

SHARING MOBILITY SOLUTIONS IN REMOTE TOURISTIC AREA: CASE STUDY OF LITHUANIA

Rasa UŠPALYTĖ-VITKŪNIENĖ¹, Gintautas BUREIKA^{2#}, Marija BURINSKIENĖ³,
Vaida VABUOLYTĖ⁴, Viktor SKRICKIJ^{5*}

^{1,3,4}Research Institute of Territorial Planning, Vilnius Gediminas Technical University, Lithuania

^{2,5}Transport and Logistics Competence Centre, Vilnius Gediminas Technical University, Lithuania

Submitted 1 December 2021; resubmitted 19 February 2022; accepted 4 May 2022

Abstract. Sharing mobility solutions changes people's lives in cities; however, such services are not common in remote areas, where the most widespread transport mode is a privately owned car. The main challenge is that the existing transport system fails to meet the population's daily travel needs in such regions. Sharing mobility covers environmental issues, infrastructure development, digitalisation, integration of different transport modes, and people behaviour changes. This study analyses the possibility of expanding the existing urban mobility sharing system in remote tourist areas of Lithuania; for this purpose, a small resort in the central part of Lithuania – Birštonas was selected, and a survey of residents and tourists (visitors) was conducted. Using the survey results of residents and tourists, the needs for Car Sharing (CS) and micro-mobility services are determined. The attitude of municipality, residents, tourists, service providers towards micro mobility and vehicle sharing services is determined. Based on the achieved results, further steps of service development are proposed. The article's main aim is to evaluate the views of various stakeholders on the development of micro mobility and CS systems in remote areas and propose development solutions.

Keywords: car sharing, bike sharing, sharing economy, mobility, rural areas, survey, questionnaires.

Notations

B2B – business to business;
B2C – business to consumer;
C2C – consumer to consumer;
CS – car sharing;
ICT – information and communication technologies;
MMS – micro mobility sharing;
P2P – peer to peer;
SPA – health through water (in Latin: *Sanus Per Aquam*)

Introduction

The transportation system's structure and nature are changing; it will likely be transformed into a human-centric mobility system in the future. New sustainable solutions in different areas are needed to provide the transformation smoothly. The existing transport system is facing environmental issues, infrastructure development, congestion problems, automated driving, digitalisation, integration of different transport modes, and people behaviour

changes. Despite the significant financial investment needed to improve mobility, additional problems may appear for people who are not familiar with ICT. New services must be available for other specific target groups such as the elderly, disabled, foreign visitors, and others.

Most existing solutions and arising innovations have been developed to improve mobility in urban areas. Nevertheless, the most widespread transport mode in rural areas of Lithuania is a privately owned car. Commonly there is no local public transport, only intercity public transport with a shallow frequency, sometimes only a few trips a day in one direction is available, and railway connections are often missing. At present, the problem of population decline in rural areas has become apparent in Lithuania. With the decrease in the population in rural areas, mobility must be ensured inside the regions and connections with other country's administrative units. The new solutions may also increase the attractiveness of the regions for the residents and tourists.

Without considering privately owned vehicles and public transport, which is not always available. Three pos-

*Corresponding author. E-mail: viktor.skrickij@vilniustech.lt

#Editor of the TRANSPORT – the manuscript was handled by one of the Associate Editors, who made all decisions related to the manuscript (including the choice of referees and the ultimate decision on the revision and publishing).

sible solutions may be found, analysing the rural mobility landscape:

- »» the 1st one is flexible transport services; an example would be a bus on demand; service may increase the mobility of people who has no driving license;
- »» the 2nd solution would be ride-sharing services; such a solution is not suitable for employees whose working hours differ from the standard, for example, firefighters, medical staff;
- »» the 3rd is asset sharing, including CS and MMS solutions.

The solutions listed above can significantly improve existing transportation systems.

In the case study, the possibility of extension of urban sharing mobility solutions to remote touristic areas in Lithuania is investigated, focusing on small resorts, where residents and tourists significantly impact the transportation system. The stakeholders were identified during the investigation, and their attitude towards MMS and CS services was determined. The acceptance of various stakeholders on the development of sharing mobility in remote areas is presented, and development solutions are proposed.

In Section 1, a literature review is performed considering CS and MMS services. In Section 2, the mobility situation in Lithuania is presented, with a focus on the selected remote area. Existing CS solutions in Lithuania are also presented, survey methodology is presented, quantitative and qualitative survey parameters are determined. The links for survey questions are presented in this section as well. In Section 3, the survey results are presented, people acceptance of using CS and MMS are identified and analysed; also further discussions are provided. In last section conclusions are presented.

1. Literature review

Recent sharing economy and ICT innovations have expanded beyond traditional people mobility models. Solutions have created opportunities for new businesses such as CS globally (Novikova 2017). According to the research proposed by KPMG International (2012), the average vehicle is used only about 2...3 h/day. For some groups of people, CS became an alternative for a privately owned vehicle (Sopjani et al. 2020).

CS businesses are classified in two ways, 1st one by service they provide, 2nd by type of service provider and user (Tart et al. 2018). There are 3 main types of CS services available currently (Le Vine et al. 2014; Curtale et al. 2021a, 2021b):

- »» round trip – when a vehicle is taken from one point and needs to be left in the same place later. Such a model is similar to a car rental point. The solution may have both online and offline realisation scenarios. In this case, electric vehicles can be used as the demand for charging stations can be set easily. The main disadvantage is that if a person is not

using a vehicle, rent is paid, and other users cannot use the car;

- »» point-to-point or A–B models – when the car is taken from one point and left in another. Such a model solves the primary disadvantage round trip model; it is used only for a trip. After that, another person can use it. Model is often more expensive to run than round trip CS due to the need to rebalance the fleet after rentals. Also, electric cars can be used, as it is relatively easy to predict the needs of charging stations;
- »» the free-floating or one-way CS (Giordano et al. 2021) – when the vehicle can be left anywhere within a designated home area, the user can take the closest available car. Additional challenges may appear in this case for electric cars, as infrastructure for electric vehicles is not still sufficient in Baltic Sea Region, especially in remote areas. There is a noticeable transformation trend from the 2nd type of model to the 3rd one.

5 prominent business cases can be determined using the service provider and user classification:

- »» B2B;
- »» B2C;
- »» P2P;
- »» cooperative;
- »» not for profit (Clark et al. 2015; Münzel et al. 2018).

The most common is the B2C model when a company has its fleet and provides a service for the end user. B2B model is generally used to replace corporate fleets. Companies choose such a model, as they do not need to care for their cars. Businesses whose principal activity is not mobility or passenger transportation can use the cooperative business model. An example can be hotels in resorts, where CS service can attract additional tourist traffic and increase service levels for current guests. However, the service can attract additional traffic and increase attractiveness for the region in general. The P2P model allows car owners to convert their vehicles into shared cars that can be rented to other users on a short-term basis. According to Movmi (2018), the P2P model may be the way to expand CS into lower-density communities under investigation in our research.

CS are widespread in towns with more than 500000 inhabitants. Recommendations are that a minimal fleet for one company should be more than 50 vehicles (Mont et al. 2020). Currently, for cities with 500000 inhabitants, the fleet can grow up to 180 vehicles for 100000 people; in the future, this number may increase if the service's popularity grows. For cities with less than 100000 inhabitants, roundtrip and point-to-point CS have been adopted worldwide (Mont et al. 2020).

A few research works related to this topic have pointed out that CS in lower-density areas is likely to face more significant challenges than large cities, mainly because the lower demand makes a profit-oriented CS supply unviable (Perschl, Posch 2016; Rotaris, Danielis 2018; Haustein

2021). Improvement of the incentive for ride-sharing was analysed in Hsieh (2020). Seemann and Knoechel (2017) provide insights that CS can further grow in remote areas. In particular, municipal support, civil engagement and supra-regional subsidies play a crucial role in increasing the potential of this form of mobility in remote areas. Public engagement primarily comes from a distinctive desire for environmentally friendly and citizen-centred mobility services to close existing public transport gaps.

On the other hand, the development of CS in remote areas is also politically motivated. It offers cost-saving potential in public spending and improves the region's overall attractiveness and accessibility of remote areas. Illgen and Höck (2020) provided experiments that illustrated potential opportunities to overcome low-demand situations using simulation-based fleet operation analysis. Researchers stated that CS development in remote areas might be profitable considering certain factors. It was proved that the factors leading, unquestionably, to lower demand in remote areas could be compensated to a certain degree. However, transportation demand in remote areas remained a great unknown (Abenzoza *et al.* 2019), though it determined whether a minimal required vehicle utilisation level could be realised. Demand volumes could be taken from demand modelling approaches or transferred from other transportation modes, e.g., taxi trips (Brandstätter *et al.* 2017). The investigation performed by researchers in the Netherlands has shown that the CS service is highly dependent on the demographics and economic factors of the area, which makes this service effective only in exceptional remote regions (Curtale 2021a, 2021b). The eminent fear of CS further cannibalising the remaining public transportation services in remote areas must be analysed individually for each case (Stathopoulos, Sener 2017). However, public busses with only one or two passengers are more ecologically harmful and more expensive to run than individual trips in CS vehicles. This can be important for municipal financial support of various transportation modes, thus further increasing the attractiveness of CS (Seemann, Knoechel 2017).

MMS is an innovative transportation mode that enables users to have short-term access to a transport mode on a “when needed” basis (Mont *et al.* 2020). In recent years CS services have often extended their business model and included MMS solutions, and have rapidly gained popularity in the past few years worldwide (Mont *et al.* 2020). However, little is known about this transport mode. Research work Shaheen *et al.* (2020) shows ambiguous results on MMS systems' sustainability and desirability' current use. It is essential to understand the MMS role in the urban transportation future. Therefore, technology and investment are not enough to guarantee sustainable mobility, and conducting research is essential.

Based on the provided literature review, it can be seen that many researchers see the potential of CS in remote areas. However, in practice, companies do not offer services in such areas. Why this happens are analysed in Section 3.

2. Case study

2.1. Current mobility situation in Lithuania

The population in remote areas of Lithuania in different regions varies. In the most densely populated areas, 20.9% of the population lives in remote areas. At the same time, there are regions where up to 57.0% of the population lives in remote areas (Statistics Lithuania 2020). At the national level, it makes up one-third of the total population of Lithuania.

According to the EC (2019), one of Lithuania's challenges is that regional disparities are more significant than the European Union average and have widened for the past two decades. Predominantly remote regions, which cover most of the territory, are experiencing substantial population declines compounded by decreasing access to quality public services. Significant socioeconomic disparities show that certain regions have distinct investment needs. Increasing links between adjacent territories within Lithuania, including transport and digital connections, also remains a challenge. The primary investments in improving the transport system are allocated to large cities, while those living in remote areas often have to use personal vehicles for their daily travel (Burinskienė *et al.* 2020).

It is necessary to meet the conditions provided in the *Lithuanian Regional Policy White Paper for Harmonious and Sustainable Development 2017–2030* (MI RL 2017) to ensure the life quality for the Lithuanian population. The network of all essential public services needs to be accessible at the lowest price to every Lithuanian resident. The target is to reach the attraction objects such as libraries and public internet access points, pre-school education, primary education, and essential primary health care services in less than 30 min by public transport or foot. Good accessibility to public transport stops must be ensured. According to the current regulations, a public transport stop must be placed at a distance of up to 1 km in urban areas. In Figure 1, the current mobility situation is presented. It can be seen that there are many areas where the situation is unsatisfactory.

2.2. Case of Birštonas

At the initial phase, it would be rational to test the sharing mobility in remote areas, with additional people flows, it could be touristic areas. As a result, a remote area in the central part of Lithuania was selected where a small SPA town Birštonas is located. The distance from the selected area to the capital Vilnius is about 100 km, and 46 km to the second biggest city Kaunas. The territory of Birštonas municipality is located in the eastern part of the regional park Nemunas Loops. Birštonas is oriented on tourism services and is the regional significance centre. Many tourists visit Birštonas every year, while the population of Birštonas is about 2331 inhabitants. Tourism amount directly depends on seasonality, with the peaks on Easter, Christmas, New Year and other holiday celebrations.

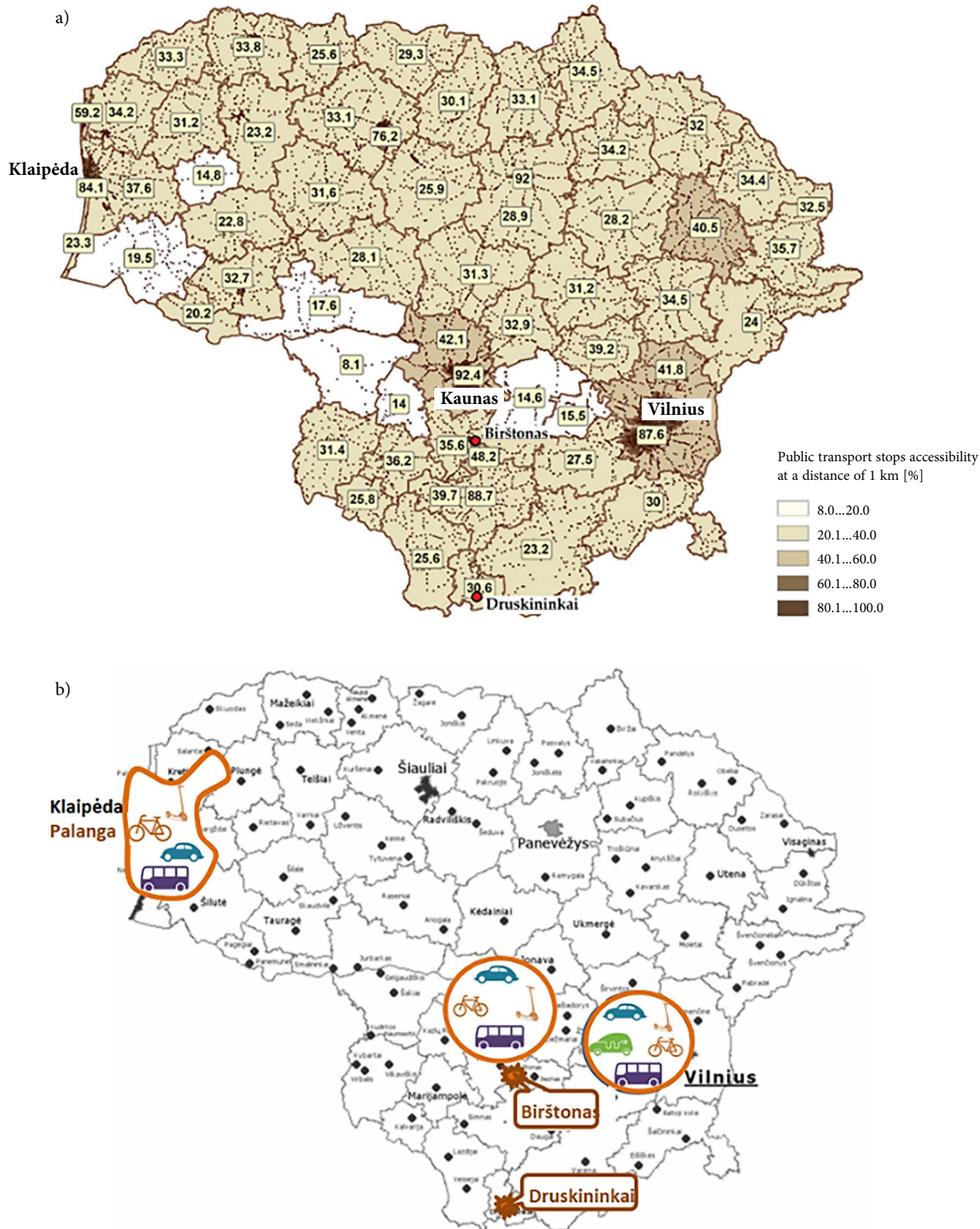


Figure 1. Current mobility situation in Lithuania: a – accessibility of Lithuanian public transport stops at a distance up to 1 km (LR AM 2016); b – sharing transport services availability in different areas (MARA 2019)

There are some challenges related to the mobility and accessibility of the Birštonas region. Many arrived guests/tourists with private cars and quite intensive traffic and the town form an unattractive image of the resort, increases noise and air pollutions and defaces the background of nature/ surroundings of the resort town.

Passenger mobility functions in Birštonas and related territories are performed by non-motorised (walking and cycling) and road (private cars and intercity public transport) transport. The attractiveness of mobility mode depends on the distance travelled during the journey. When the distance travelled is less than 3 km, bicycles become a more attractive alternative to cars. Walking trips are usually chosen when the trip's length does not exceed 1 km. The modal split in Birštonas is presented in Figure 2. Based on complex studies of traffic intensity performed during the development of sustainable urban mobility plans (BSA 2017), the number of trips between different modes of transport has been defined.

In Birštonas resort, about 47.5% of the residents use privately owned cars for daily trips, 34.6% make daily trips by foot, 15.4% by public transport, and 2.5% by bicycle. Such modal split is determined by the relatively small area of the resort and the short distances between the residents' daily travel destinations. Most of the residents make 2...4 trips per day with a distance of up to 5 km (BSA 2017). This facilitates the development and promotion of non-motorised transport (cycling, e-scooter and walking).

It is essential to mention that there is no local public transport, which would serve only the territory of Birštonas. Birštonas municipality serves only intercity public transport buses, ensuring communication with Prienai (Kaunas), Vilnius, and other Lithuania areas. On average, 28 buses depart from Birštonas to Kaunas city, 9 – to Vilnius and 4 – to Marijampolė every day.

2.3. Sharing services in Lithuania

Currently, there are two CS companies in Lithuania. The 1st one, the company, was established in 2012. In 2019 the fleet consisted of 810 cars and 50 light freight vehicles. Also, the company develops business in the field of micro-mobility. Currently, it is bicycles and electric scooters. The company's cars are available in the most prominent Lithuanian cities: Vilnius, Kaunas, Klaipėda, and Palanga (Figure 1b). The company uses a free-floating business model; users can travel between cities with cars and light cargo vehicles. International journeys are also available; for example, it is also possible to travel to Riga (Latvia) or Tallinn (Estonia), as the company has representative offices there. The majority of service users are men; the number of women among service users is less than 25%. The driver's average age is 28 years, with the majority between 20 and 34 years old. The typical duration of the journey is less than one hour; they make up 92.3% of all the trips. The length of 75% of the journeys is 5...15 km (Stauskis *et al.* 2017).

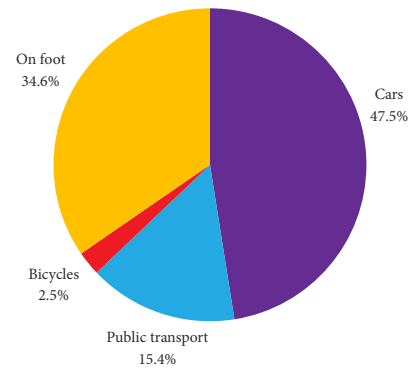


Figure 2. The modal split in Birštonas (LR AM 2016)

The 2nd company operating in Lithuania was established in 2016 with a free-floating business model. Compared to the 1st one, the main difference is that all fleet consists of electric vehicles. However, performing with some limitations. Service is available only in Vilnius, the most prominent Lithuanian city. The company is not working in other areas, as the charging station infrastructure is insufficient. There are 136 charging stations in Vilnius, where the company's cars can be charged.

2.4. Research methodology

This section provides information about a survey performed to investigate people's acceptance of CS and MMS services in the Birštonas. During the initial stage, stakeholders were identified, they are:

- »» residents living in the region;
- »» national tourists (non-residents);
- »» international tourists (non-residents);
- »» local authorities as decision-makers;
- »» regional CS, MMS service providers.

Before preparing surveys, initial meetings with stakeholders were initiated. They were asked to explain what attributes do they think a "good" transportation mode have? Residents were asked about the existing mobility system. What is their opinion about CS platforms (explain what it is if they do not know)? Would they agree/disagree with a new CS platform for tourists to visit this location (and why)? These interviews provide an initial understanding of the current situation based on these face-to-face meetings; results were used to prepare the questionnaires.

The authors developed two questionnaires for resort residents and tourists coming to Birštonas. The inclusion of residents and tourist groups is important because their needs are very different, but the impact on transport systems in resorts is significant. The surveys were prepared and distributed in Lithuanian language for residents and national tourists; English, Russian and Polish languages were selected for questionnaires for foreign tourists. Residents filled out questionnaires online. The majority of the tourists/guests filled out printed versions of the survey, distributed in sanatoriums, hotels, and spas with the local administration's assistance.

The initial part of the questionnaires consisted of socio-demographic variables, i.e. gender, occupation, age, residence. In addition, tourists were asked how they came to the country/resort. Furthermore, how many of them came together, the purpose of visit and the length of their stay. In the 2nd part of the survey, respondents were asked about their mobility habits and how they rate resorts' accessibility. If they had ever heard of a CS and MMS before, if they had ever used it, how they rate it, and whether they would be willing to use it if such service operated at the resort.

The main surveys data is presented in Section 3, and the questionnaires are available online:

»» <https://bit.ly/3fCCPNj> – for residents (in Lithuanian);

»» <https://bit.ly/3DJrPFB> – for tourists (in English).

The critical question was to determine a sample of respondents to ensure the reliability of the results. In general case number of participants can be calculated using the formula (CRS 2021):

$$ss = \frac{Z^2 \cdot p \cdot (1 - p)}{c^2}, \quad (1)$$

where: $Z = 1.96$ for 95% confidence level; p – percentage picking a choice, expressed as decimal; c – confidence interval, expressed as decimal.

As the population is always finite, Equation (1) can be rewritten as follows (CRS 2021):

$$SS = \frac{ss}{1 + \frac{ss - 1}{population}}. \quad (2)$$

In order to calculate and compile a representative sample of the population, it is necessary to take into account the total population and their percentage distribution by demographic characteristics, in the general case: gender (men, women) and age groups (up to 18 years old, 18...25, 26...45, 46...65, and >65). For this study, the target population was 18 years and older. According to the data of 2020, Birštonas had a total population of 2331 citizens, of which 83.1% were older than 18 years. It is challenging to determine a representative sample of tourists, as their number in the city is constantly changing. However, according to statistics, the number of tourists is an additional one-3rd of the population. To conduct a representative survey in Birštonas (using Equations (1) and (2)), with a reliability of 95% and 7% error, the number of respondents must be 178 or higher.

A survey of residents and tourists to identify mobility needs in Birštonas resort and accessibility of CS, MMS was conducted during the winter period of 2019–2020 and the spring and summer of 2020. Totally 248 respondents were interviewed in Birštonas. Only fully completed questionnaires of respondents aged 18 and over were examined; the final number was 214. It is important to note that reaching a larger sample of foreign tourist responses was limited by the pandemic situation of COVID-19. Due to travel restrictions and closed borders, foreign tourists could not enter the resorts appropriately. Moreover, even with the

opening of the borders later, the continuing uncertainty and partly closed services have led people to avoid unnecessary trips, such as leisure or recreational purposes. As a result, the authors collected fewer responses than was planned, but it is still enough to conduct a representative survey.

3. Results and discussion

The results of the tourist's survey by age groups showed a significant difference between 26...45 and 46...65 years old groups willingness to use sharing mobility system. The younger respondents' group is more willing to use any type of sharing mobility system than the older one. The differences range between ~1.6...3 times. Both age groups are mainly willing to use the bike-sharing system in the resort. When analysing the survey by gender, the results were similar. The total distribution results by age and gender are provided in Figures 3 and 4. 18...25 years old and over 65 years old age groups survey results should not be taken into account because of the low number of respondents in these groups. The considered resort is most popular among the 26...65 years old age group of tourists.

The results of the residents' survey by age groups showed that the significant differences are between the 18...45 years old group and equal or over 46 years old age group. Same as the tourists' survey results, the younger respondents' group is more willing to use any sharing mobility system compared to the older group. Almost all age groups are mainly willing to use either bike or scooter-sharing system of all modes for their travel in the resort. When analysing the survey by gender, the results were similar independently from it. Even though the differences are minor, males are slightly more willing to use CS than females, while women are slightly more open to using scooters and bike-sharing modes than men. The total distribution results by age and gender are provided in Figures 5 and 6.

One of the survey's main objectives was to identify mobility needs in resorts regarding new transportation modes implementation. The CS system acceptance is presented in Figure 7 below due to surveys of tourists and residents without distribution to men and women. They represent the respondents willing to use a CS system if it appears at the chosen resorts.

By comparing the interest of tourists and residents, it can be seen that tourists are more open and would be more inclined to use the sharing platform in the resort. The least needed type of sharing system, according to resort residents, is CS. About 20% of the respondents in both resorts expressed interest in this mode of transport. Among tourists, this number is higher and reaches 32% (Figure 7).

The resort is more convenient for short distances to cover foot trips or MMS. According to the survey, mobility needs suggest that resorts should make priorities bicycles and low-power electric vehicles. The car becomes essential when it comes to reaching places outside the town.

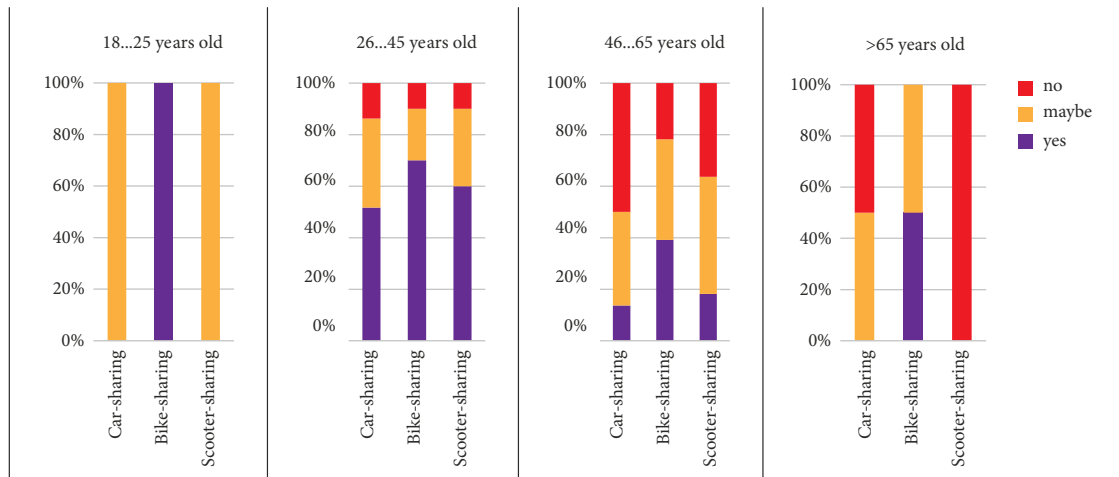


Figure 3. Distribution of tourists answers whether they would use a vehicle-sharing system at the resort by the type of transport mode and by age group

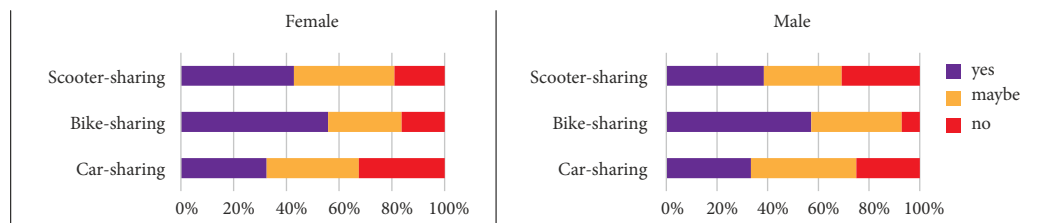


Figure 4. Distribution of tourists answers whether they would use a sharing system at the resort by the type of transport mode and by gender

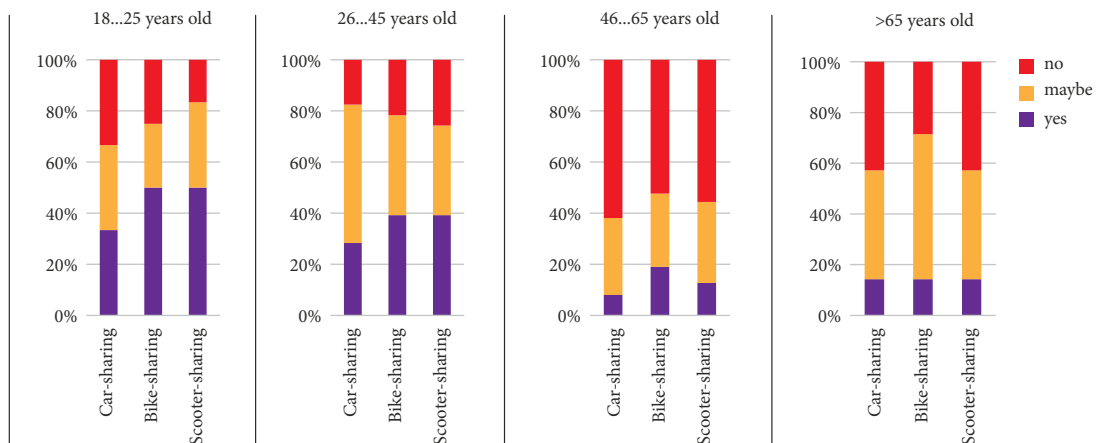


Figure 5. Distribution of residents answers whether they would use the sharing mobility system if it appeared next month by the type of transport mode and by age group

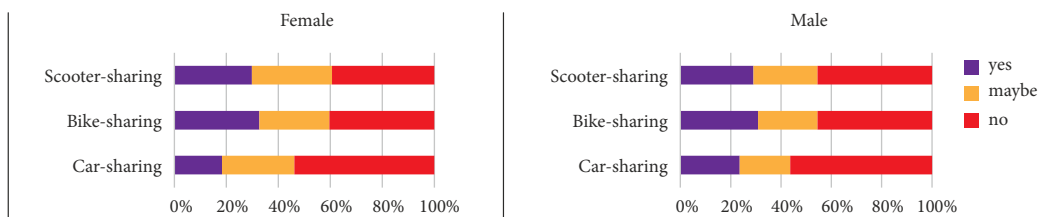


Figure 6. Distribution of residents answers whether they would use the vehicle sharing system if it appeared next month and by the type of transport mode and by gender

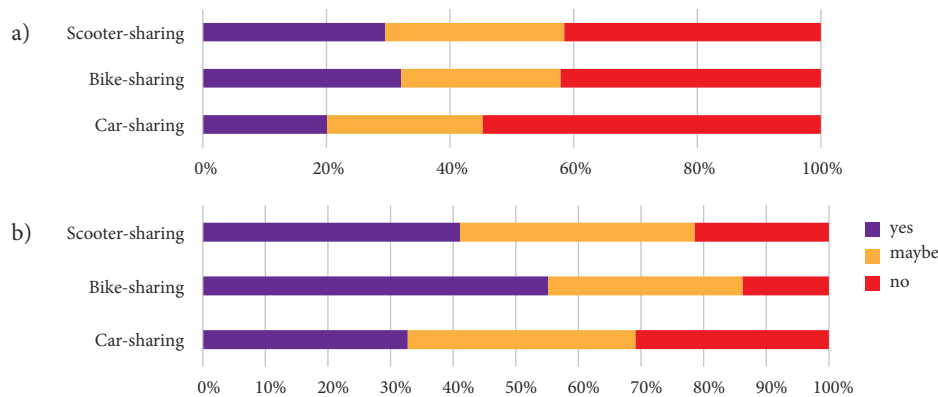


Figure 7. Distribution of respondents' answers to the question on whether they would use the CS system if it appeared next month at the resort, by type of sharing mode, 2019–2020: a – residents of Birštonas; b – tourists of Birštonas

A CS system could improve the resort's accessibility to guests while also serving locals. Compared to the residents, tourists prefer a sharing mobility system, regardless of the mode of transport. However, such a system could benefit those locals who are unable and unwilling to operate their car or use it infrequently.

Several tendentious answers can be distinguished by analysing the textual explanations of why the respondents chose one or another answer about using the sharing system. Most respondents understand and accept CS as a system that works within the city. Therefore, from the residents' perspective, a negative attitude towards it is being formed as a potential load on the town streets and parking lots and growing pollution in the resort. Others view the system positively as a possible service for tourists, as well as the possibility of easier access to Kaunas, Vilnius, the airport, and the possibility to give up a 2nd car, which is often much less used, thus saving money on repairs, insurance, and other costs.

The survey results were presented to the local authority, CS and MMS service providers, and further discussions were performed.

The local authority is ready to provide parking slots for CS vehicles. However, without charging stations, there are none to this day. As a result, only conventional vehicles can be used.

Business representatives confirmed that CS vehicles could be used to drive to Birštonas from Vilnius, Kaunas and all other towns where service is provided. However, the user will need to pay for all the time he spends in the resort, and another user cannot use the vehicle. CS service provider performed an initial investigation in different Lithuania towns. It was found that currently, service is profitable in Lithuanian cities with a population of about 150000; in a town where the population is 100000 business model did not prove (Stauskis *et al.* 2017). It should be mentioned that the population is not the only driver that impacts the result, but the standard of living; the average age and service acceptance will impact.

During discussions with service providers, a few possible solutions for attracting business companies to the remote areas were identified. The 1st is to subsidise this

transport mode, as it is done for Lithuania's public transport and railway transport. If local authorities can offer such a contract, a business may come to the region. The 2nd opportunity is to define an additional fee for the service user; however, additional investigation is needed to define the exact value. Service users could leave the vehicle in a resort, and the company decides what to do next, to leave a vehicle there, or bring it back to a bigger city. The main risk will be leaving the resort; possibly, no vehicle will be available. The 3rd opportunity companies provide access to their platform for C2C service is when people or small renting companies can share their vehicles using the well-known platform. However, the CS company is not ready for this; there is a fear of possible reputational risks. There is no clear vision of checking the offered cars, their cleanliness, technical condition, etc. At the same time, the Lithuanian service providers are ready to share the platform for MMS, as in Birštonas, there are many conventional renting spaces where bicycles and e-scooters can be rented. The platform solutions currently may increase the attractiveness of such a service in the resort.

In summary, sharing systems can change the mobility landscape of the population and would be attractive for the residents and tourists in remote areas. MMS systems would improve local connectivity by increasing accessibility to all attraction points and health recreation services located in the area. A CS system in remote regions would improve residents' connectivity with other cities, eliminate the need for their own car (or at least a 2nd car in the family). As well, it will improve the accessibility of the resort for the tourists. Upon arrival in the country by plane or train, foreign guests could more easily reach the resorts from the airports and railway stations in big cities. It would be easier for tourists to visit the attraction point places (to do sightseeing).

People acceptance of CS and MMS in a remote area of Lithuania was identified. A mathematical model of service demand estimation as a function of acceptance level, service level, and price will be presented in future research considering different transport modes. Such a solution can be used to analyse and select the best tools to achieve the objectives set in (BSA 2017).

Conclusions

The literature review with a focus on sharing mobility companies, taking into account the experience of foreign countries and companies working in Lithuania, has been performed. It was found that the development of CS and MMS in remote areas requires additional actions and measures to meet the needs of residents and incoming visitors, as it is realised in major Lithuanian cities.

The survey was used to perform a case study, as this data collection method is widely used in both scientific and applied social research. The development of survey methodology relied on critical interrelated elements: initial data collection through face-to-face interviews; a questionnaire preparation covering subjective and objective questions; the number of respondents, which allowed survey results to be applied for large populations with the reliability of 95% and 7% error. The study identified stakeholders in the deployment of CS and MMS services in a selected remote area:

- »» residents of the region;
- »» tourists (non-residents);
- »» international tourists (non-residents);
- »» local authorities as decision-makers;
- »» regional CS, MMS service providers.

The survey was conducted to determine if people favour sharing mobility services. The survey results show that men are slightly more likely to use CS than women; 24% of men and 19% of women would use the service. The women are slightly more open to using MMS than men.

Tourists are more open and more inclined to use the sharing platform at the resort than residents. According to the resort residents, the least needed type of sharing system is CS. About 20% of resorts were interested in this mode of transport. Among tourists, this number is higher and reaches about 32%.

The resort is more convenient for short-distance hiking or MMS. According to the survey, bicycle-sharing should be a priority. At the same time, a car becomes necessary to reach places outside the city, i.e. international airports and railway stations in Vilnius and Kaunas. The CS system could improve the resort's accessibility to guests from abroad and serve locals who want to reach critical international destinations. The survey results showed in which direction it is expedient to develop the communication system of the resort (Birštonas) and the priority tasks that need to be addressed for the development to be successful.

Funding

This research was funded by the project *Mobility and Accessibility in Rural Areas (MARA)* – European Project Funded by the INTERREG Baltic Sea Region programme.

Author contributions

Conceptualisation and methodology: *Rasa Ušpalytė-Vitkūnienė, Gintautas Bureika, Marija Burinskienė and Viktor Skrickij.*

Data collection: *Vaida Vabuolytė, Marija Burinskienė and Rasa Ušpalytė-Vitkūnienė.*

Investigation: *all authors;*

Writing (original draft and editing): *all authors.*

All authors have read and agreed to the published version of the manuscript.

Disclosure statement

The authors declare no conflicts of interest.

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