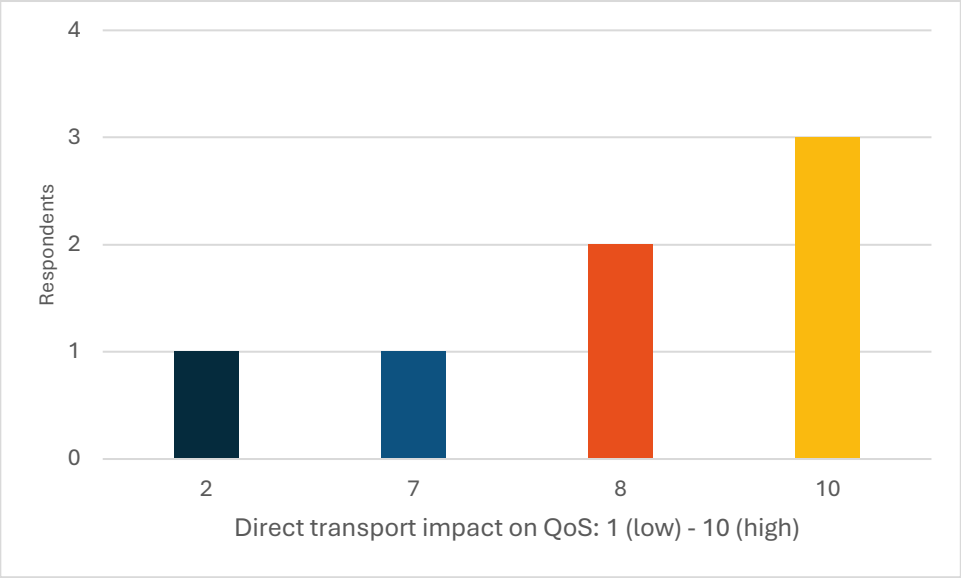
55. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



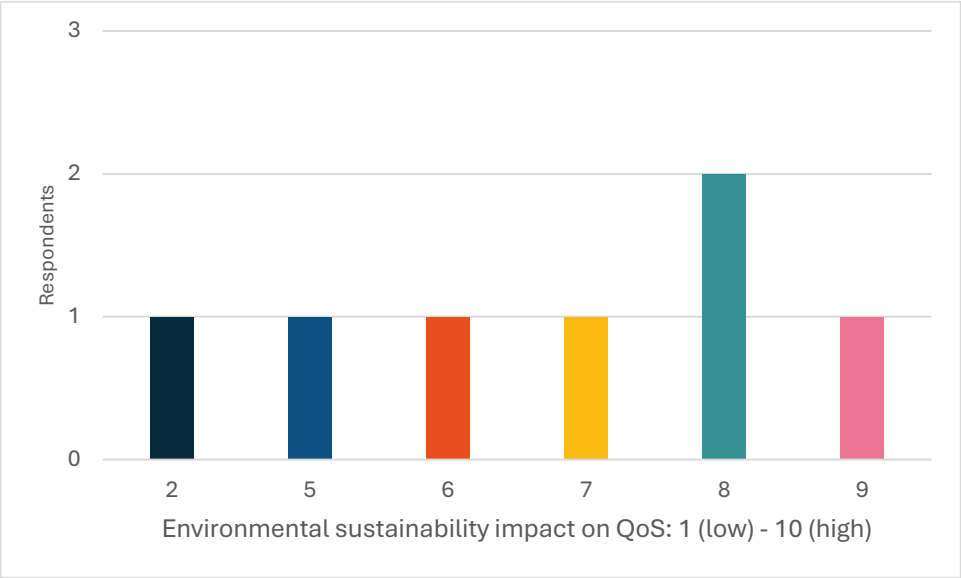
56. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



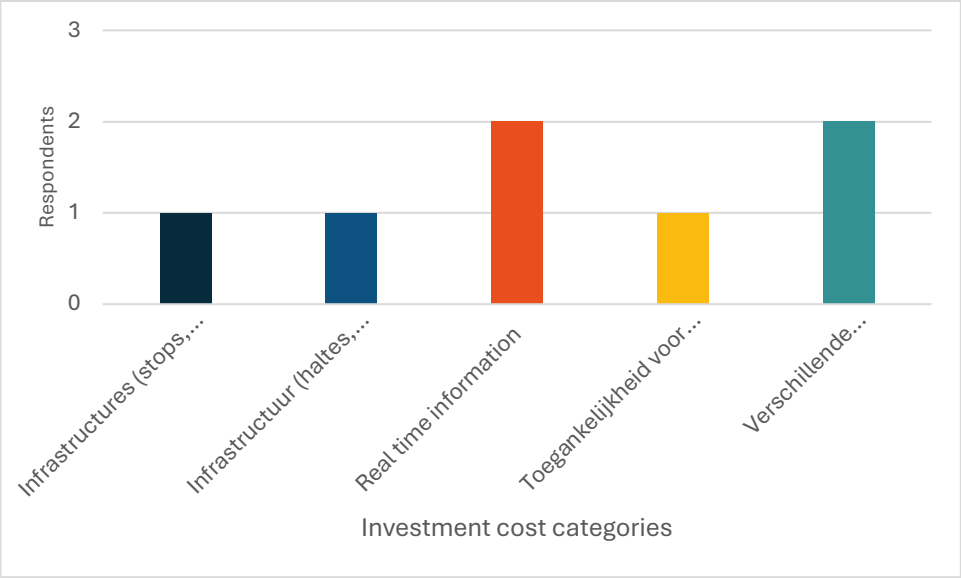
57. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



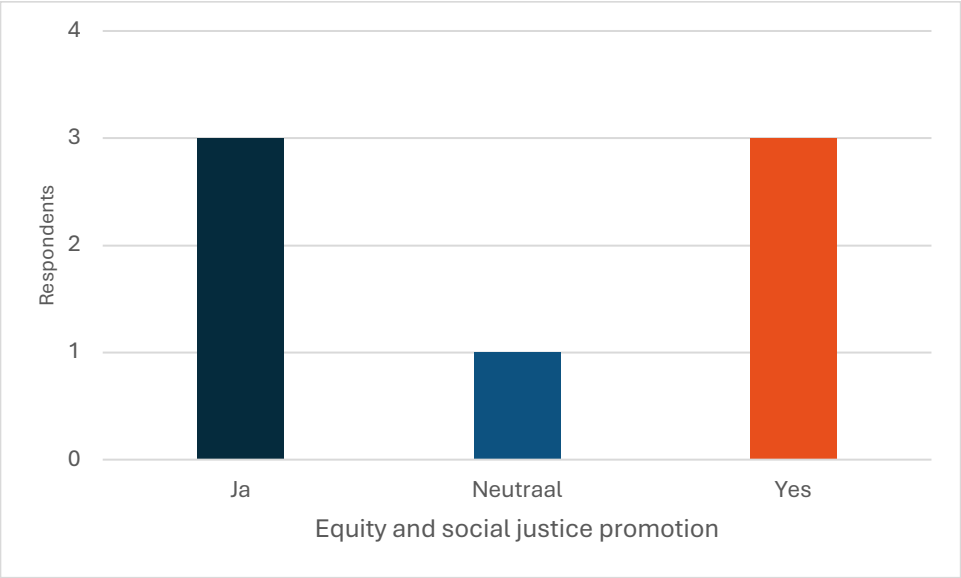
58. **Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)**
    How important is environmental sustainability in your choice of transportation?



59. **Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.**
    In which category do you think public transport should invest more?



60. Equity and social justice promotion. Choice options: yes, no, neutral. Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?



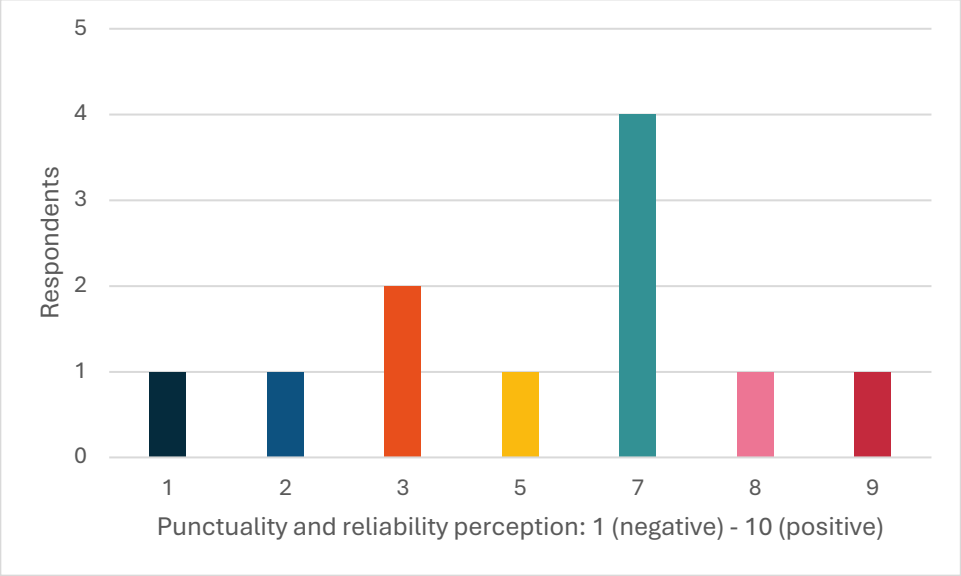
6. THESSALONIKI

UPPER quality of service classes and user perceptions

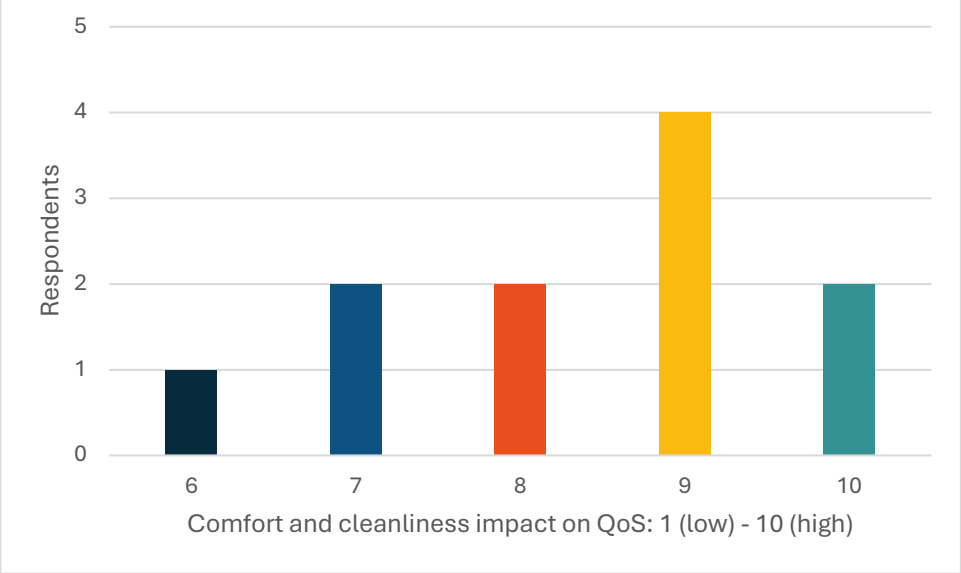
X: Values from 1 to 10 / Response options

Y: Frequency of responses

61. **Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?**

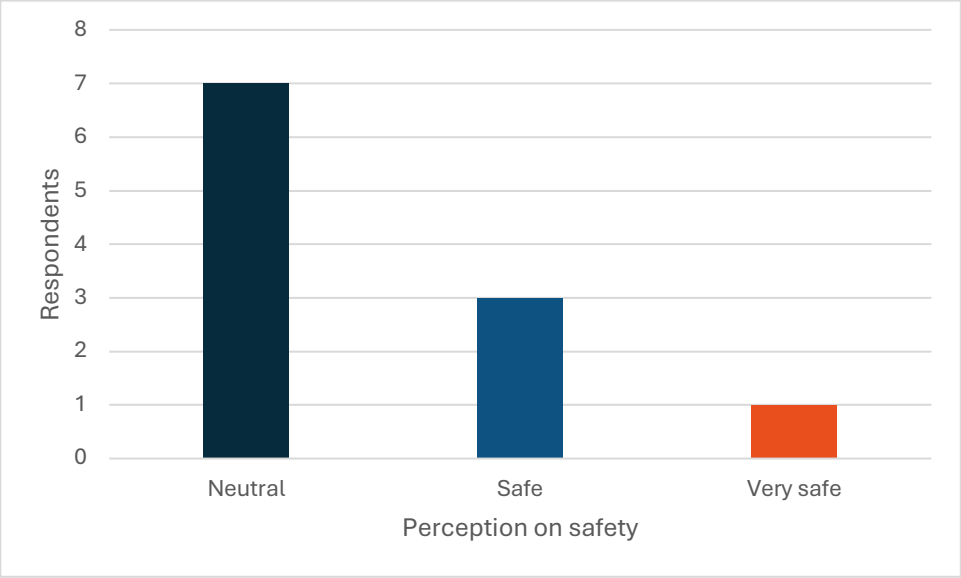


62. **Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?**

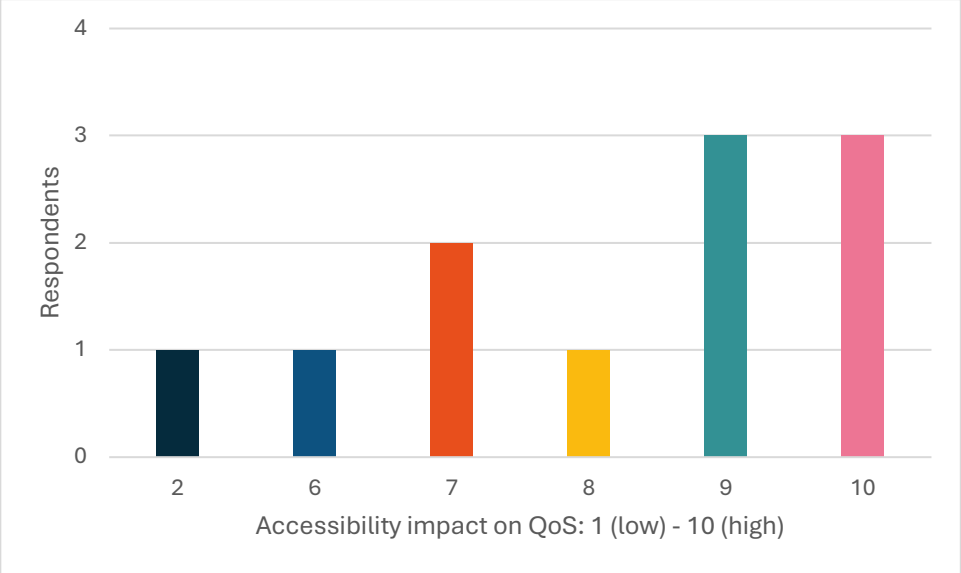


63. **Safety and security: very safe, safe, neutral, unsafe, very unsafe.**

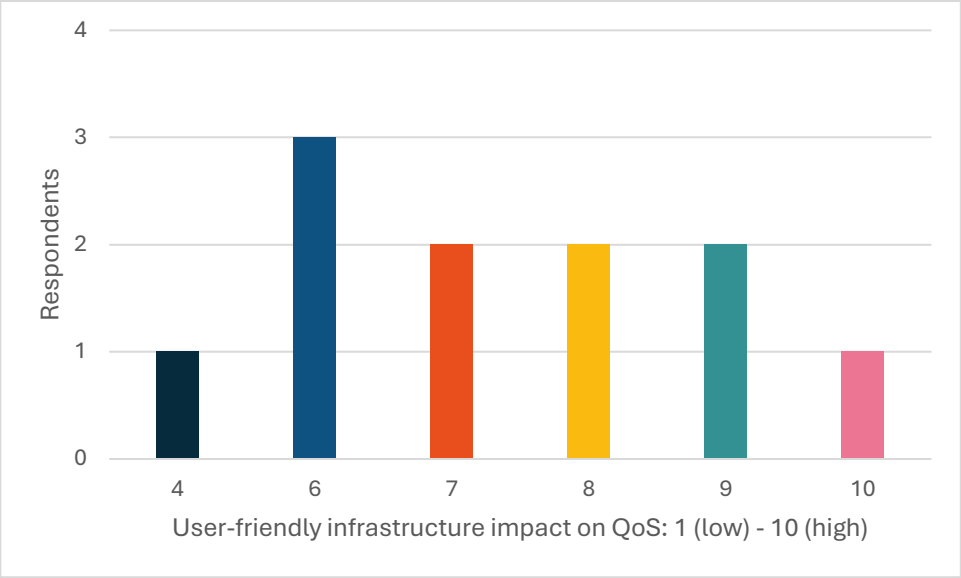
Do you feel safe while waiting at bus, train and metro stations?
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



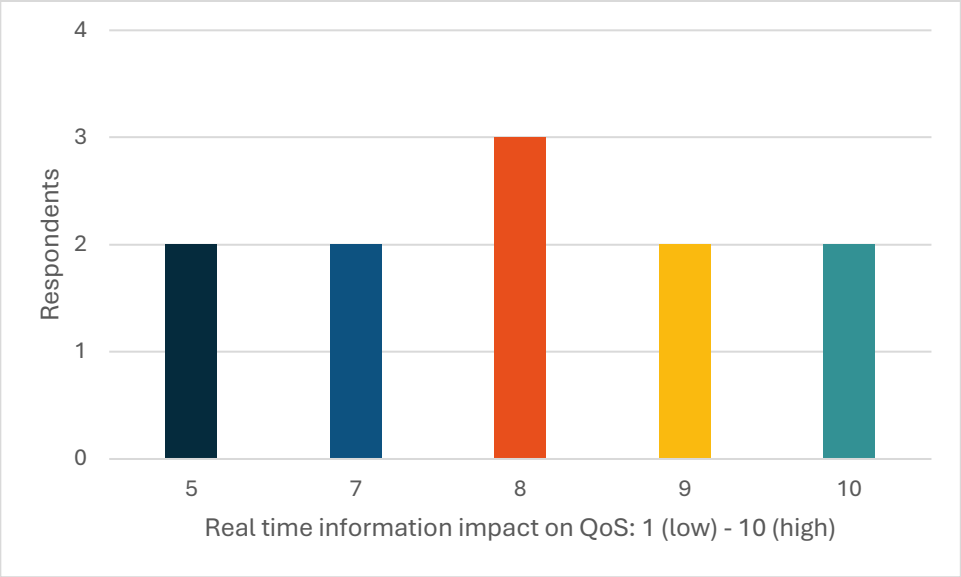
64. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



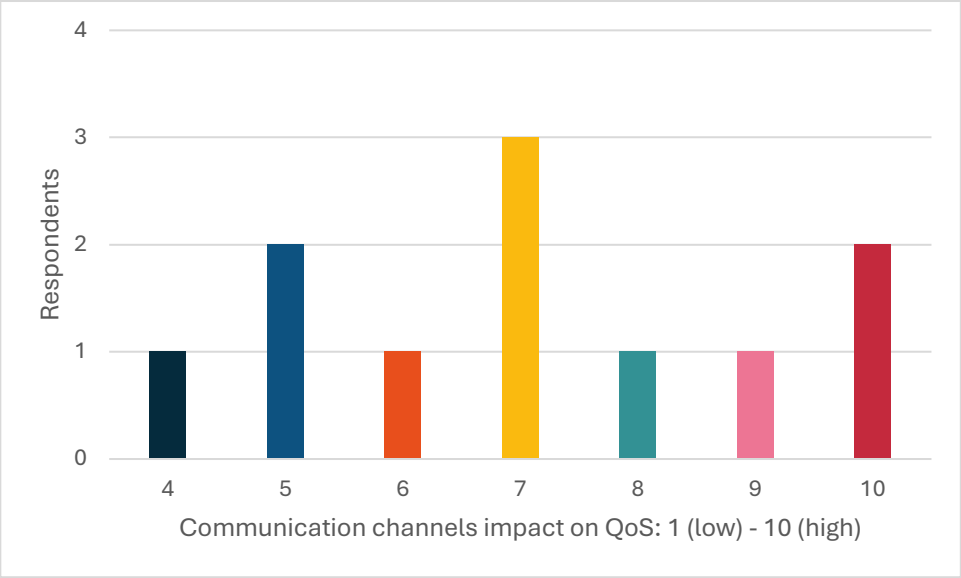
65. **User-friendly Infrastructure: values from 1 (low) to 10 (high)**
How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



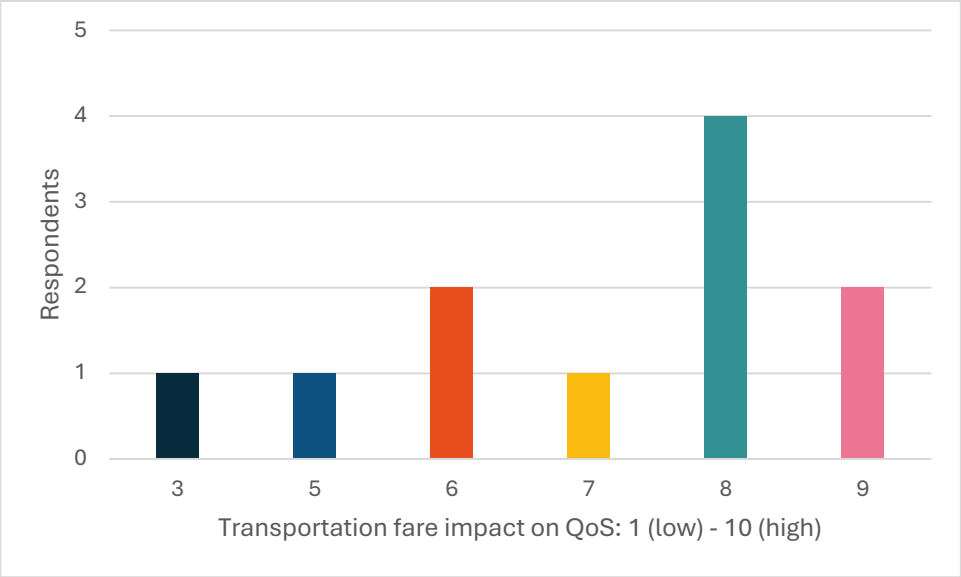
66. **Real time information: values from 1 (low) to 10 (high)**
    How much are you relying on real time information while taking public transport?



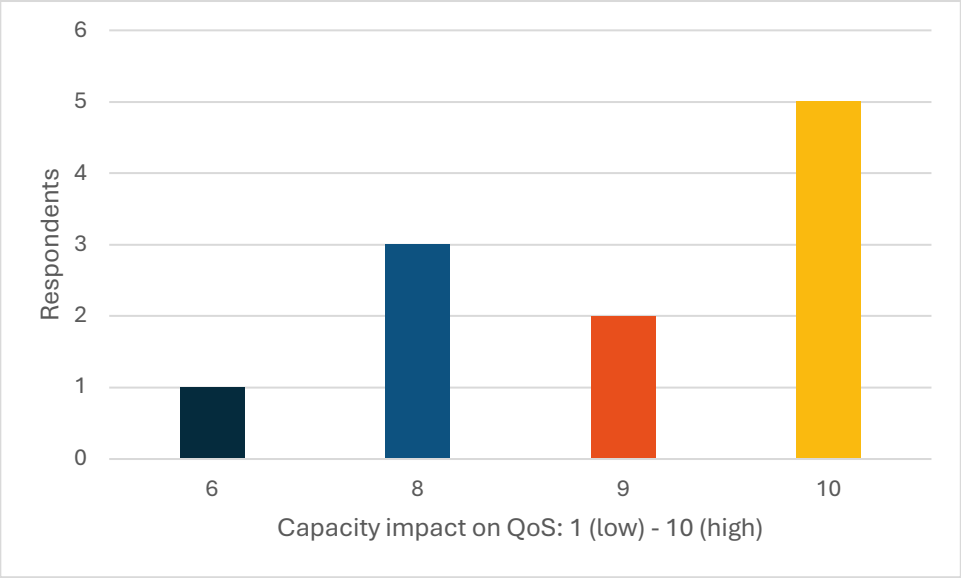
67. **Communication Channel: values from 1 (low) to 10 (high)**
    Are easy to use real time apps and other communications relevant for improving your travel experience?



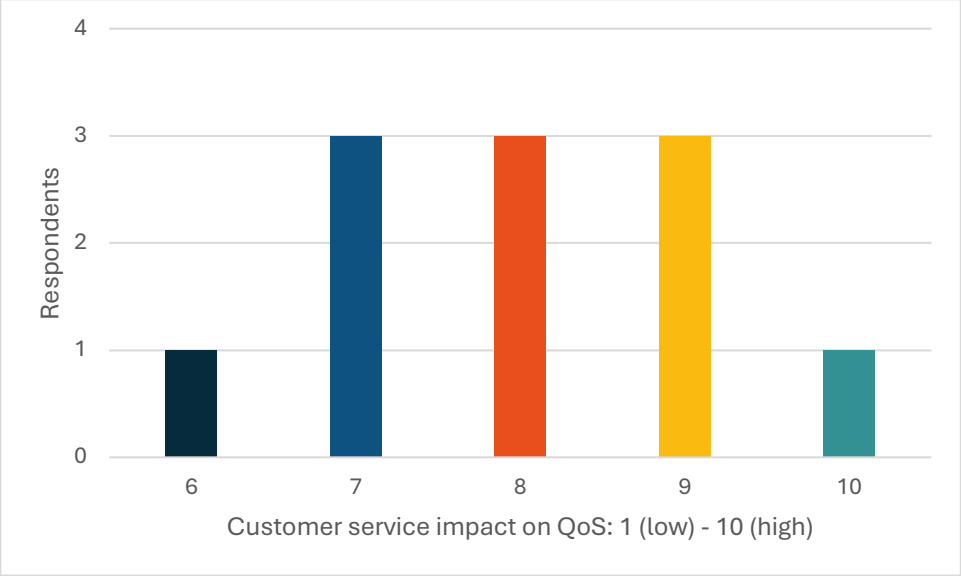
68. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



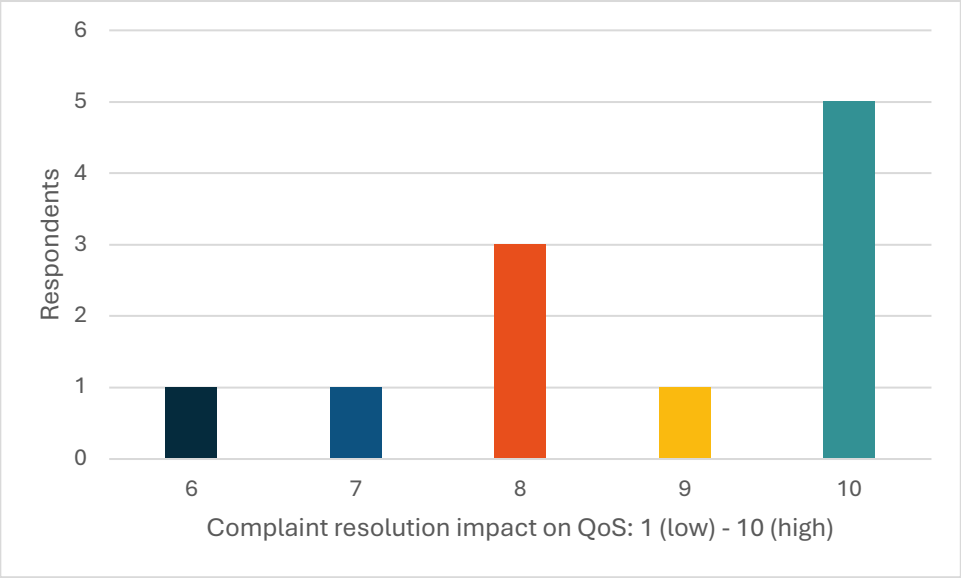
69. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



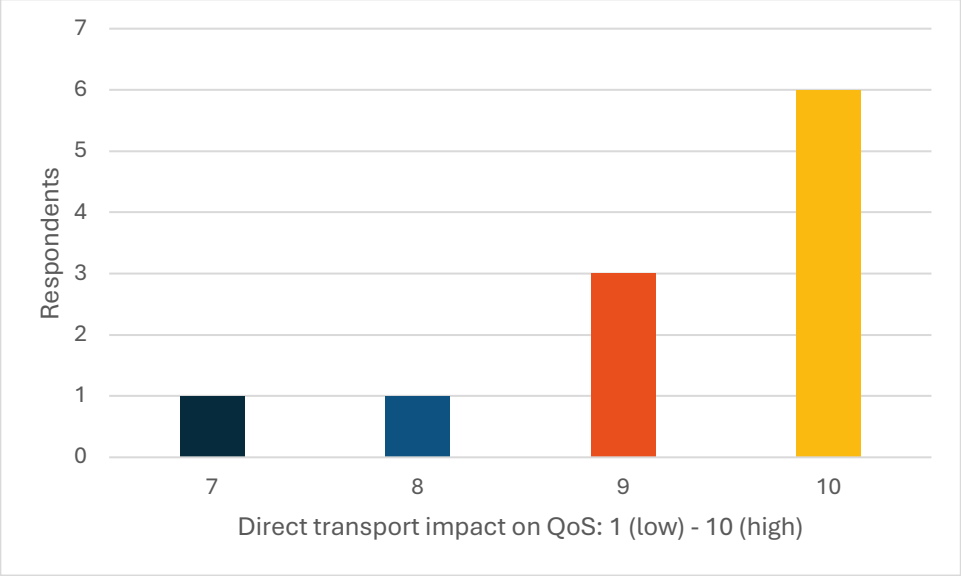
70. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



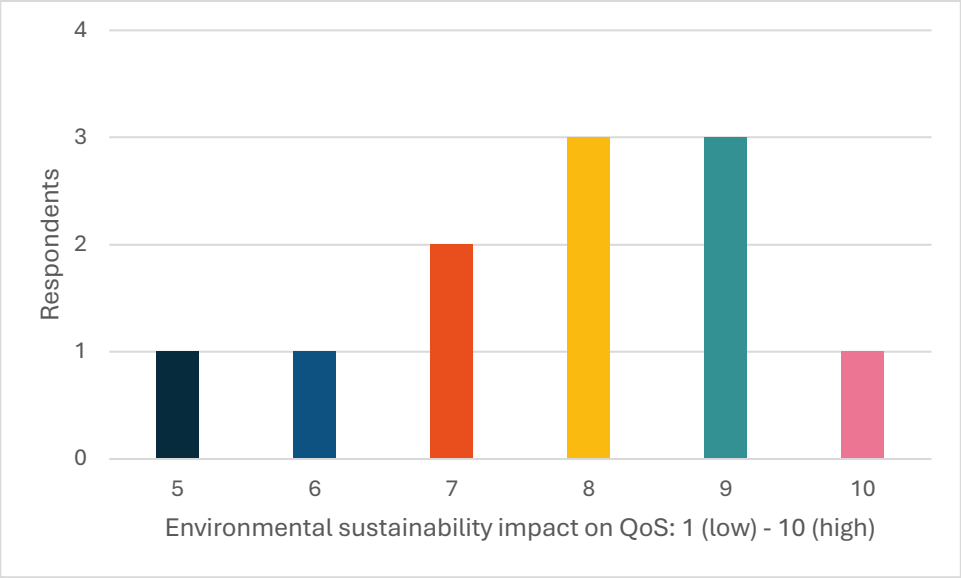
71. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



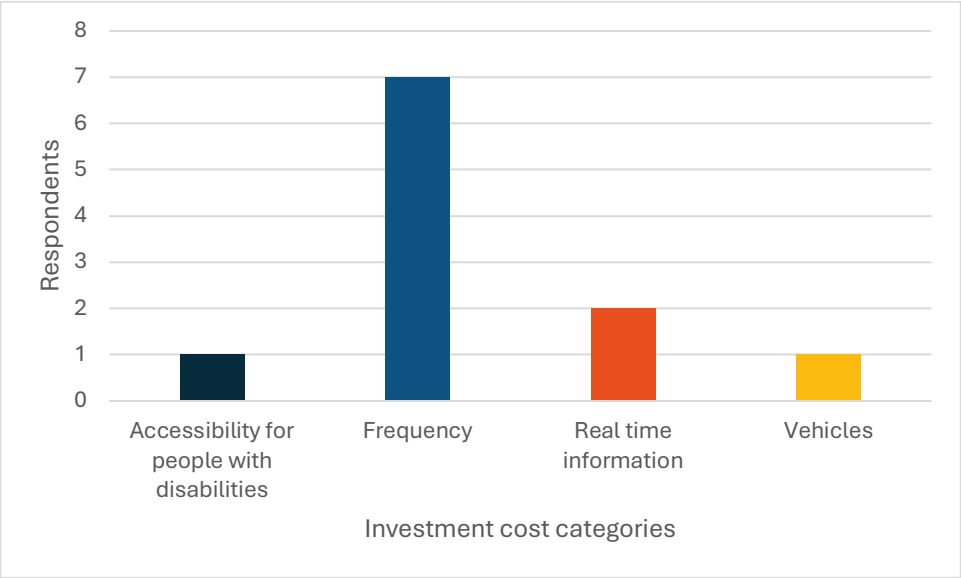
72. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



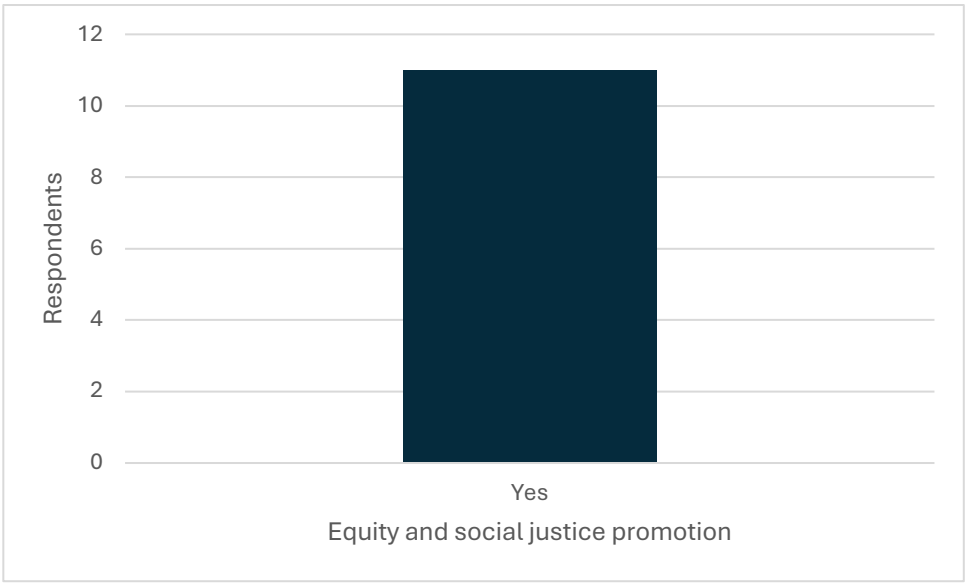
73. Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)
How important is environmental sustainability in your choice of transportation?



74. **Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.**
In which category do you think public transport should invest more?



75. **Equity and social justice promotion. Choice options: yes, no, neutral.**
Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?


12
10
8
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2
0
Respondents
Yes
Equity and social justice promotion

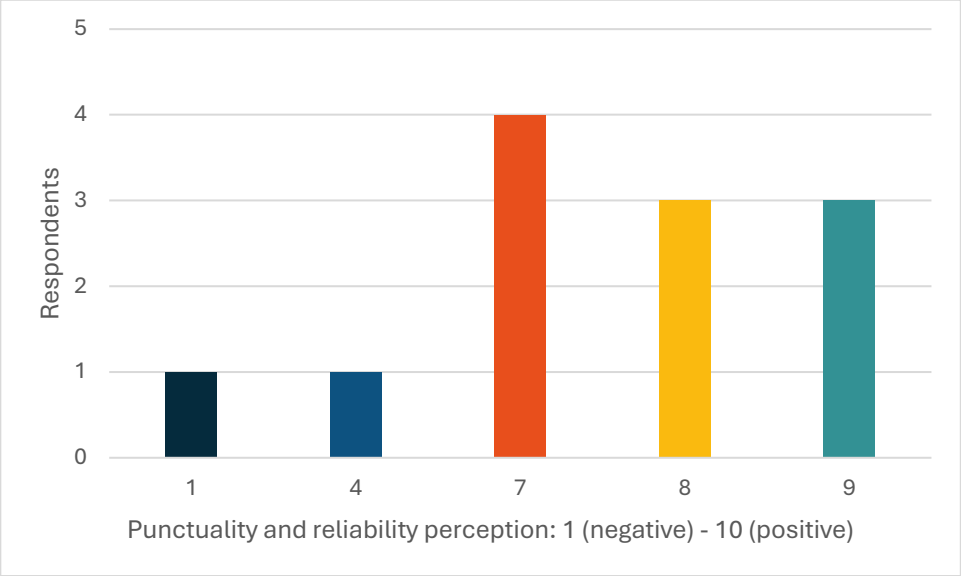
7. MANNHEIM

UPPER quality of service classes and user perceptions

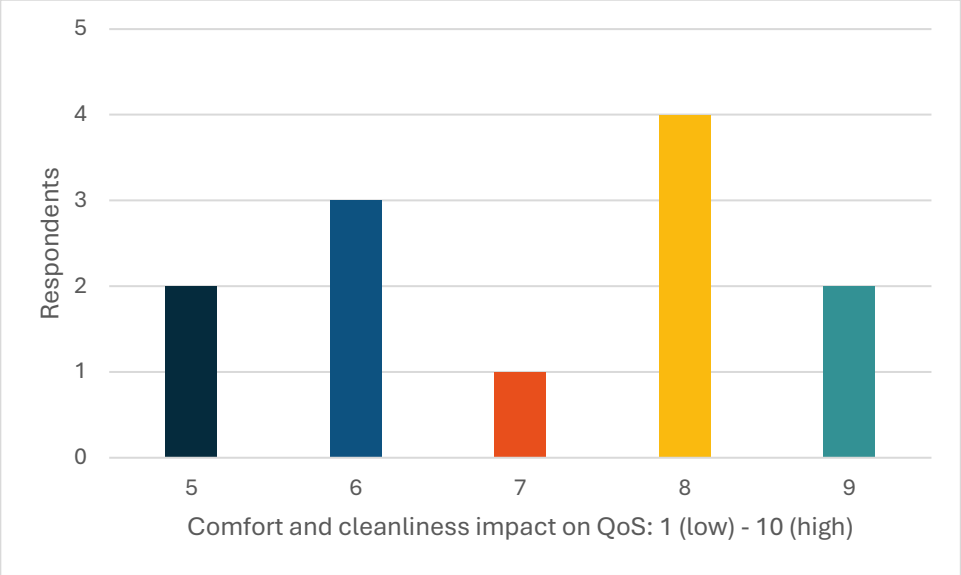
X: Values from 1 to 10 / Response options

Y: Frequency of responses

76. **Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?**

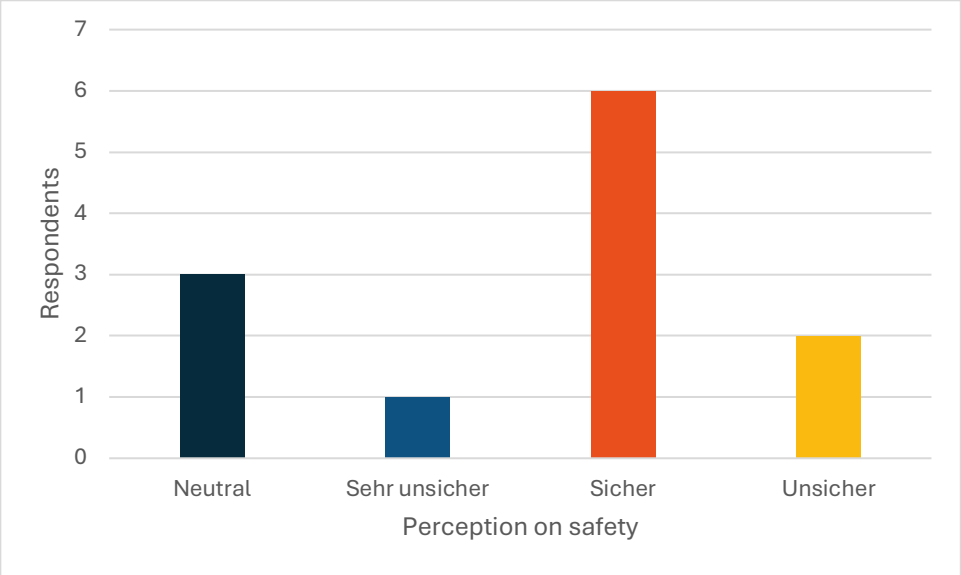


77. **Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?**

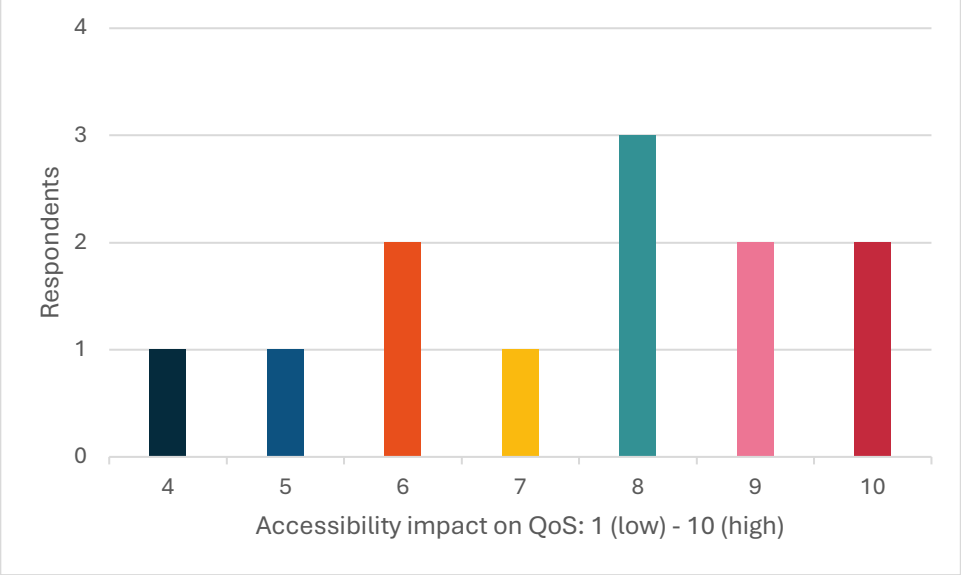


78. **Safety and security: very safe, safe, neutral, unsafe, very unsafe. Do you feel safe while waiting at bus, train and metro stations?**

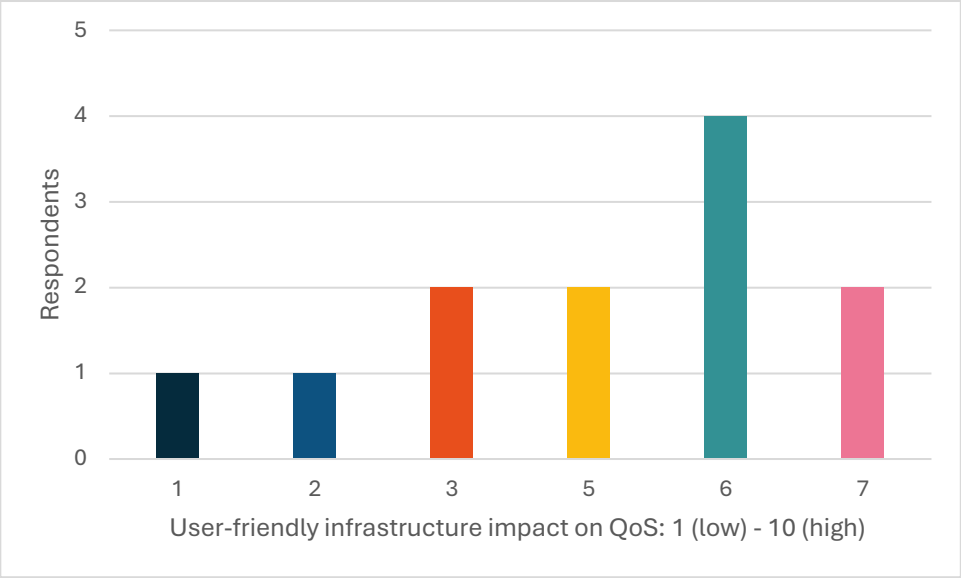
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



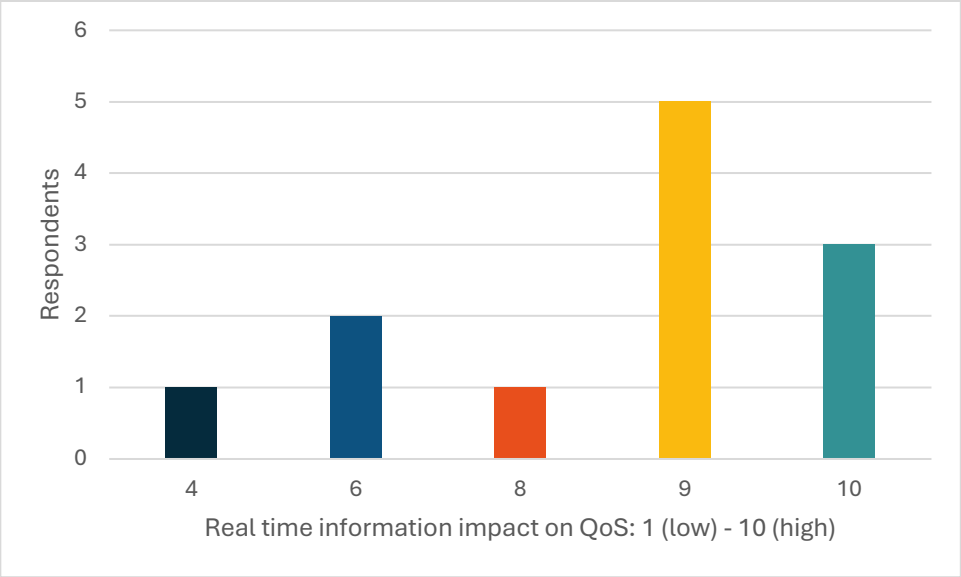
79. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



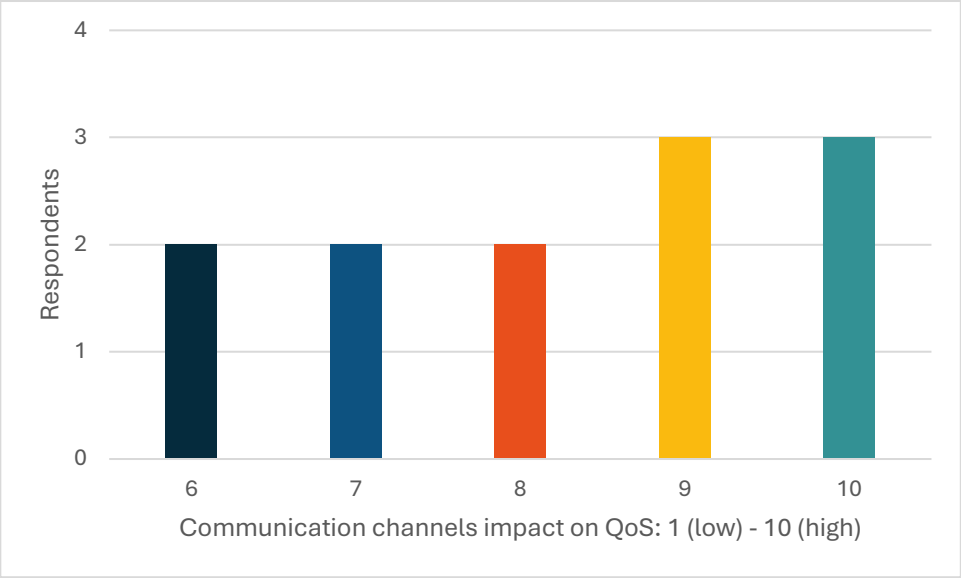
80. **User-friendly Infrastructure: values from 1 (low) to 10 (high)**
How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



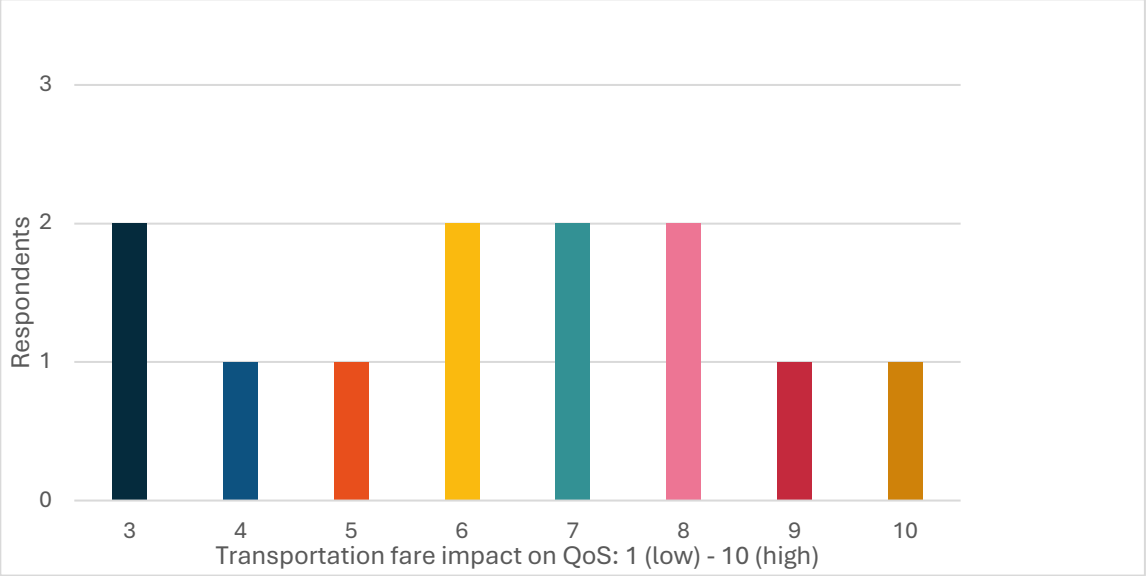
81. Real time information: values from 1 (low) to 10 (high)
How much are you relying on real time information while taking public transport?



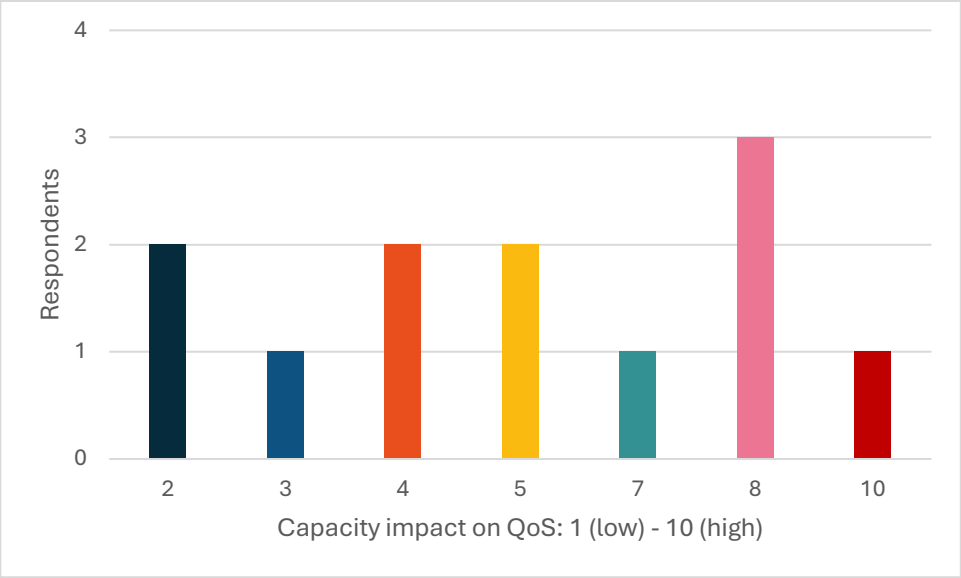
82. Communication Channel: values from 1 (low) to 10 (high)
Are easy to use real time apps and other communications relevant for improving your travel experience?



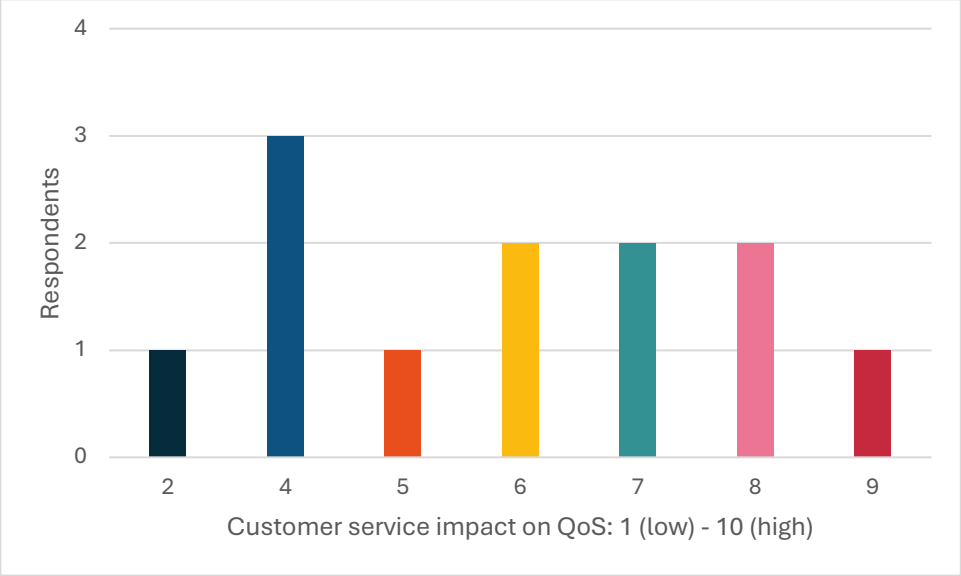
83. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



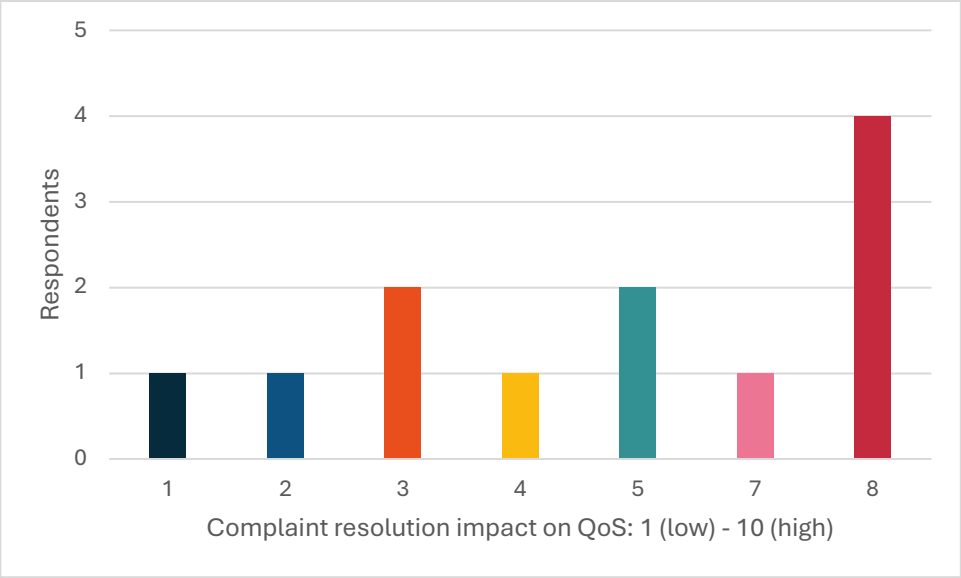
84. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



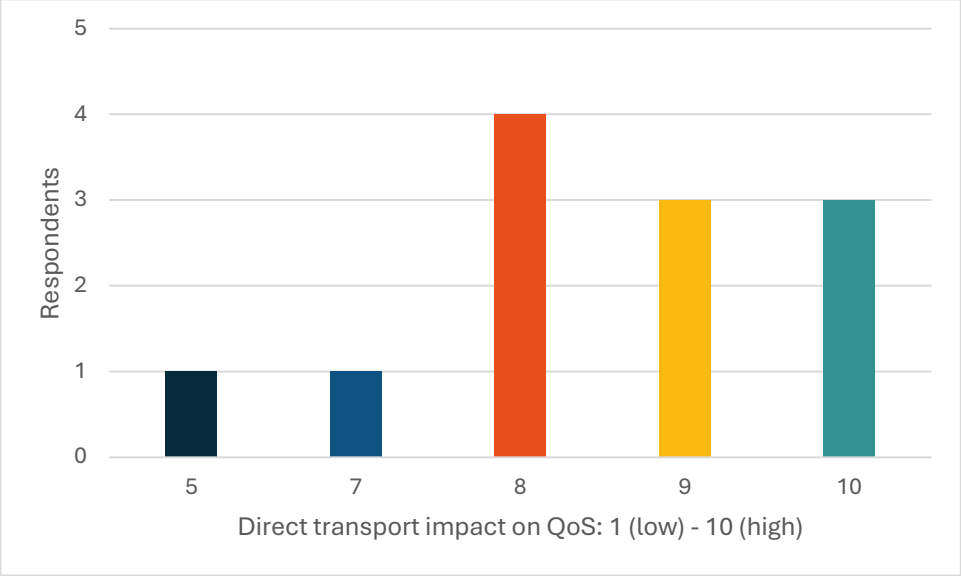
85. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



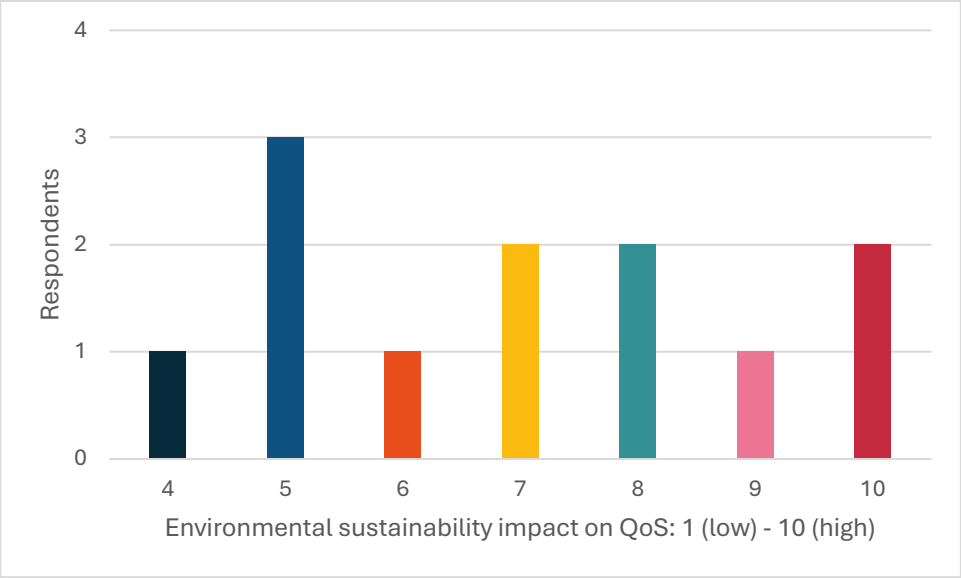
86. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



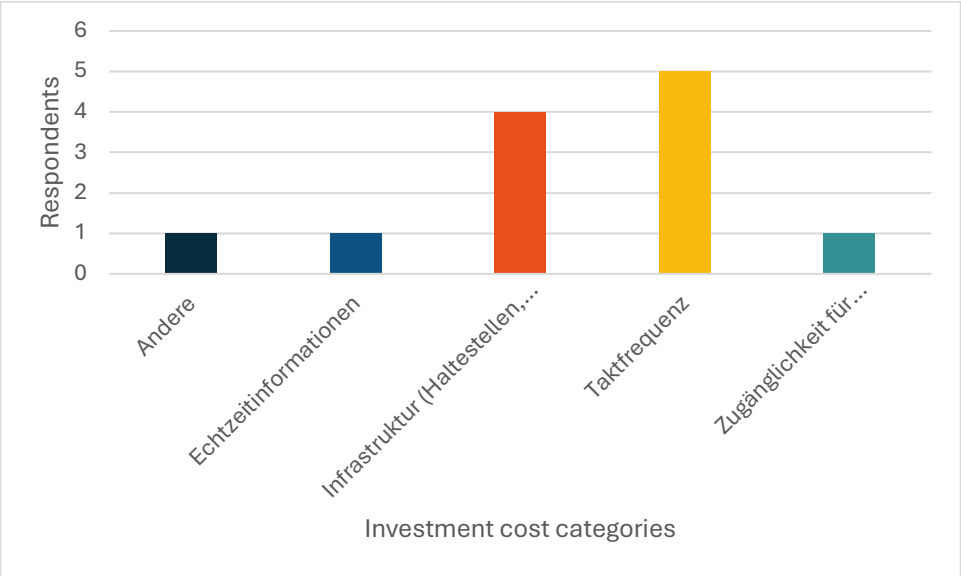
87. **Seamless transfers: values from 1 (low) to 10 (high).**
How relevant is it for you to have direct transport to your destination?



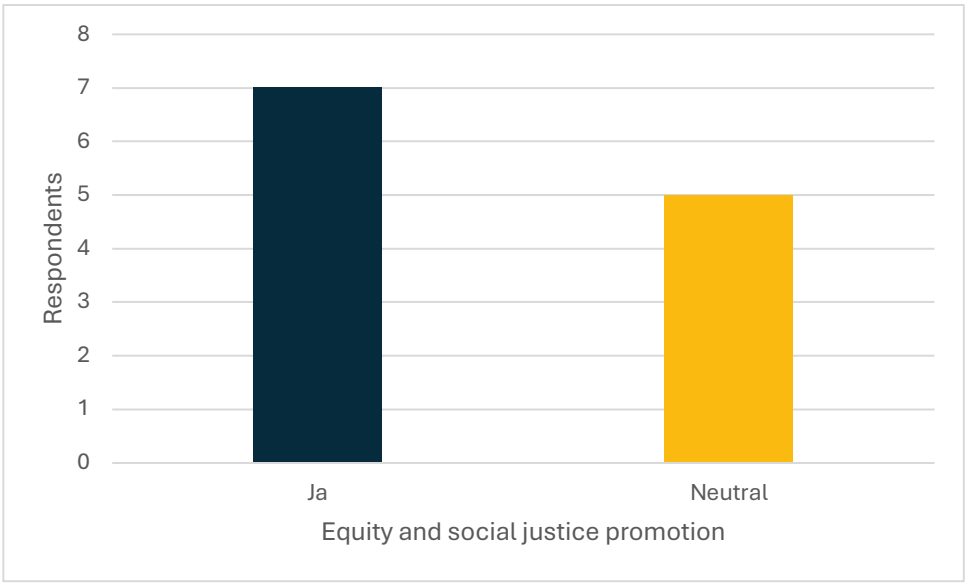
88. **Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)**
How important is environmental sustainability in your choice of transportation?



89. **Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.**
In which category do you think public transport should invest more?



90. **Equity and social justice promotion. Choice options: yes, no, neutral.**
Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?


8
7
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Respondents
Ja
Neutral
Equity and social justice promotion

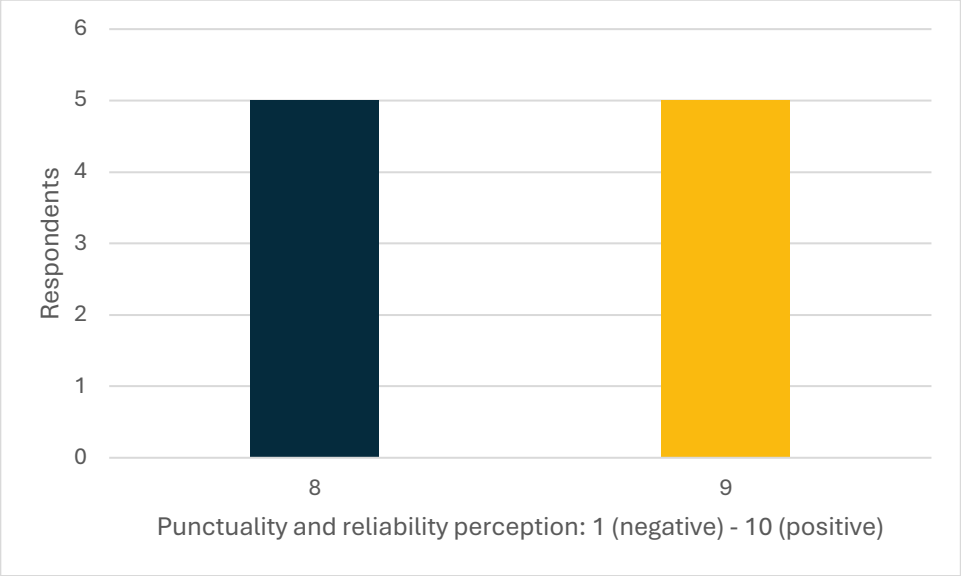
8. BUDAPEST

UPPER quality of service classes and user perceptions

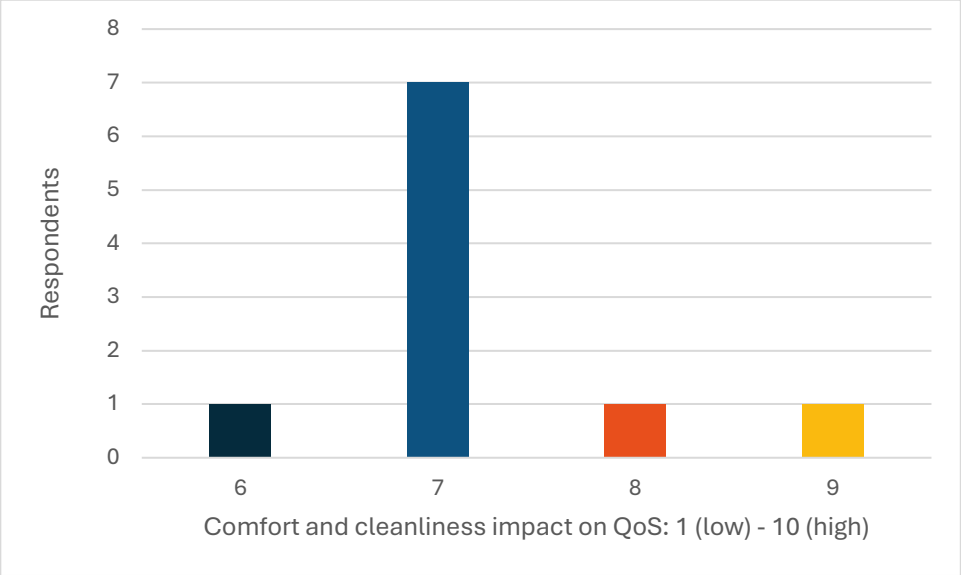
X: Values from 1 to 10 / Response options

Y: Frequency of responses

91. **Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?**

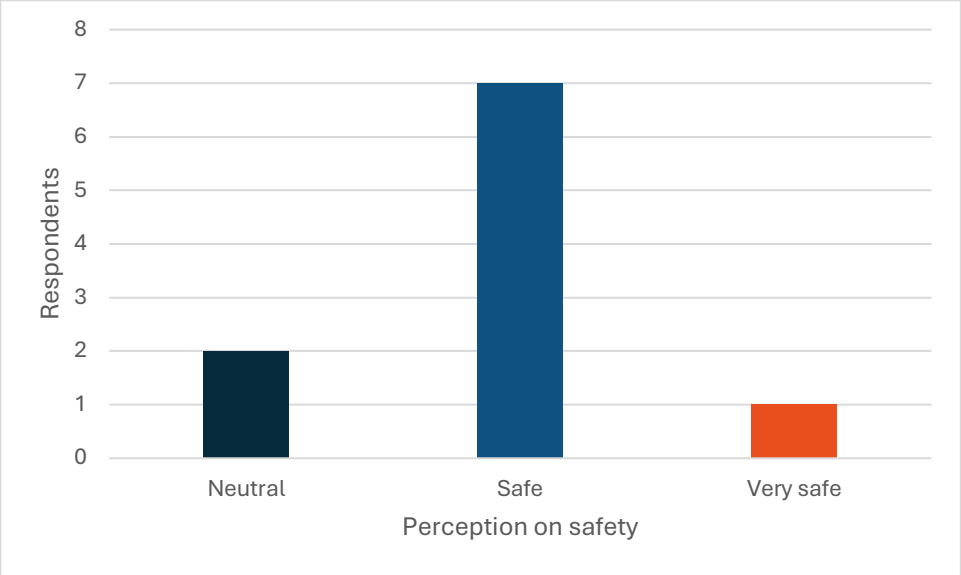


92. **Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?**

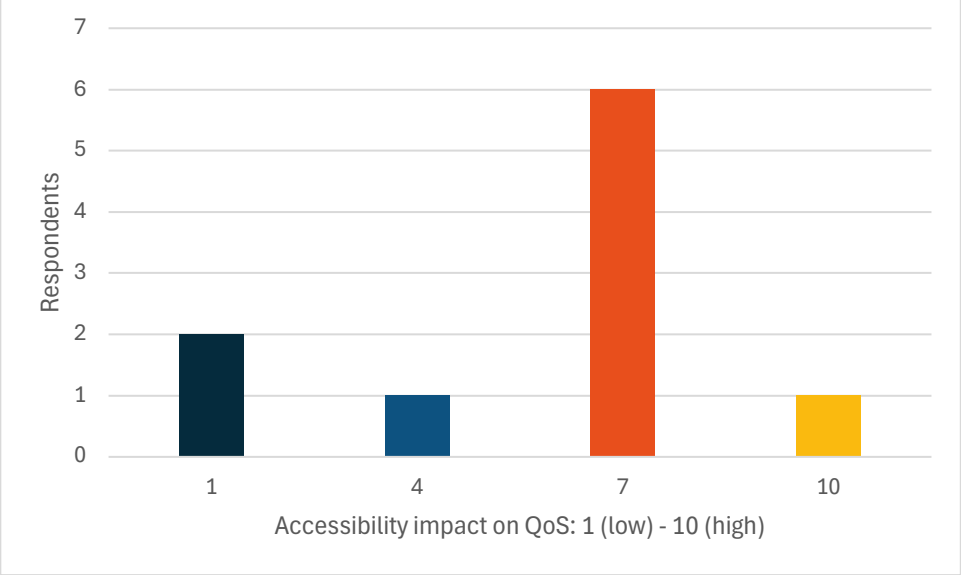


93. **Safety and security: very safe, safe, neutral, unsafe, very unsafe. Do you feel safe while waiting at bus, train and metro stations?**

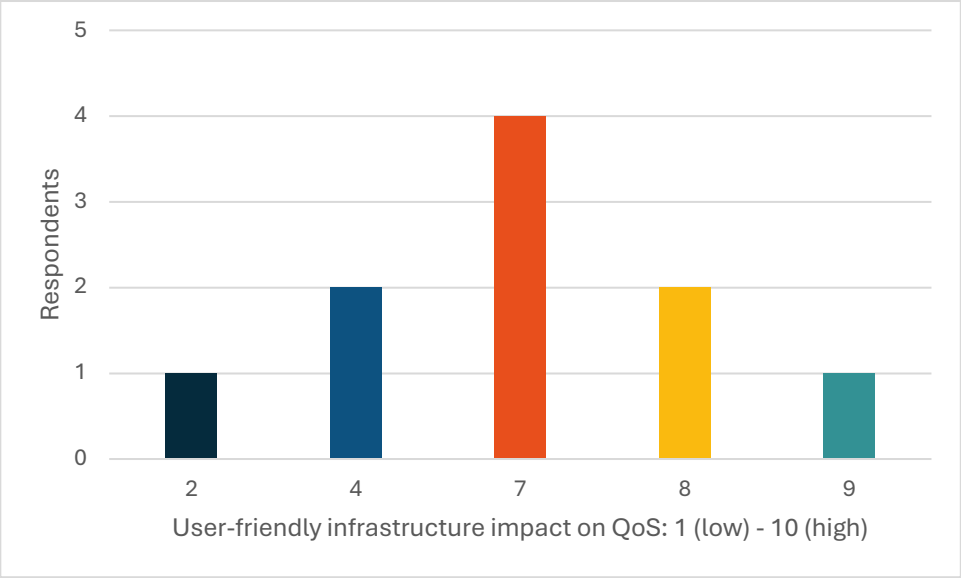
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



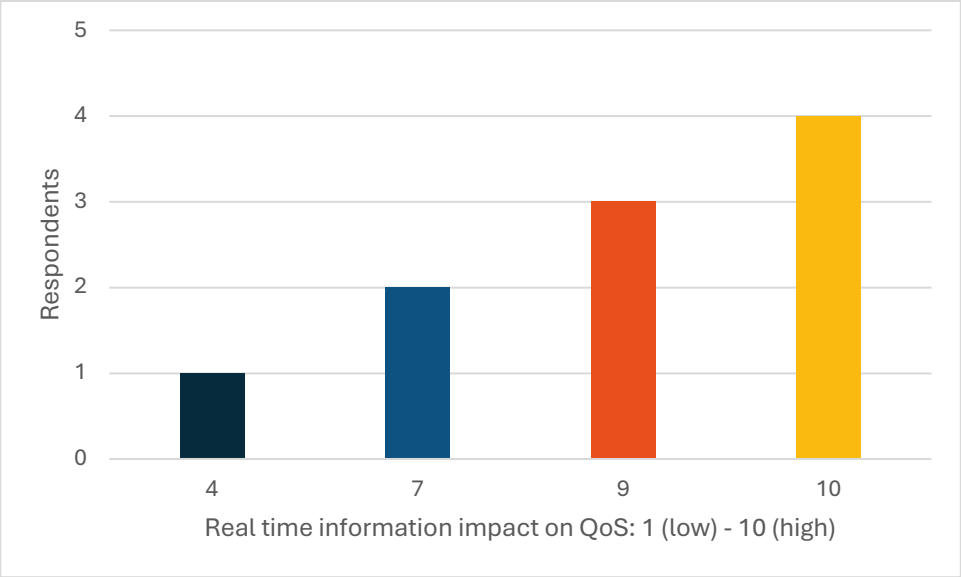
94. **Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)**
How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



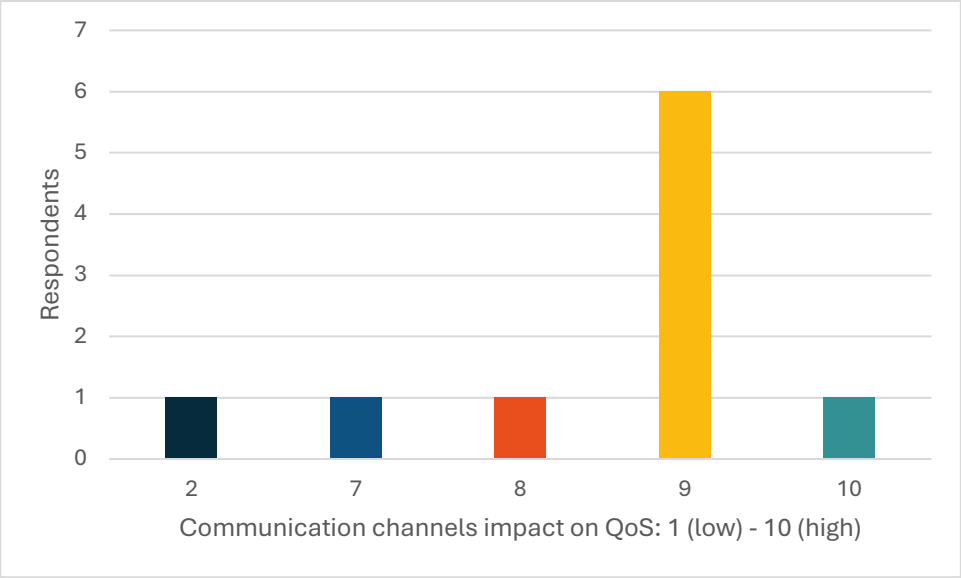
95. **User-friendly Infrastructure: values from 1 (low) to 10 (high)**
How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



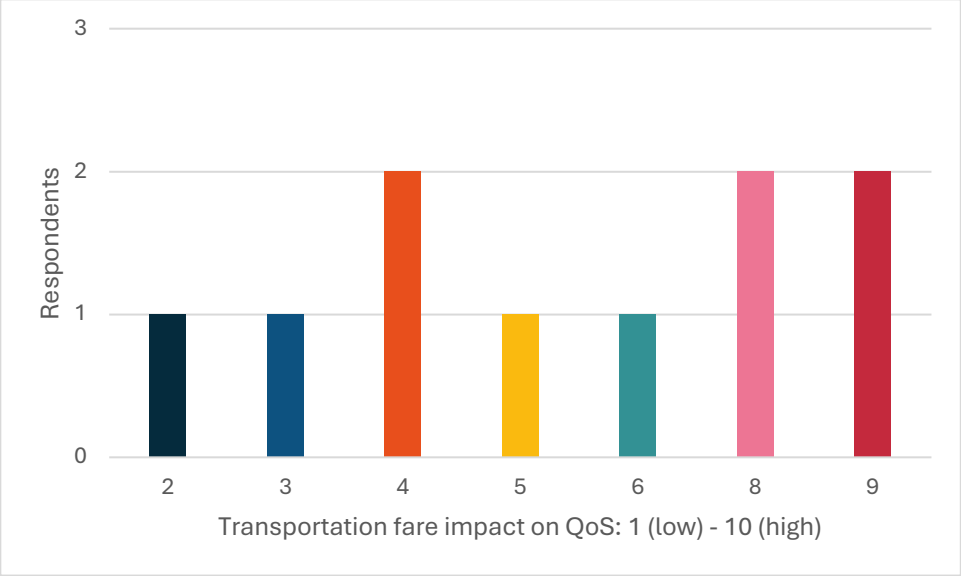
96. Real time information: values from 1 (low) to 10 (high)
How much are you relying on real time information while taking public transport?



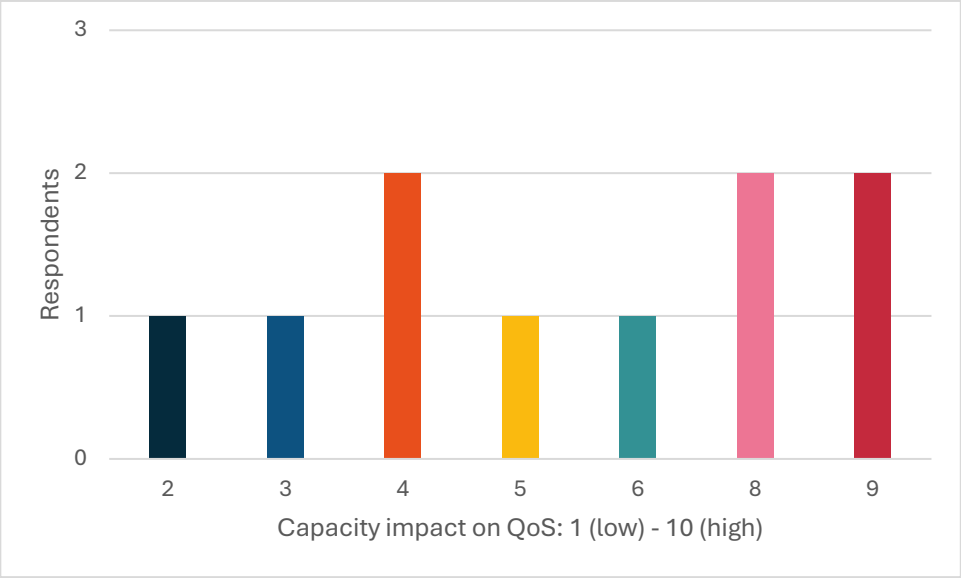
97. Communication Channel: values from 1 (low) to 10 (high)
Are easy to use real time apps and other communications relevant for improving your travel experience?



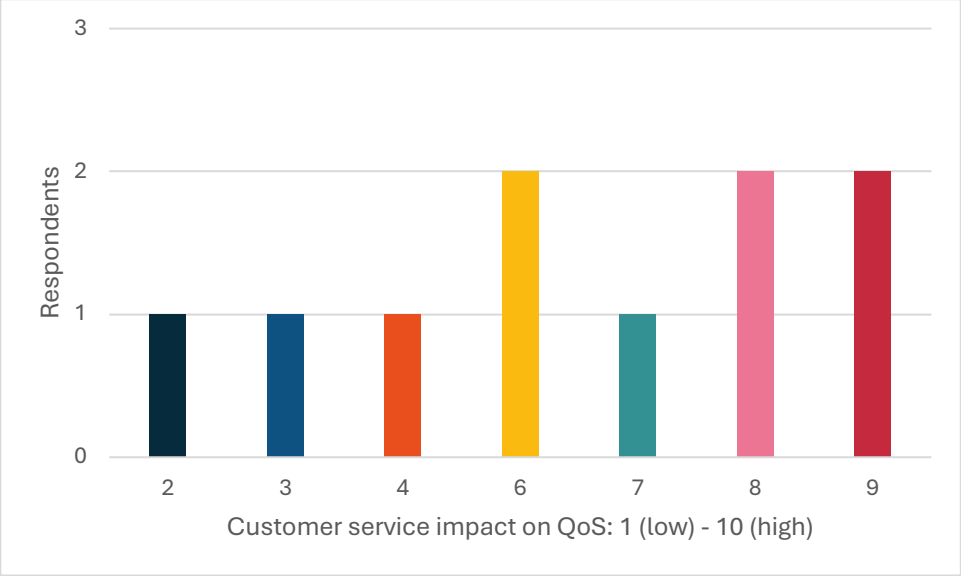
98. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



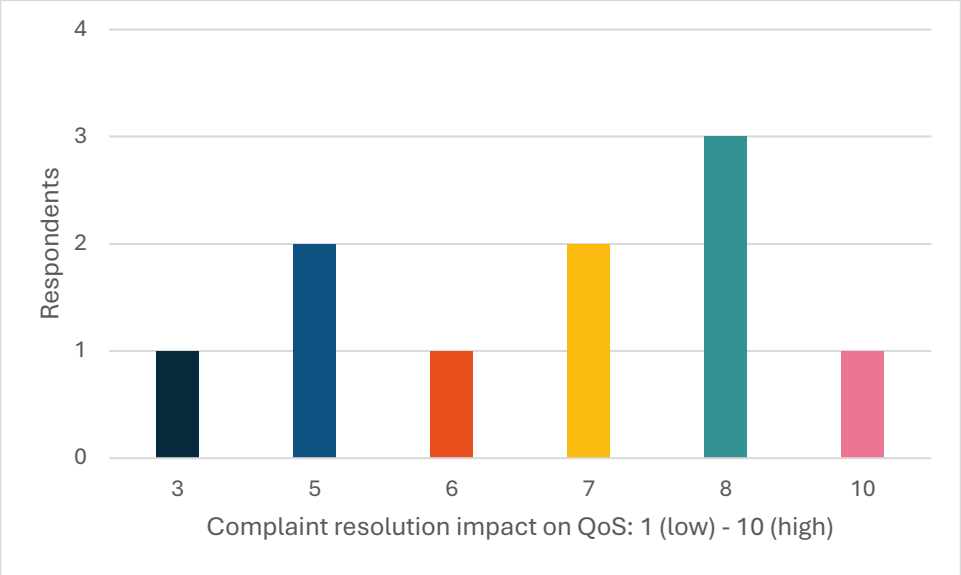
99. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



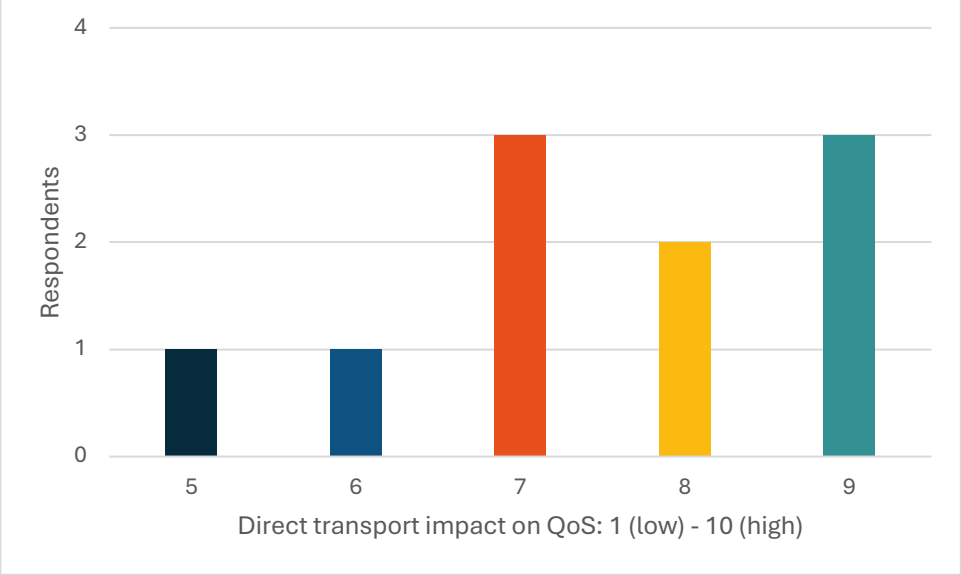
100. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



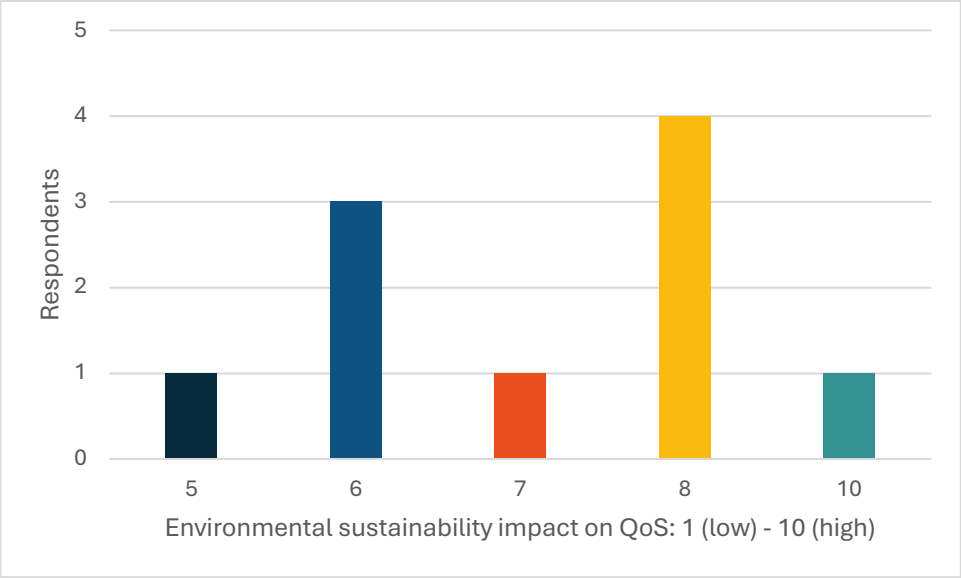
101. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



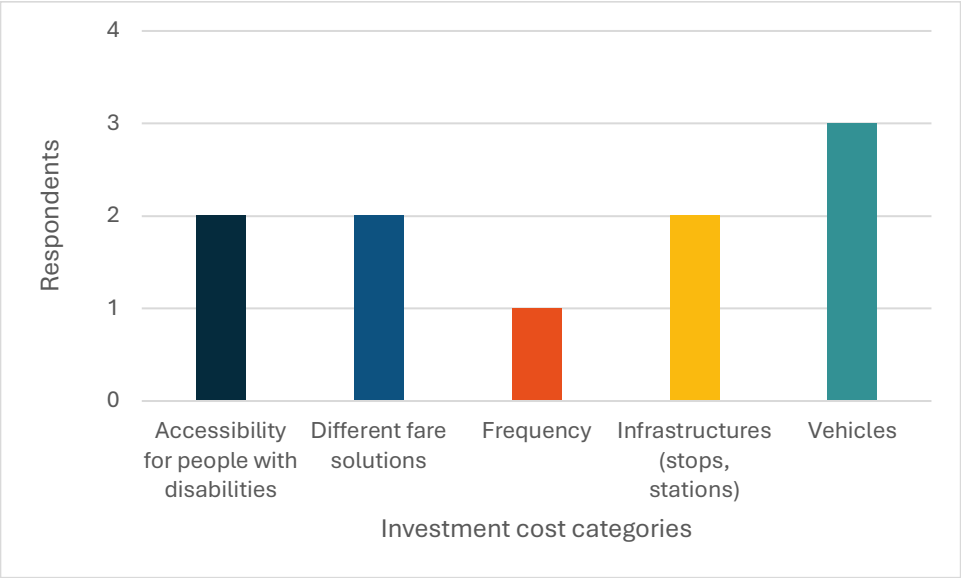
102. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



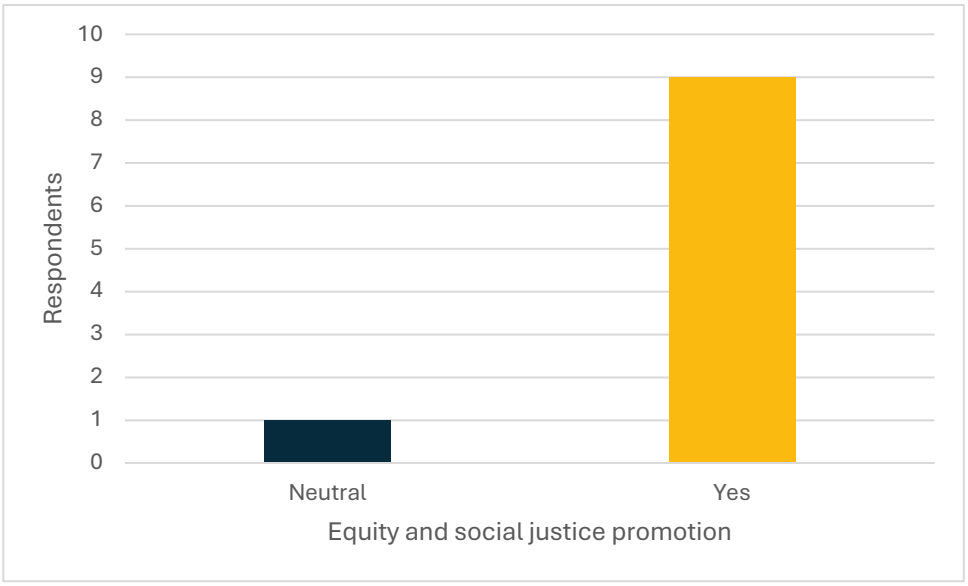
103. Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)
How important is environmental sustainability in your choice of transportation?



104. Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.
In which category do you think public transport should invest more?



105. Equity and social justice promotion. Choice options: yes, neutral, no
Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?


10
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0
Respondents
Neutral
Yes
Equity and social justice promotion

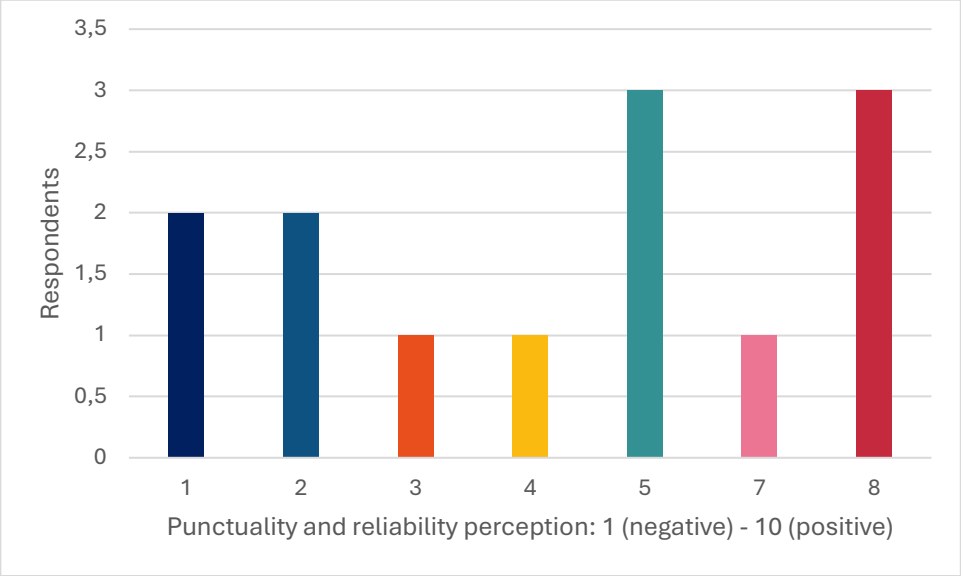
9. ILE-DE-FRANCE

UPPER quality of service classes and user perceptions

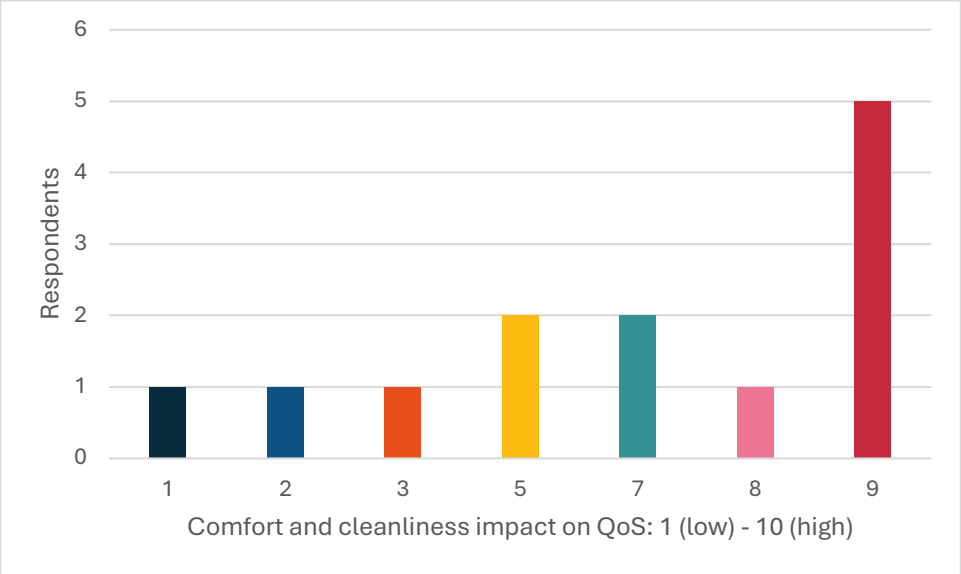
X: Values from 1 to 10 / Response options

Y: Frequency of responses

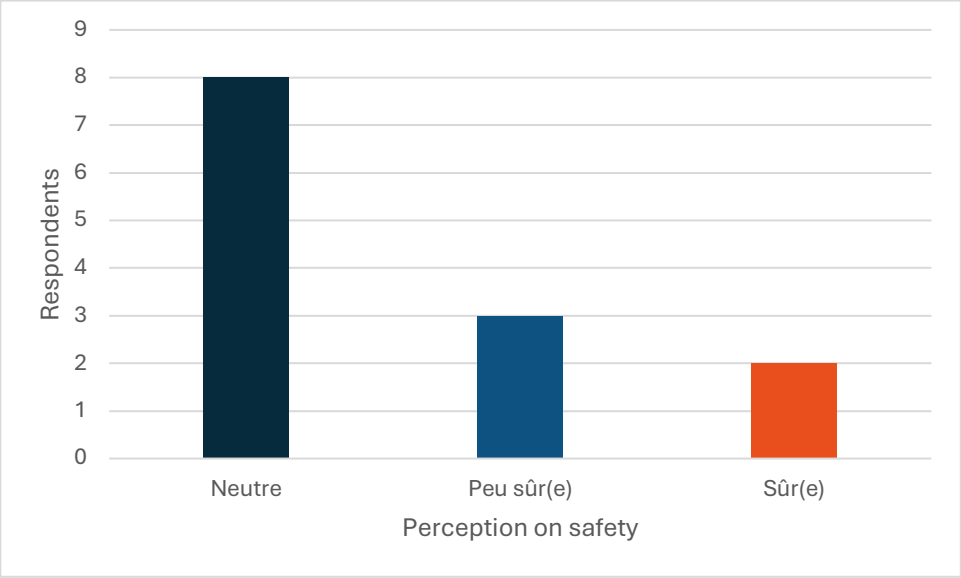
106. Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?



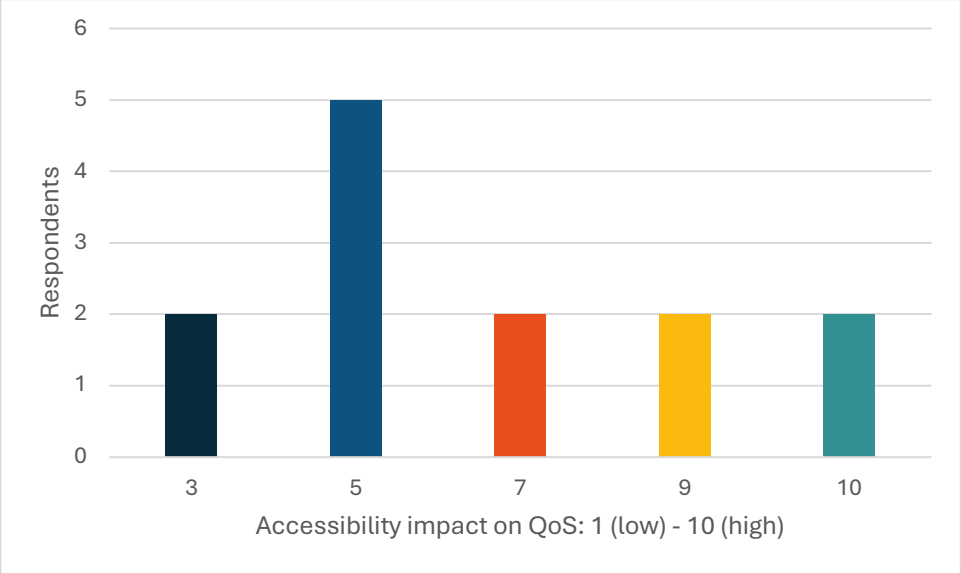
107. Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?



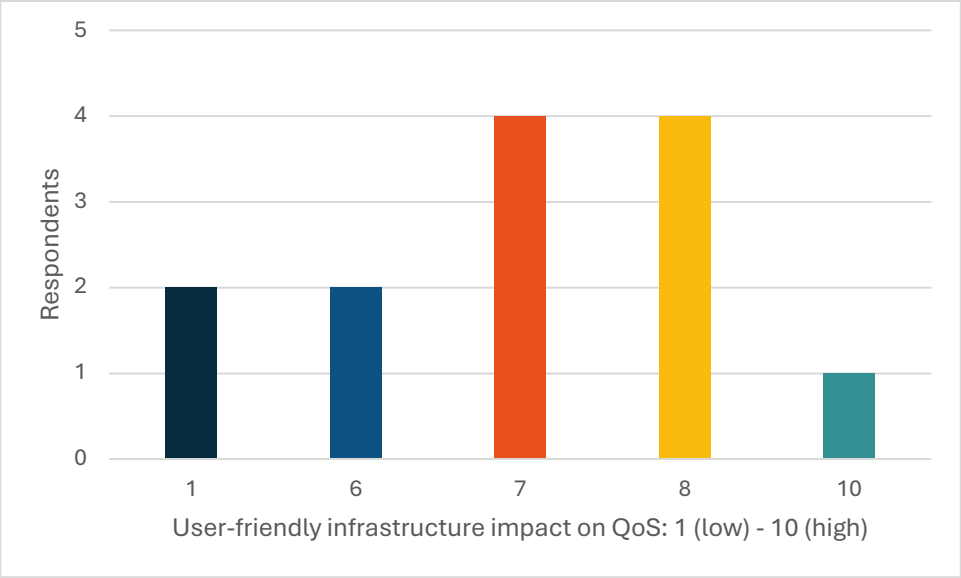
108. Safety and security: very safe, safe, neutral, unsafe, very unsafe.
Do you feel safe while waiting at bus, train and metro stations?
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



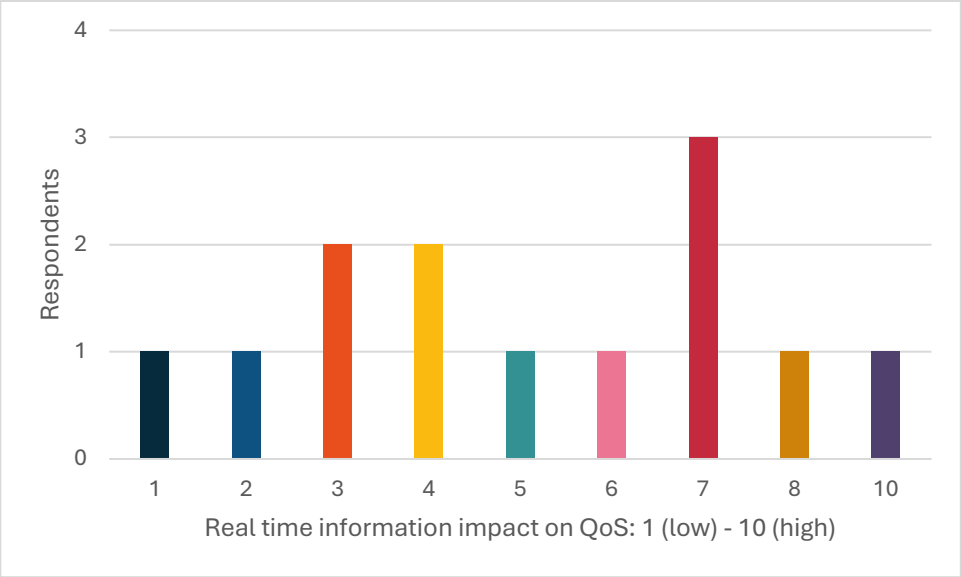
109. Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)
How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



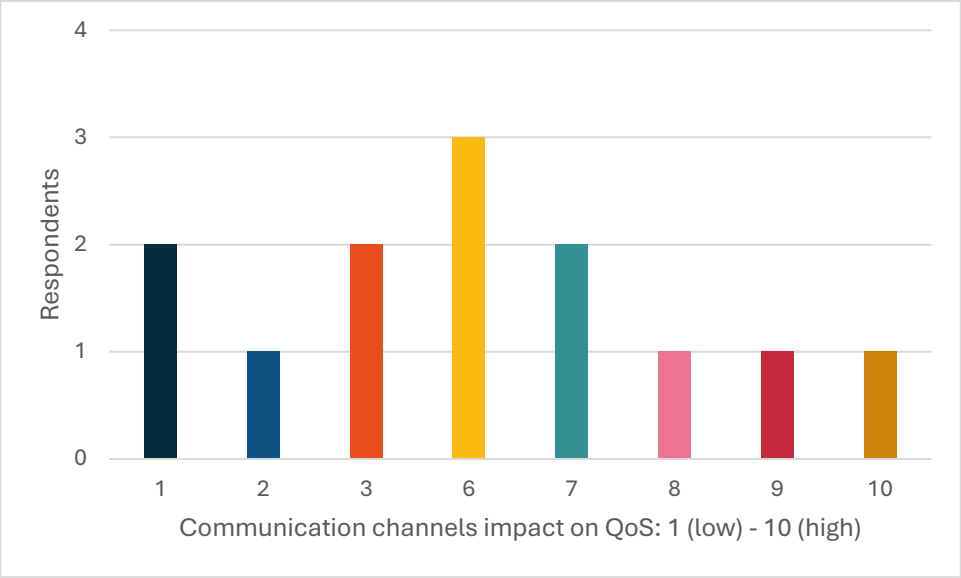
110. User-friendly Infrastructure: values from 1 (low) to 10 (high)
How much do you consider user
centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



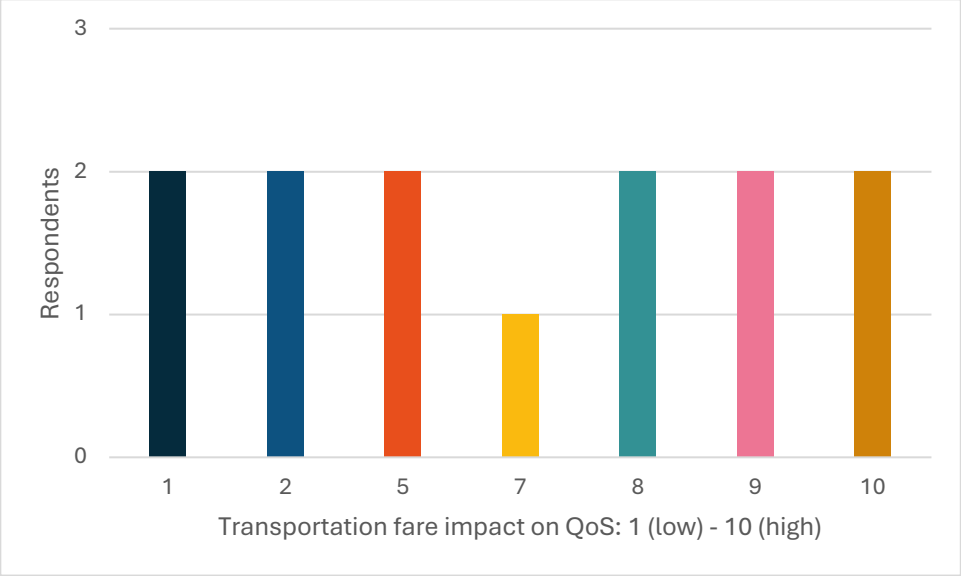
111. Real time information: values from 1 (low) to 10 (high)
How much are you relying on real time information while taking public transport?



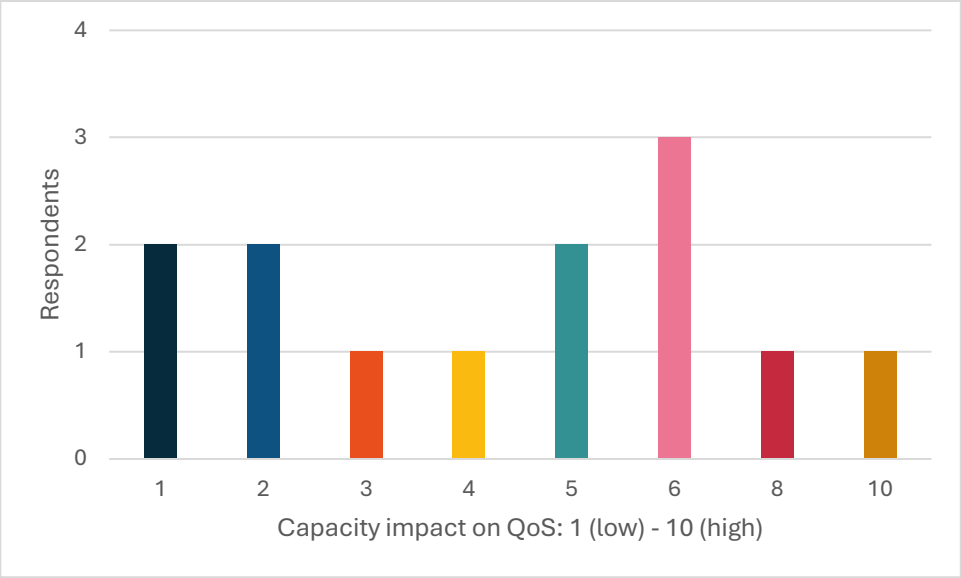
112. Communication Channel: values from 1 (low) to 10 (high)
Are easy to use real time apps and other communications relevant for improving your travel experience?



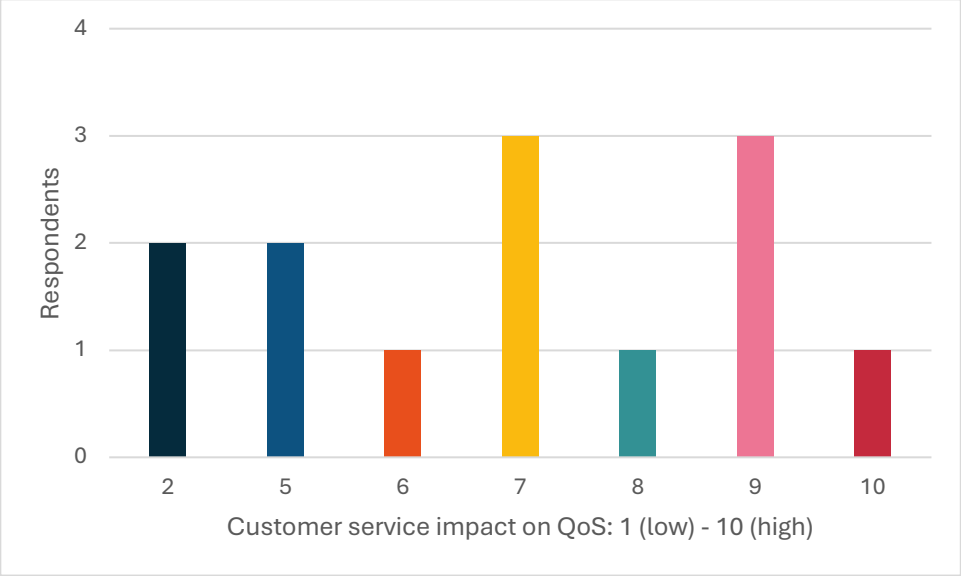
113. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



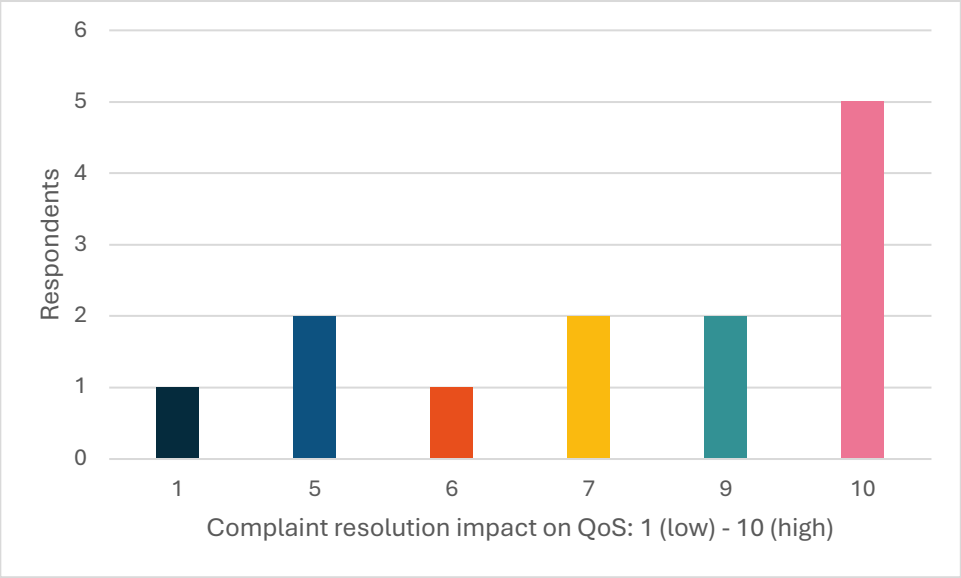
114. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?



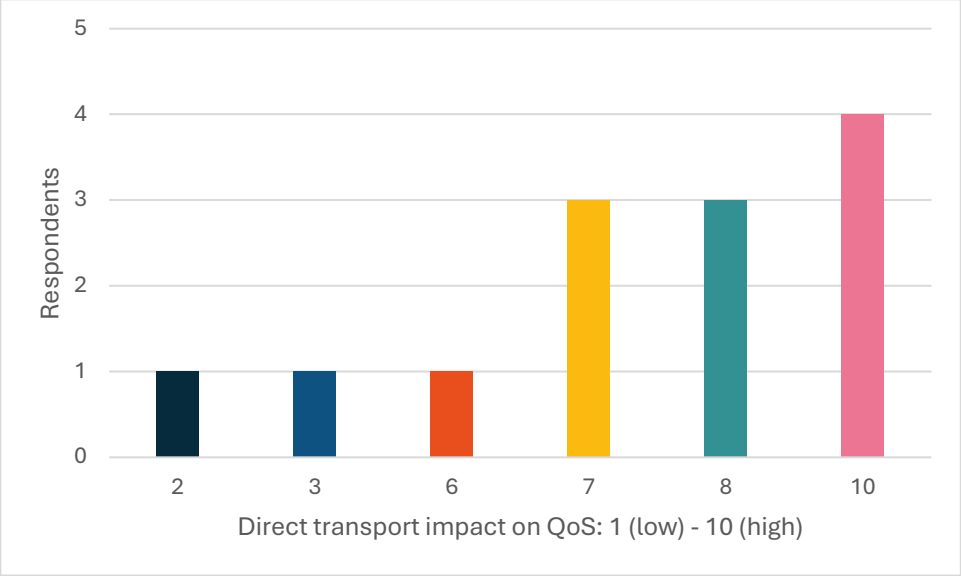
115. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?



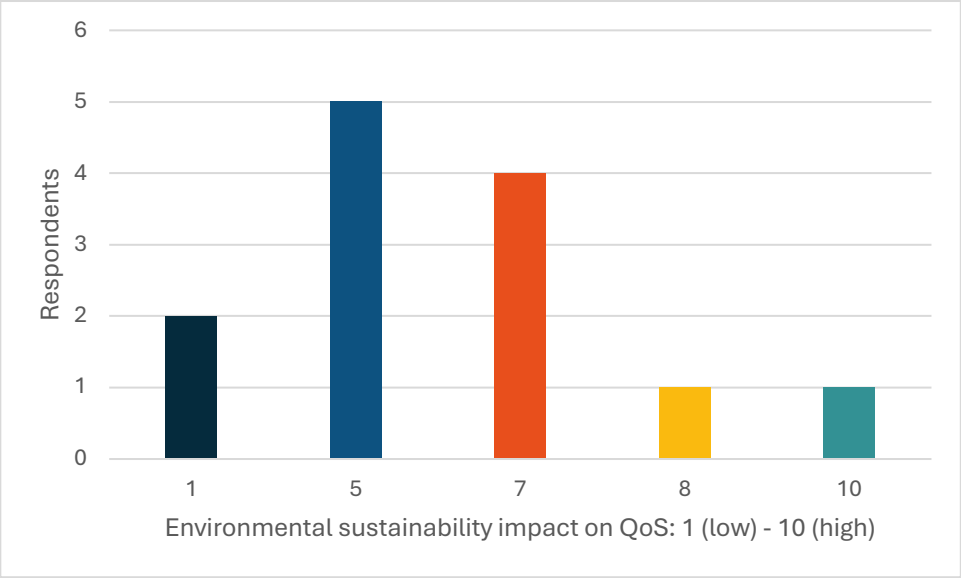
116. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?



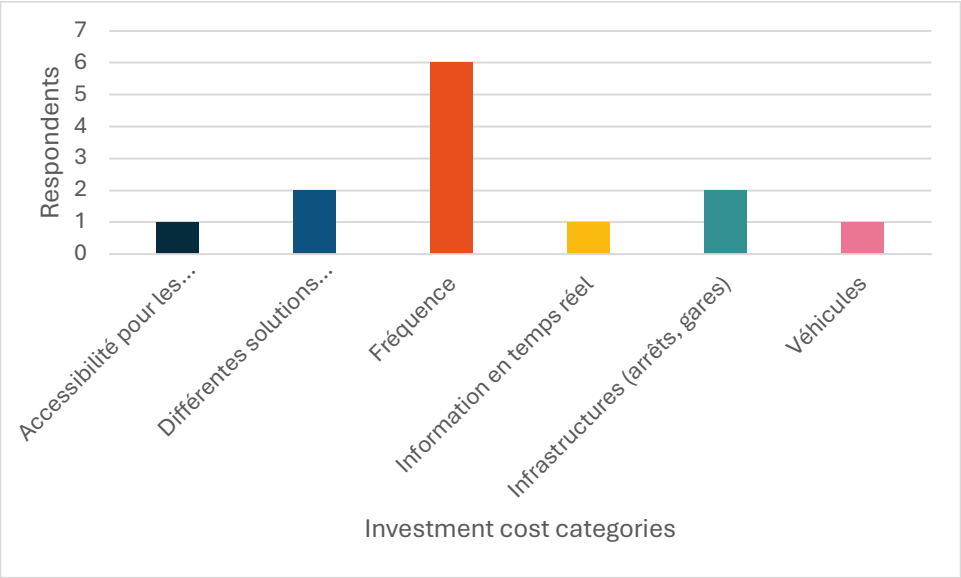
117. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



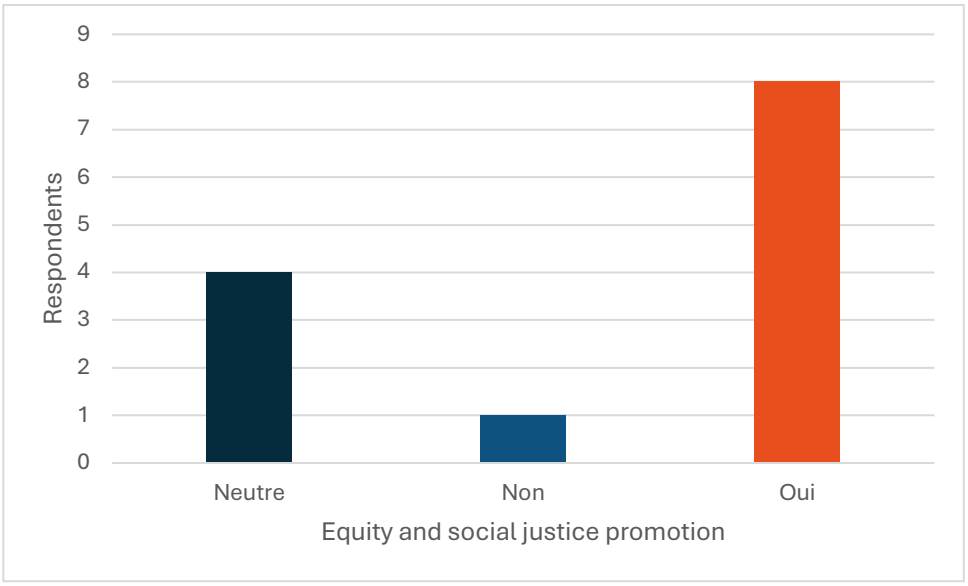
118. Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)
How important is environmental sustainability in your choice of transportation?



119. Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.
In which category do you think public transport should invest more?



120. Equity and social justice promotion. Choice options: yes, no, neutral.
Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?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Non
Oui
Equity and social justice promotion

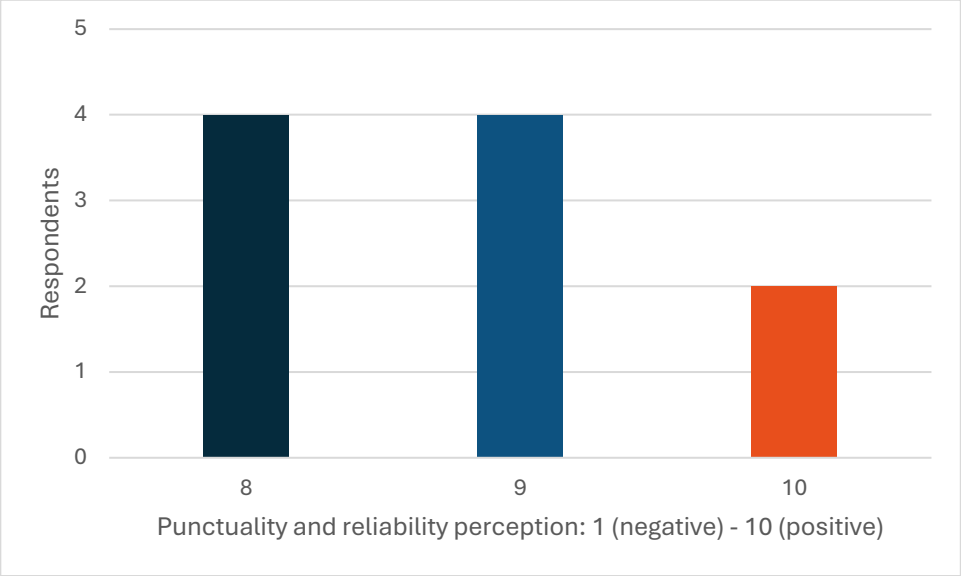
10. HANNOVER

UPPER quality of service classes and user perceptions

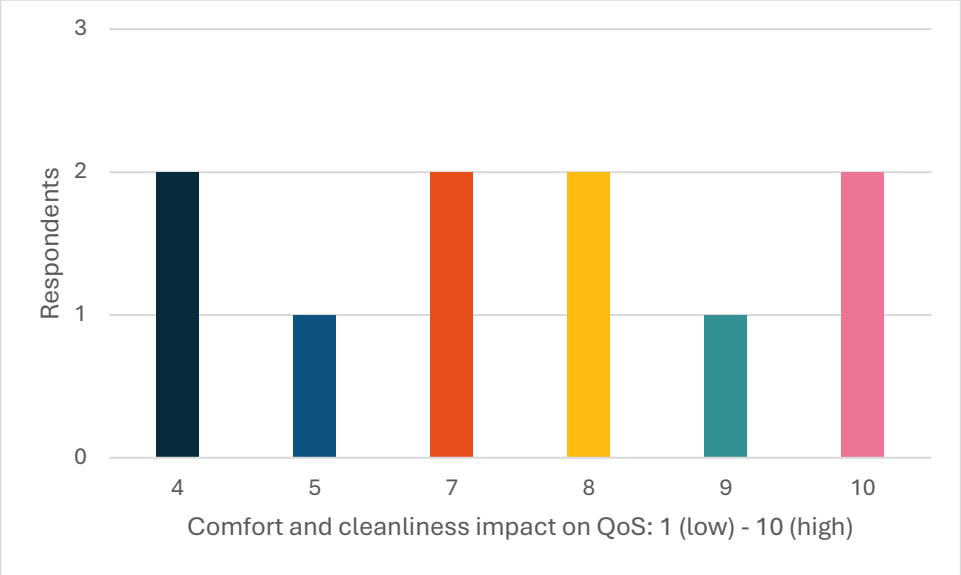
X: Values from 1 to 10 / Response options

Y: Frequency of responses

121. Punctuality and Reliability: values from 1 (negative) to 10 (positive). What is your perception of the punctuality of public transport services in your area?

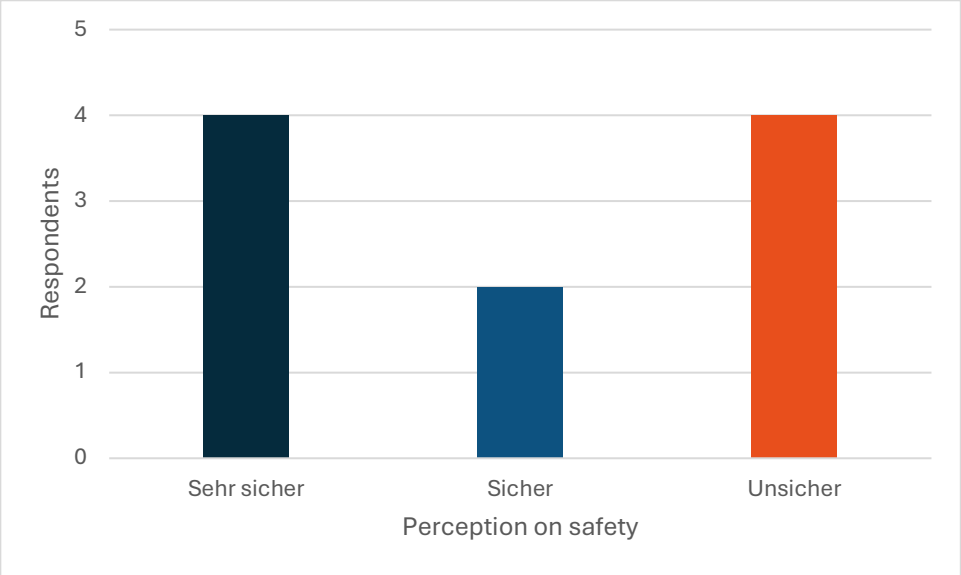


122. Comfort and cleanliness: values from 1 (low) to 10 (high). How important is comfort and cleanliness in your decision to take public transport?

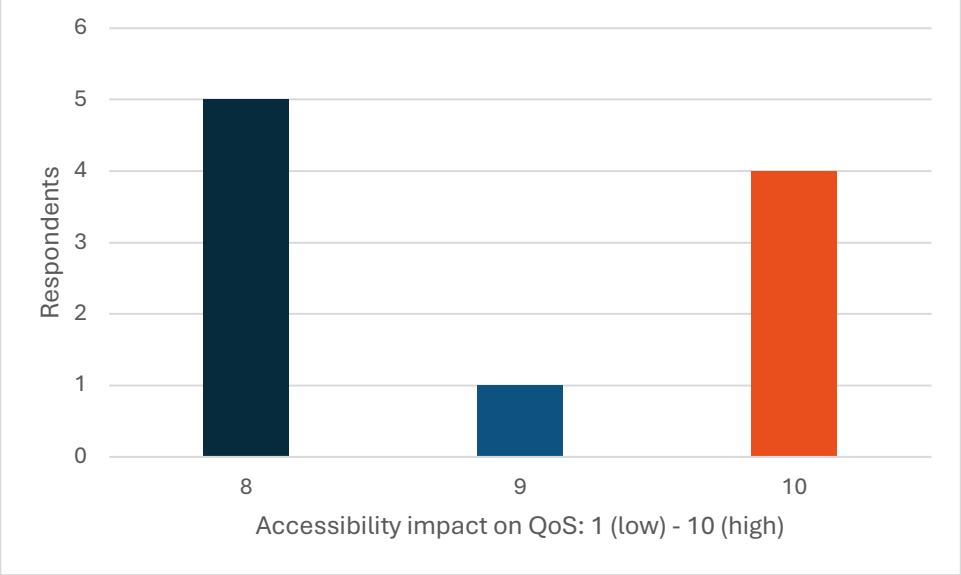


123. Safety and security: very safe, safe, neutral, unsafe, very unsafe. Do you feel safe while waiting at bus, train and metro stations?

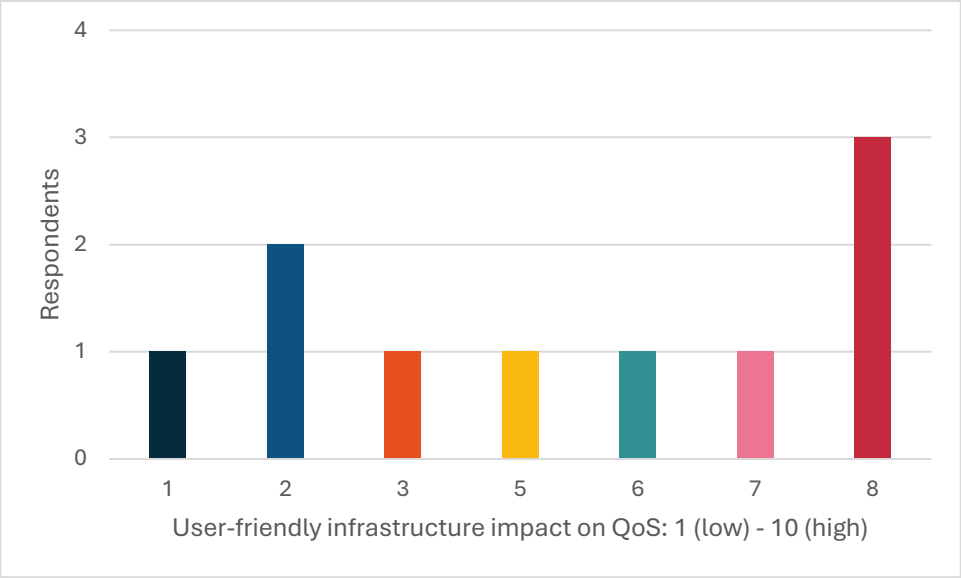
By safe we mean feeling protected from or not exposed to danger or risk whilst using public transport for yourself and people travelling with you.



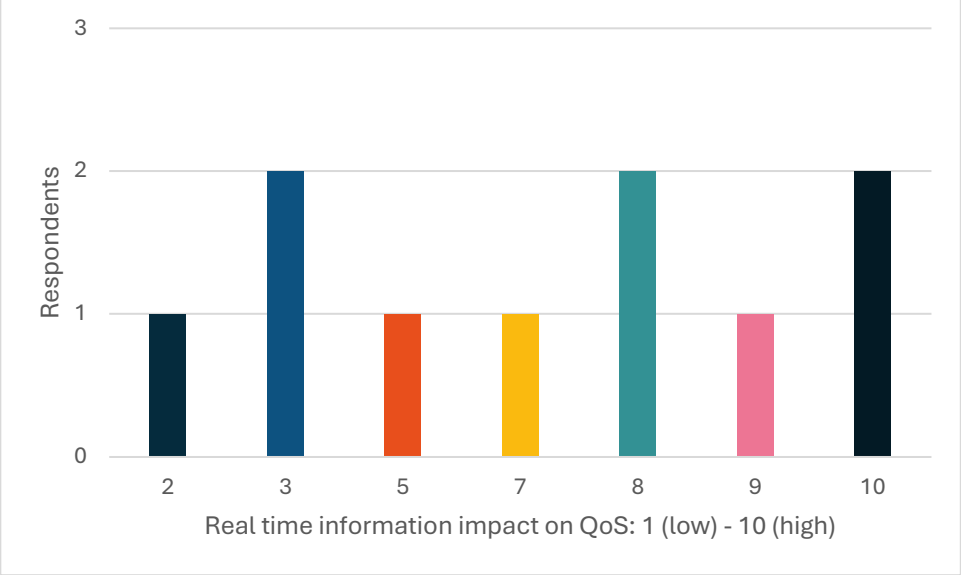
124. Accessibility – Access to information and physical accessibility: values from 1 (low) to 10 (high)
How important is for you the removal of physical and informative barriers to allow easy access to different public transport services?



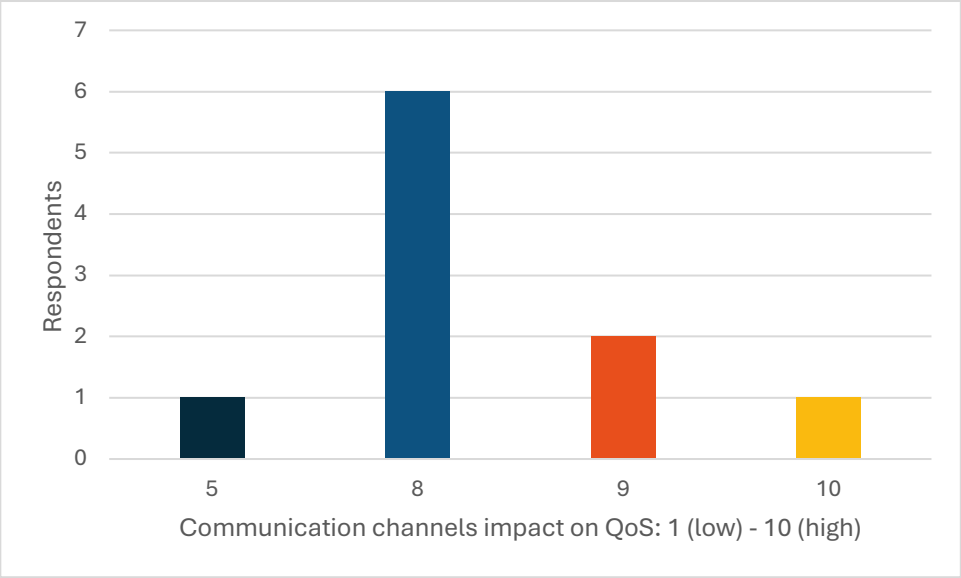
125. User-friendly Infrastructure: values from 1 (low) to 10 (high)
How much do you consider user centric facilities (availability of water, food, toilets,.....) and transport information (voice announcements) in your journey preferences?



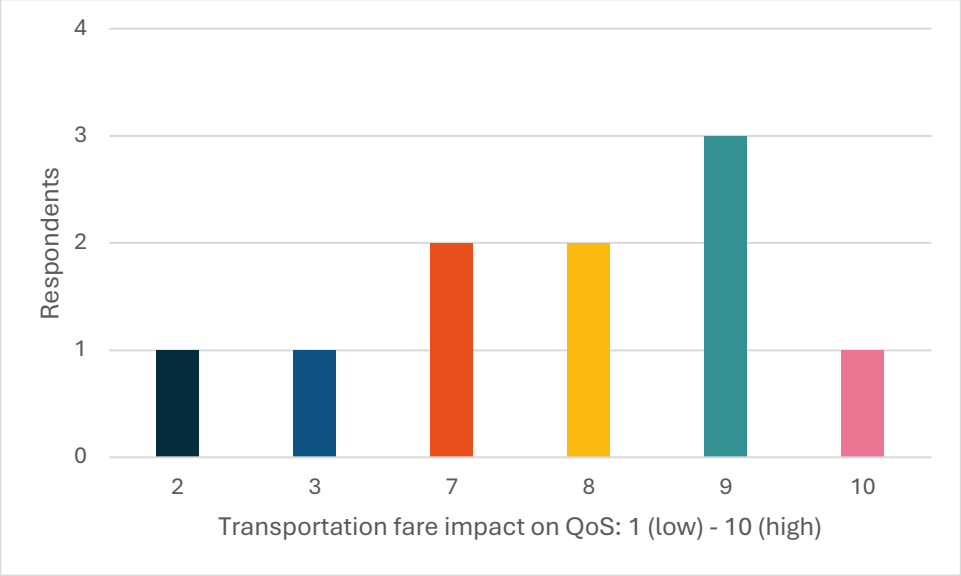
126. Real time information: values from 1 (low) to 10 (high)
How much are you relying on real time information while taking public transport?



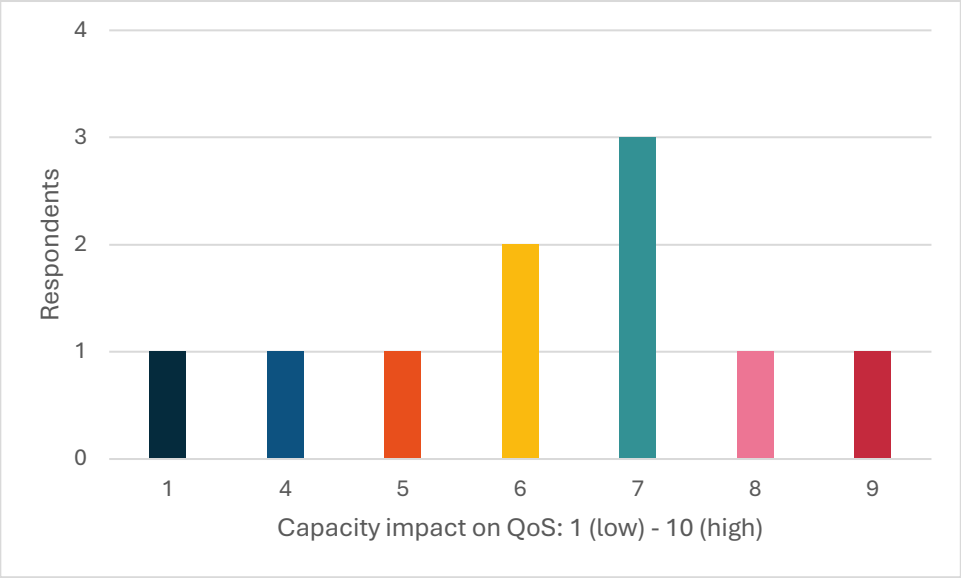
127. Communication Channel: values from 1 (low) to 10 (high)
Are easy to use real time apps and other communications relevant for improving your travel experience?



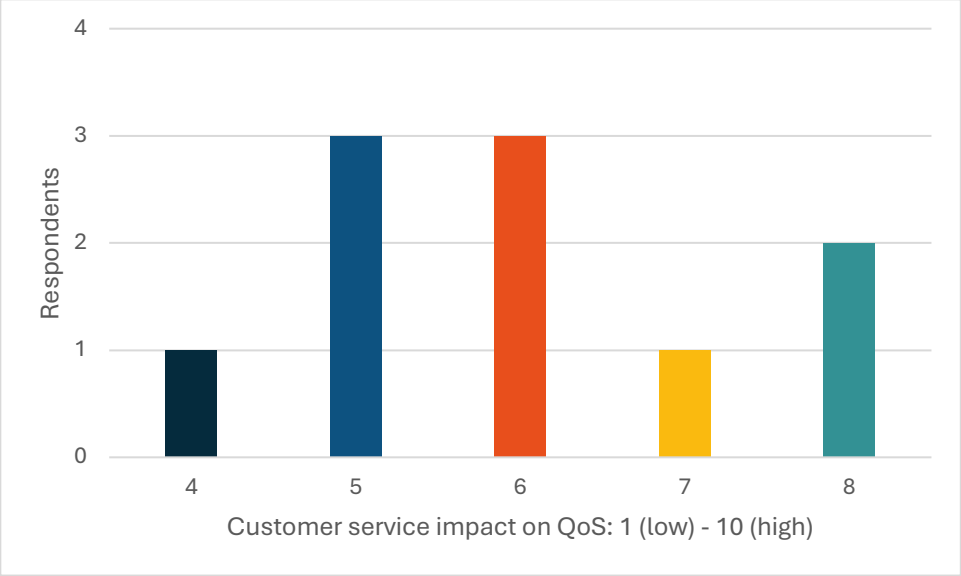
128. Affordability: values from 1 (low) to 10 (high).
How much does the transportation fare impact your mobility choices?



129. Capacity: values from 1 (low) to 10 (high).
How much overcrowding and limited capacity influence your travel choice?

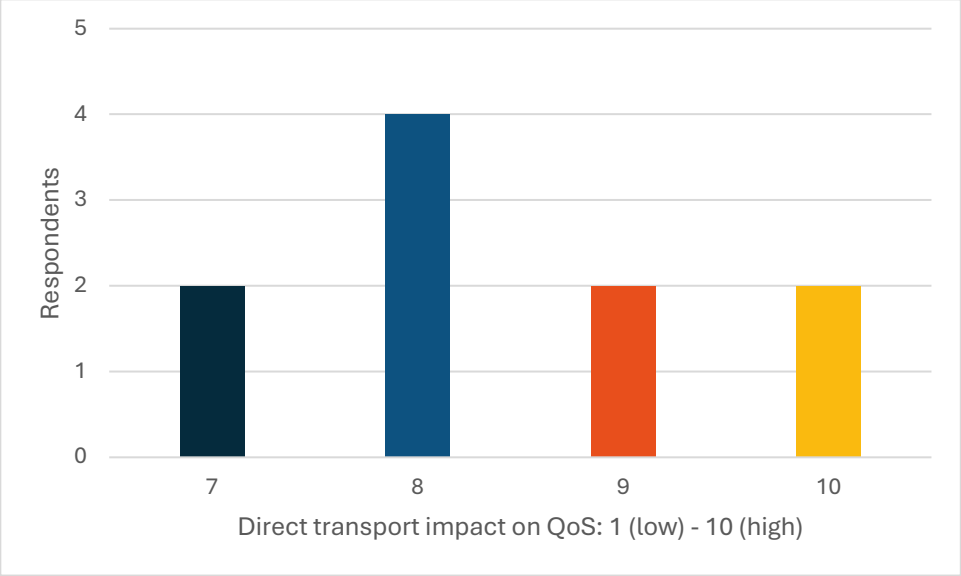


130. Customer service: values from 1 (low) to 10 (high).
How important is the assistance of the Customer Service for you?

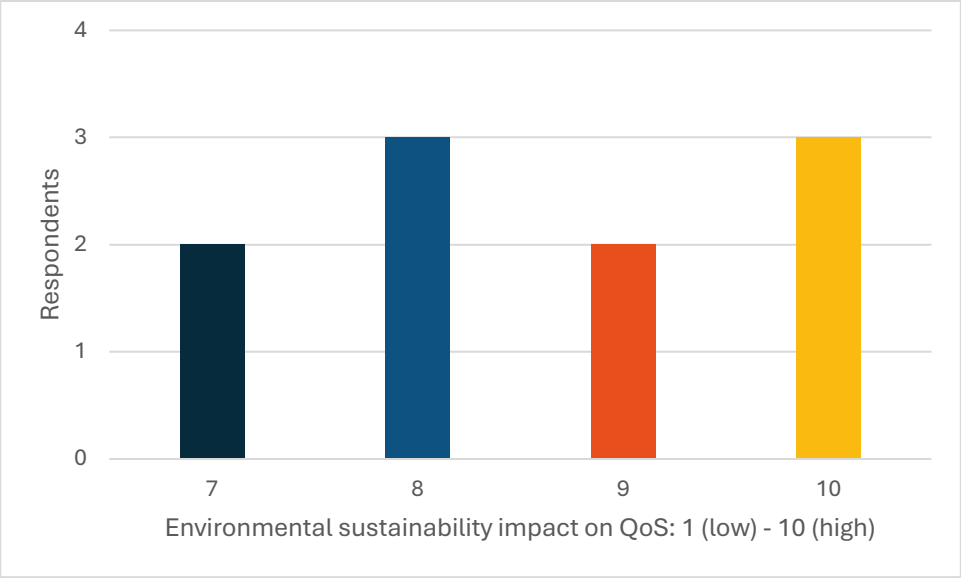


131. Complaint resolution: values from 1 (low) to 10 (high).
Is the efficiency of the complaint resolution important for you?

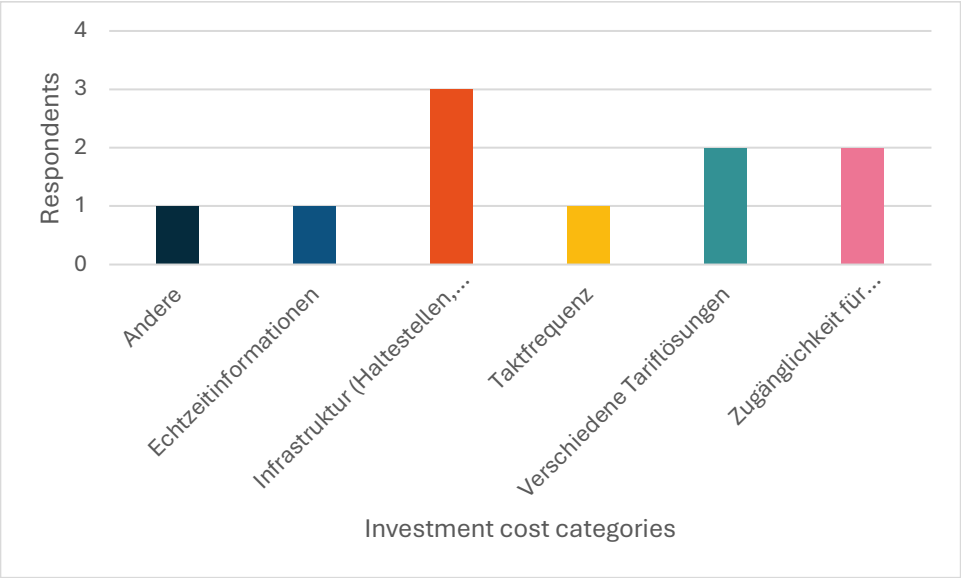
132. Seamless transfers: values from 1 (low) to 10 (high).
How relevant is it for you to have direct transport to your destination?



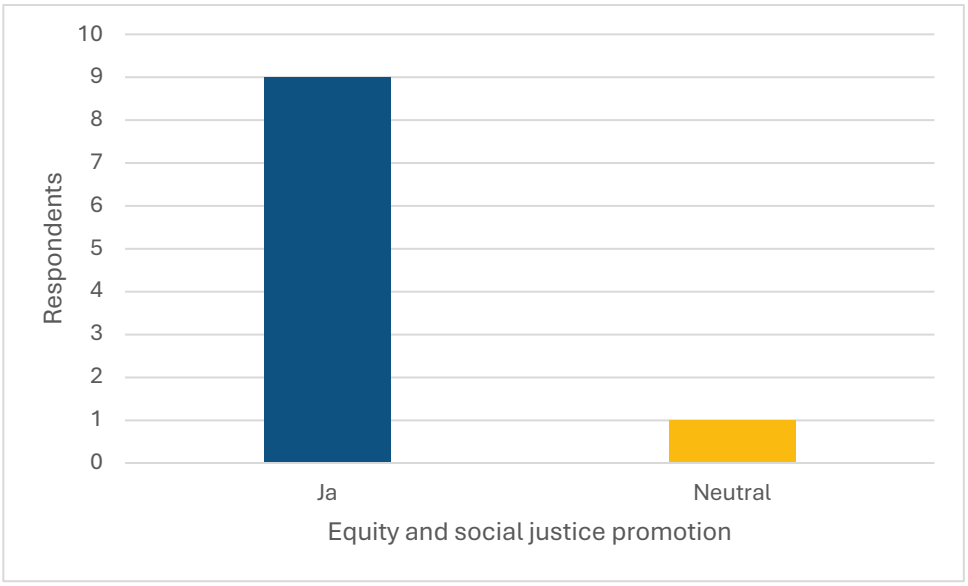
133. Environmental sustainability and green initiatives: values from 1 (low) to 10 (high)
How important is environmental sustainability in your choice of transportation?



134. Investment Cost. Choice options: Infrastructures (stops, stations), vehicles, frequency, real time information, accessibility for people with disabilities, different fare solutions.
In which category do you think public transport should invest more?



135. Equity and social justice promotion. Choice options: yes, no, neutral.
Do you think public authority should promote public transport coverage, frequency and accessibility while reducing private vehicle ownership?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Respondents
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Neutral
Equity and social justice promotion

Annex C –Tool Box guide and Miro Links

WP5 T5.3 exercise preparation

The overall scope of the “T5.3 Innovative Strategies and Solutions to Improve Public Perception of PT” is to provide a set of recommendations to monitor and improve the user perception of identified QoS measures.

To reach this objective, we created a questionnaire for each site to understand which QoS classes are more relevant for users, within a sample of 15 QoS categories:

- Punctuality and Reliability
- Comfort
- Cleanliness
- Safety and Security
- Accessibility (information + physical)
- User-friendly Infrastructure
- Real-time Information
- Communication Channels
- Affordability
- Capacity
- Customer Service
- Complaint Resolution
- Seamless Transfers
- Environmental Sustainability and Green Initiatives
- Equity and Social Justice Promotion

We propose a follow-up exercise to evaluate your site’s survey results, which will help to gain a general understanding of which aspects can help improve user perception of public transport in your site. **The aim is not to assess the level of user satisfaction in each site, but to identify the QoS categories that can improve each site's analysis of user satisfaction. This will help us deliver recommendations that can guide future measures and, hopefully, improve user perception of QoS, which is one of the main objectives of this project.**

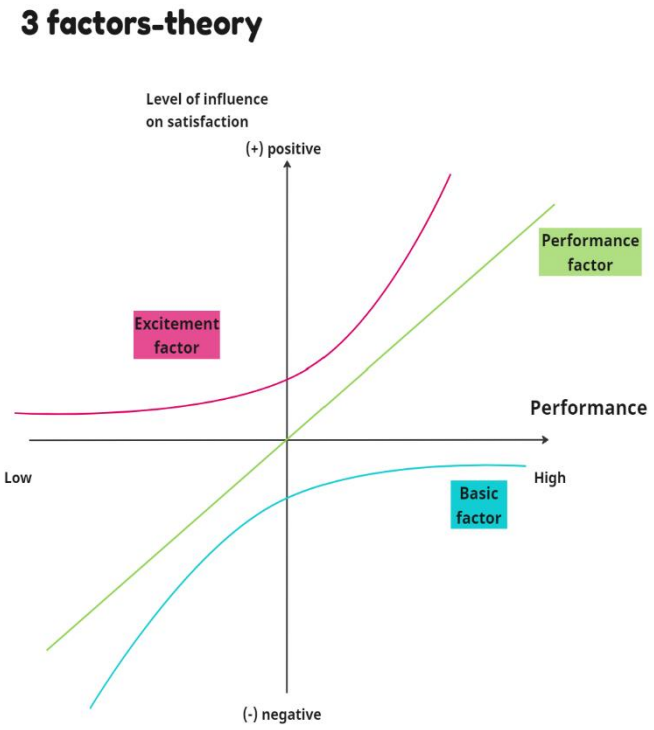
Exercise Instructions

This exercise is based on the three factors theory (Kano et al., 1984). This theory postulates that QoS impacts overall travel satisfaction very differently depending on their performance level. The three factors are defined as follows:

• **Basic factors**: **They are basic and expected attributes that all transport services should provide adequately to the user**. From a policy perspective, basic factors should be delivered at the standard regional level to avoid the dissatisfaction of riders. In general, they do not positively influence overall satisfaction when they are well delivered, while they create dissatisfaction when they are poorly delivered.

• **Performance factors**: Resources should be allocated to performance factors to maximize user satisfaction. This category **can contribute to both satisfaction and dissatisfaction** depending on whether their performance is high (satisfiers) or low (dissatisfiers), respectively.

• **Excitement factors**: this category is the reverse of the basic factor. Attributes belonging to this category are **unexpected attributes that can only bring joy and satisfaction** with the service. Excitement factors often surprise users and generate delight. Therefore, they are often used to promote competitiveness.

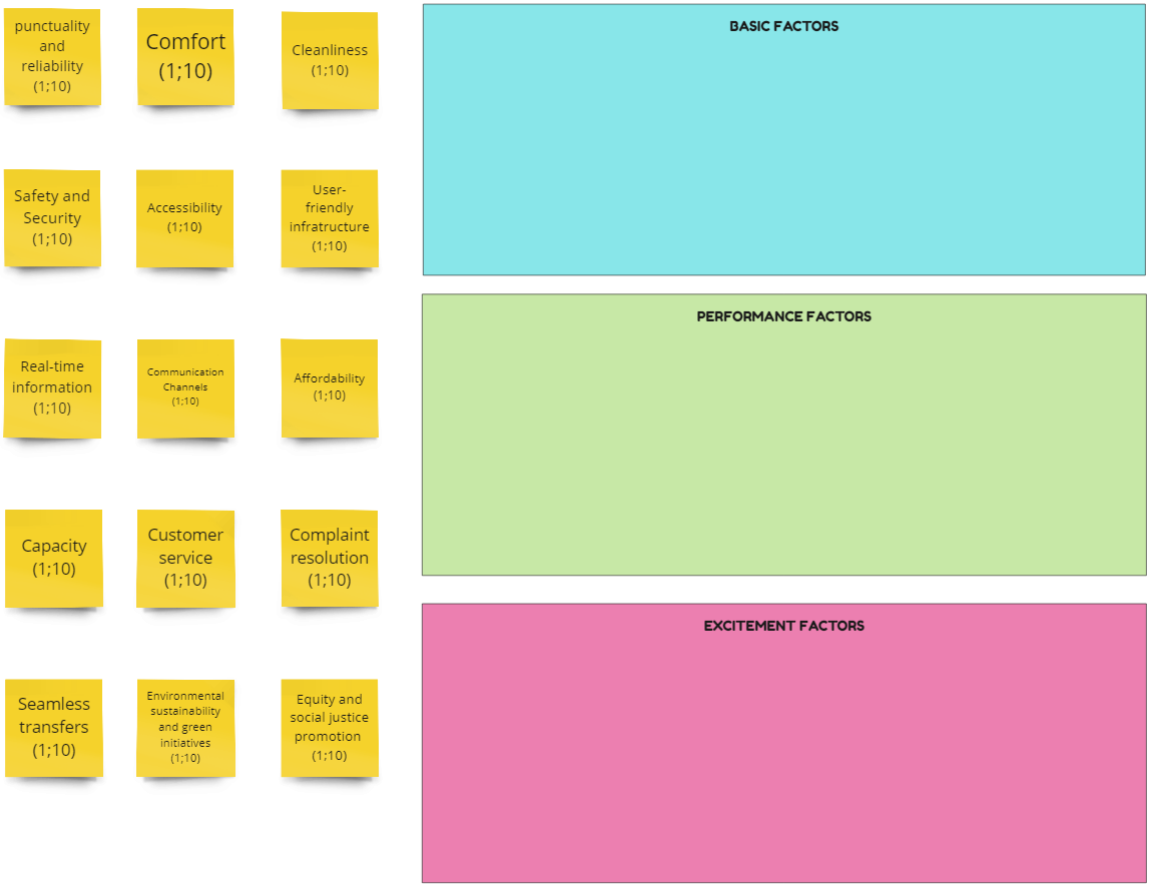


The exercise is designed in 2 main steps and should last 30 minutes. It will be held on the Miro platform. **The exercise must be completed by 21st of June.** Through this exercise, each site will gain a general understanding of which classes to prioritize to improve public transportation user perception. **At the end of the following file, you will find all the links to the respective Miro boards and a first link to a Miro board where you will find a short video guide for the exercise.**

- After looking at the data provided in T5.3 questionnaire, which we will provide in a separate document.

1. Open the **Miro board with your city name and start to match the QoS categories indicated in the yellow post-it within the three factors tables described above**. Each post-it has one category; you can move them into the square related to one of the three factors.
2. **Indicate a score (from 1, low, to 10, high)** inside the parentheses on the post-it, reflecting how relevant that category is for your site. Use the same post-its from step 1; do not add new ones.

Complete the following table by filling in the appropriate sections with the categories you consider suitable. For each category, indicate its relevance to you by assigning a score from 1 to 10.



- Complete the following table by indicating **whether your local transport passenger survey includes the categories listed in the QoS**. If your city survey contains categories not listed in the table, you can add them below on the designated blue post-its, using one post-it per category

Complete the following table by indicating with the YES/NO stickers whether the following QoS categories are included in the user satisfaction questionnaire conducted in your city.

PUNCTUALITY AND RELIABILITY	
COMFORT	
CLEANLINESS	
SAFETY AND SECURITY	
ACCESSIBILITY	
USER-FRIENDLY INFRASTRUCTURE	
REAL-TIME INFORMATION	
COMMUNICATION CHANNELS	
AFFORDABILITY	
CAPACITY	
CUSTOMER SERVICE	
COMPLAINT RESOLUTION	
SEAMLESS TRANSFERS	
ENVIRONMENTAL SUSTAINABILITY AND GREEN INITIATIVES	
EQUITY AND SOCIAL JUSTICE PROMOTION	

YES

NO

For categories not on this list, indicate them on the post-its below, one category per post-it.

Links to the Miro boards:

General example board with video-guide:
https://miro.com/app/board/uXjVKCrWfko=/?share_link_id=990685427937

- Lisbon: https://miro.com/app/board/uXjVK7usExI=/?share_link_id=822299416137
- Thessaloniki: https://miro.com/app/board/uXjVK7utpbc=/?share_link_id=546638898397
- Oslo: https://miro.com/app/board/uXjVK7u0igo=/?share_link_id=326270207348
- Leuven: https://miro.com/app/board/uXjVK7u0iiU=/?share_link_id=752586414526
- Hannover Region: https://miro.com/app/board/uXjVK7u2t7c=/?share_link_id=124060306021
- Mannheim: https://miro.com/app/board/uXjVK7u_Z7U=/?share_link_id=905373598465
- Rome: https://miro.com/app/board/uXjVK7u_ZGM=/?share_link_id=348719547479

- Budapest: https://miro.com/app/board/uXjVK7u_ZMc=/?share_link_id=889240428920
- Ile de France: https://miro.com/app/board/uXjVK7u_ZPI=/?share_link_id=628087381176

Annex D –Measures monitoring templates

Monitoring template for Measure LIS_10: "To improve the quality and efficiency of the bus service [PULL]"

Objectives of the measure

- Improve the measurement of the perceived quality of public transport systems;
- Improve the credibility of quality measurements in public transport systems;
- Adopt measures that facilitate experimentation of public transport by new segments of users;
- Define and evaluate measures to improve the quality and speed of public transport services.

Description of the measure

This measure will work towards the improvement of the quality and efficiency of bus services in Lisbon, by addressing issues related with the perception of quality of the system, its effective communication and improvement. Essentially the measure will explore and implement mechanisms to improve the management of perceived quality and better coordinate this analysis amongst different operators. There is also a perception that a gap persists between the quality evaluation from PT customers and the opinion of non-users, which means that better communication and system experimentation may attract new users to PT. Finally, there is also a need to explore better data sharing with stakeholders, particularly with the view of identifying measures to improve the overall quality and efficiency of the PT system. The measure will focus on three major areas: i) better understanding of the perceived quality of the bus services, ii) explore ways to use large scale events to promote 'experimentation' of public transport services, notably through the creation of new digital ticket products that particularly facilitate this process; and iii) study mechanisms to make public transport services more attractive, in particular by focusing on quality and speed of the service.

- **Sub-measures description**

- (LIS_10_01) Conduct Passenger Satisfaction Surveys for a better understanding of the perceived quality of the bus services: promote exchange of good practices in terms of measurement of quality of PT services between partners and review customer feedback and service evaluation processes (e.g. mystery clients and satisfaction studies); exchange results of satisfaction studies; and exchange experience and explore the potential of certification schemes.
- (LIS_10_02) Development of new Digital PT Tickets for events to explore ways to use large scale events to promote 'experimentation' of public transport services, notably through the creation of new digital ticket products that particularly facilitate this process; this measure shall include both the development of tickets, the planning of special service offerings (including possible needs of data acquisition) and the launch of digital products and/or communication campaigns.
- (LIS_10_03) Analysis and implementation of measures to improve PT services, by studying mechanisms to make public transport services more attractive, in particular by focusing on quality and speed of the service: analyse the results of quality assessment and considering the work in other measures related with commercial speed and customer needs, identify and implement measures to improve the attractiveness of PT systems.

Measure outputs:

This measure will deliver:

- A review of PT quality assessment studies at CARRIS and TML, making the approach more consistent;
- Improved data sharing between CARRIS, TML and CML regarding the perceived quality of public transport;
- Development of a novel framework to use large-scale events for PT experimentation campaigns, and its implementation in pilot studies;
- Implementation of feasible solutions to improve PT services identified in other measures' activities (namely, LIS_03 and LIS_08).

Related UPPER tools:

U-NEED: May be used to understand travellers needs to/from LE

PTV Visum, to simulate and test different scenarios of possible changes in operations

Steps to ready-to-demo measure

Steps	Description	Involved partners/externals	City contact person	Category of action	Deadline	Monitoring indicator	Comments
Sub-Task: Passenger Satisfaction Surveys							
1	Creation of a working group with other PT operators to exchange good practices	CARRIS, TML, PT operators		Data	31/01/2024	Meeting conducted; Working group established	1st meeting scheduled between CARRIS and CARRIS Metropolitana (TML) for early March. Other operators to be invited afterwards.
2	Analysis of questionnaire and passenger satisfaction survey and identification of QoS data input	CARRIS		Social/Technical	30/03/2024	Assessment of past surveys and comparison	Completed.
3	~~Preparation of Passenger survey rounds and~~ Sharing of data between operators	CARRIS, TML, PT Operators		Social/Technical	31/08/2024	~~Creation of new passenger survey;~~ Exchange protocols with other operators established.	Discussions revealed that the CSS are not flexible, given the need to keep consistency with previous studies.
4	External consultation for customer satisfaction assessment approaches.	CARRIS		Admin	31/08/2024	Public tender launched.	
5	New survey launch	CARRIS, external consultant		Technical	30/01/2024	Passenger survey launched.	Date TBC

	LAUNCH OF THE DEMO 31/10/2024	

Sub-Task: PT Tickets for large scale events							
1	Definition of product requirements for development of new digital PT Tickets for large scale events	TML		Technical	31/05/2023	product requirements defined	
2	Identification of pilot event	TML, promotors		Management	30/06/2023	Event identified	
3	Negotiation with promotor	TML, promotors		Management	30/06/2023	Negociations closed	
4	Negotiation with PT operators	TML, PT operators		Management	30/06/2023	Negociations closed	
5	Produce tickets	TML		Technical	15/07/2023	Tickets produced	
6	Manage and monitor use of tickets	TML, promotors, PT operators		Management / Technical	15/08/2023	Tickets used data available	
7	Evaluate results	TML, promotors, PT operators		Management / Technical	30/11/2023	Report produced	
8	Discuss replication to other large-scale events	TML, promotors, PT operators		Management / Technical	31/12/2023		

Monitoring template for Measure BUD 03 "Understanding on a deeper level the connection between the service level and passenger satisfaction"

Objectives of the measure

- **At measure level:**
  - Understand the patterns of the tangential (to the neighbouring districts) travel habits and travel needs in the suburban areas and identify the missing public transport network connections
  - Understand the patterns in the connection between the level of PT service and passengers' choice of mobility modes

Description of the measure

The main objective of this measure is to understand the tangential travel patterns in suburban areas of Budapest and to identify the missing public transport network connections. Furthermore, the measure will aim for the deeper qualitative assessment and understanding of the patterns that are shaping the mobility mode choices. The planned activities include carrying out surveys and data analysis of the mobility flows to understand the mobility patters and to identify the main problems about the PT level of service.

Measure outputs:

This measure will deliver:

- A report on the connection between the service level and passenger satisfaction
- A roadmap with the potential intervention areas for future improvements of the services
- The tangential travel habits and travel needs of people living in suburban areas and the missing public transport network connections

Related UPPER tools:

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Steps to ready-to-demo measure

Steps	Description	Involved partners/externals	City contact person	Category of action	Deadline	Monitoring indicator	Comments
1	Identification of development to strengthen the PT services (e.g. supporting first mile/last mile journeys and combined transport modes)	Mobility Development of BKK, Customer experience and analysis development of BKK		Technical	Q1 2024	Identified new potential development to strengthen the PT	Done, we have identified an area of research to strengthen public transport services: the aim is to survey the tangential (to the neighbouring districts) transport habits of people living in the outer districts and identify the lack of public transport network connections
2	Preparation of the technical content of the survey	Mobility Development of BKK, Customer experience and analysis development of BKK		Technical	Q1 2024	Technical specification	Done
3	Starting the procurement procedure	BKK		Legal	Q2 2024	-	Ongoing
4	Data collection, needs assessment	External contractor		Data	Q2 2024 (new deadline: September 2024)	Data	Data collection has been rescheduled to September 2024.
5	Preparation of a study summarising the survey results	External contractor		Technical	Q4 2024	Study	

Monitoring template for Measure IDF_08: “Improve public perception of PT “

Objectives of the measure

At measure level:

- Facilitate the evaluation and collection of user's perception of public transport on VGP’s territory
- Better understand the users’ perception on the quality of service (QoS) in its widest description : not only punctuality and regularity, but also through comfort, crowding levels, cleanliness...).

Contributing to city level objectives: Reduce the existing gap between user perception and assessed QoS

- Stimulate PT operators to improve the QoS and to support users in having a fair and objective opinion about PT services.
- Improve users’ satisfaction with the public transport
- Communicate and educate users on good QoS indicators

Description of the measure

This measure aims to reduce the gap between the perception of PT quality and the PT quality of service itself. The QoS is already quantified by the regional transport authority every trimester through several numerical indicators : regularity, punctuality, information, accompaniment, comfort, safety, accessibility for disabled people, etc. Even if QoS indicators are good, PT users may not be satisfied. And above all, those who don’t take PT criticize this mode because they have a negative perception of it. In order to encourage people to shift from cars to PT or to encourage current PT users to remain in PT, we want to communicate more and better on the good indicators of QoS. Communication and pedagogy are the main actions of the measure 8.

In order to evaluate our actions of communications and pedagogy which will be led from the end of 2023 to 2026, we will measure the perception of QoS (not the QoS itself) today and at the end of the project. To fulfil this task l’Institut Paris Region will lead different surveys.

The surveys are to be qualitative and aims to give a comparable starting point about modal share and quality of service (punctuality, regularity, cleanliness, passenger information…) on VGP’s territory for us to compare with at the end of the UPPER project. This measure may be split in several surveys:

- Base quality of service survey in 2023/2024
- Comparative quality of service survey in 2026, at the end of UPPER to see evolutions
- Base modal split survey in 2023 through counts and a quick survey
- Comparative modal split survey in 2026, at the end of UPPER to see evolutions
- Serious games in august-september 2023

The final objective is to have a better understanding of user's expectations in terms of QoS and get closer to what they need and to overall improve the perception and use of PT through better QoS

Measure outputs:

The surveys will ultimately result in several indicators, modal shares, and a global satisfaction score. The results will be comparable terms to terms as the survey should globally be the same and will be concatenated in an Excel form. The outputs would be measurable by the number of responses we get from the survey.

Related UPPER tools:

None.

Steps to ready-to-demo measure

Steps	Description	Involved partners/exte rnals	City contact person	Category of action	Deadline	Monitoring indicator	Comments
1	Definition of classcial QoS criterium based on historical survey	IPR		Data	T2 2024	citizen priorities, citizen understanding	
2	Collection of existing QoS indicators and data from transport authority (already known) and from local operators (not yet available to collect)	IPR VGP IDFM		Social	T2 2024	Qualitative ser feedbacks & service gaps	
3	Survey on perception of QoS in VGP	IPR VGP IDFM		Social/Technical	T1 2024	New user survey if needed	
4	Base modal split survey on VGP	IPR VGP IDFM		Data	T1 2024	Qualitative data collection and preferences	
5	Focus group (serious game) with citizens group to analyse potential service gaps and unmet needs	IPR VGP Leuven		Data	T4 2023	Quantitative data collection and preferences	Done
6	Anlysis of the results	IPR		Techncial	T4 2024	Report	
7	New round in 2026 of the two surveys and analysis of the results	IPR VGP IDFM Operators (SNCF, local bus operators)			[T4 2024 – T4 2025]	Validation	