The FALA system
Integrated ticket
for the
Pomeranian Voivodeship

A marketing analysis

fala

POMORSKI BILET

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Contracting authority:

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Contract :ELENA-2017-084
Task No. 3
Plan for public marketing including proposed designs, activities to source information from passengers, inhabitants

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1. Introduction

The marketing analysis was based on current data and information obtained from the passengers of public transport in cities located in the Pomeranian Voivodeship. 20 meetings with residents were completed as part of the works on present report; contracted party conducted 1002 surveys with the residents of the Pomeranian Voivodeship and with people from outside of the voivodeship - participants of the meetings. Abovementioned methods should be considered the main source of information about the transport preferences of passengers. Another adopted method was a desk research analysis.

Conducted analysis led to the conclusion of a decreasing tendency observed in the area of the Pomeranian Voivodeship in terms of the use of public transport, compared to the use of cars. Therefore, the challenge for local self-governments is to meet the increasing needs of passengers and to implement solutions encouraging them to use public transport by ensuring convenient and efficient means of communication.

An example of the answer to the needs related to transport is the sustainable public transport system set to be implemented by 2030 in the Pomeranian Voivodeship. The objective of the system is, among others, adjusting the quantity and quality of services to the preferences and expectations of passengers, obtaining adequate economic and financial efficiency and limiting the negative impact of transport on the natural environment[1].

The Pomeranian Voivodeship implements one of the most modern travel systems in Europe. The Integrated Mobility Services Platform (Platforma Zintegrowanych Usług Mobilności, PZUM) is aimed at facilitating the use of public transport in the voiovodeship. The main objective of the project is to develop a public system that will allow passegers to travel by various public transport vehicles and rail without having to buy traditional single tickets. This

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[1] K. Jamroz, K. Birr, Plan zrównoważonego rozwoju publicznego transportu zbiorowego dla województwa pomorskiego, Opracowanie przy współpracy z Departamentem Infrastruktury Urzędu Marszałkowskiego, Gdańsk 2014.

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system ensures modern solutions in the possibilities to pay for the use of public transport. The innovativeness of the introduced solution is based on the integration of organisers and operators of the public transport in a large area. Moreover, due to the prepared IT platform, it will be possible to optimise travel costs without passenger interference.

2. Objectives of the study

The main objective of the project was to obtain information on the frequency of using public transport and preferences of passengers from the Pomeranian Voivodeship. Passengers and potential passengers of public transport constituted the main source of information on the basis of which present marketing analysis was prepared for the purposes of developing a set of products constituting elements of PZUM. Given the results of two conducted research methods it was possible to determine the trends and expectations of the inhabitants of the Pomeranian Voivodeship participating in the PAPI survey.

Another objective of present marketing analysis was to provide residents of the Pomeranian Voivodeship (predominantly larger cities) and Elbląg with information on methods of the sustainable public transport and the impact of travelling by car on the environment.

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3. Objective scope of the research

The main objective was achieved due to a direct access to residents, local self-government officials and social activists in cities directly or indirectly located on the main routes of the railway in the Pomeranian Voivodeship.

Organisation of 20 educational and information meetings in the voivodeship in a considerable manner impacted the achievement of the objective. During the meetings it was possible to obtain information on the use of public transport and the needs of residents in this area. Furthermore, a crucial aspect of each meeting was related to the opportunity to provide participants with information on the planned activity, that is the implementation of the project in modern forms of transport[2]. The first outdoor meeting was held in Kartuzy on 22.09.2019 during the Harvest Festival of the Pomeranian Voivodeship. The implementation of the final, 20th educational meeting took place on 2.12.2019 in the City Hall in Reda. The table below presents locations where information meetings were held:

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[2] Ibidem.

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Table 1 Meetings organised as part of the project

City	Date	Address
Kartuzy	22.09.2019	Dożynki Województwa Pomorskiego w parku Solidarności
Słupsk	28.09.2019	Targi Ogrodniczo-Pszczelarskie w Słupsku Jesień 2019, ul. Poniatowskiego 4 A
Gdynia	01.10.2019	Pomorski Park Naukowo Technologiczny, aleja Zwycięstwa 96/98
Pruszcz Gdański	03.10.2019	Centrum Kultury i Sportu w Pruszczu Gdańskim, ul. Chopina 34
Sopot	06.10.2019	Piknik Rodzinny - Wielkie Sąsiedzkie Grillowanie w Sopocie, Stadion Leśny, ul. Gen. Józefa Wybickiego 18/50
Nowy Dwór Gdański	07.10.2019	Żuławski Park Historyczny; ul. Mikołaja Kopernika 17
Starogard Gdański	15.10.2019	Osiedlowy Dom Kultury w Starogardzie Gdańskim, ul. Reymonta 1
Malbork	17.10.2019	Malborskie Centrum Kultury i Edukacji "Szpital Jerozolimski", aleja Armii Krajowej 68
Gdańsk	20.10.2019	Targi mieszkaniowe Nowy dom Nowe mieszkanie, AmberExpo, Hala A - ul. Żaglowa 11
Kościerzyna	23.10.2019	Kościerski Dom Kultury im. Józefa Wybickiego – kino REMUS, ul. 3 maja 9
Tczew	25.10.2019	Centrum Kultury i Sztuki w Tczewie, ul. Kard. Stefana Wyszyńskiego 10
Sztum	28.10.2019	Sztumskie Centrum Kultury, ul. Reja 13

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City	Date	Address
Lębork	30.10.2019	Inkubator Przedsiębiorczości, ul. Krzywoustego 1
Puck	07.11.2019	Centrum Organizacji Pozarządowych, Stary Rynek 2
Wejherowo	13.11.2019	Wejherowskie Centrum Kultury - Filharmonia Kaszubska, ul. Jana III Sobieskiego 255
Człuchów	18.11.2019	Miejski Dom Kultury, ul. Szkolna 3
Chojnice	18.11.2019	Centrum Edukacyjno-Wdrożeniowe, ul. Piłsudskiego 30a
Bytów	27.11.2019	Muzeum Zachodniokaszubskie w Bytowie, ul. Zamkowa 2
Elbląg	28.11.2019	Centrum Sztuki Galeria EL, ul. Kuśnierska 6
Reda	02.12.2019	Urząd Miasta Redy, ul. Gdańska 33

Source: Own research.

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4. Subjective scope of the research

Participants of the study consisted of residents of the Pomeranian Voivodeship – Elbląg (partner city) and of non-residents participating in 20 educational meetings implemented as part of the project.

People constituting the age groups from 8 to 80 years old were covered by conducted study - such a considerable scope made it possible to obtain information from people with diverse preferences concerning public transportation, including:

> people using cars - as potential users of public transport

> people regularly commuting by public transport

> children and young people using public transport when commuting to schools regularly, on specific routes

> people traveling by public transport occasionally, on various routes

> the elderly, retired people who use public transport

> people with different degrees and types of disabilities, using public transport when needed

Source: Annex 8 to the Terms of Reference, Description of the Object of the Contract, p. 3.

One of the most significant groups of respondents were children and young people. Their future preferences in the scope of public transport will have a significant impact on decisions and trends in the future. Young people are also able to influence the lifestyle of their parents, legal guardians and teachers by informing them about the possibilities of using sustainable transport. Understanding their habits, motivations and expectations was a

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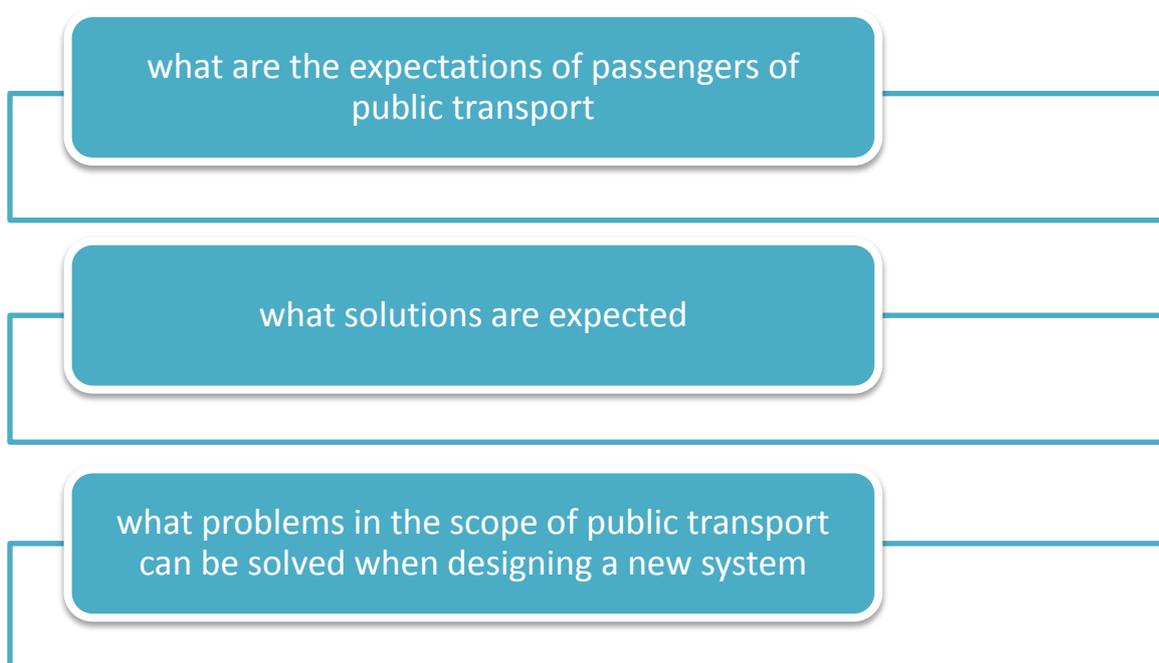
particularly significant factor to predict the potential success of the system implemented by InnoBaltica. Therefore, a separate questionnaire was developed for the purposes of the study, addressed to children and young people aged 8 to 15 years.

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5. Research methods

The marketing analysis constituted of two separate quantitative and qualitative research methods - PAPI survey and desk research analysis. Information and data obtained as the result of the implementation of abovementioned research methods was used to prepare present marketing analysis. Adapted methods made it possible to thoroughly analyse gathered data in terms of prepared research questions:

what are the expectations of passengers of public transport

what solutions are expected

what problems in the scope of public transport can be solved when designing a new system

6. Transport market

6.1. Trends on the transport market

In the Pomeranian Voivodeship car constitutes the most frequently used means of transport, with its usage being more considerable than the use of public transport. Almost ¾ of Pomeranian commuters prefers such means of transport.

**Figure 1. The most frequently used means of transport**
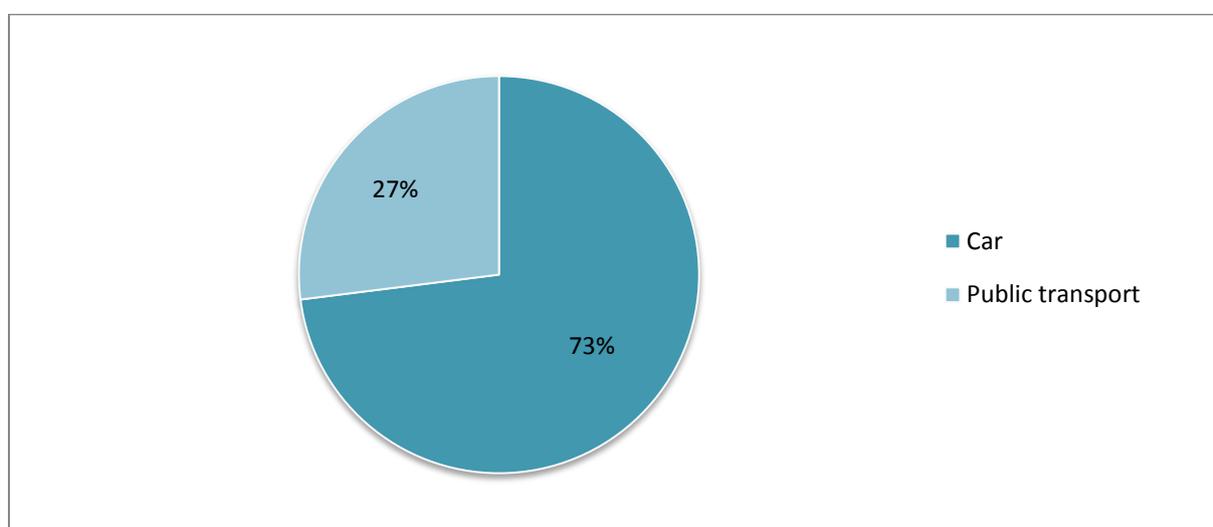
Source: Own research based on: Plan for the sustainable development of public transport for the Pomeranian Voivodeship, March 2014, developed in consortium of Fundacja Rozwoju Inżynierii Lądowej (foundation for the development of civil engineering) and the Gdansk University of Technology

Abovementioned trend is reflected in data of Statistics Poland (*GUS*). An increase in the number of passenger cars has been observed each year from the beginning of the 90's. Changes in this scope are characterised by a steady upward trend, i.e. an increase in the value of the analysed indicator has been observed in each subsequent year. These changes (year over year) are of a similar nature (in terms of the increase by a similar nominal value), therefore, a slowdown in this respect was not observed.

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Taking into consideration above conclusion, a further increase in the number of passenger cars per 1000 persons should be forecasted (assuming the lack of significant events that could negatively affect the situation).

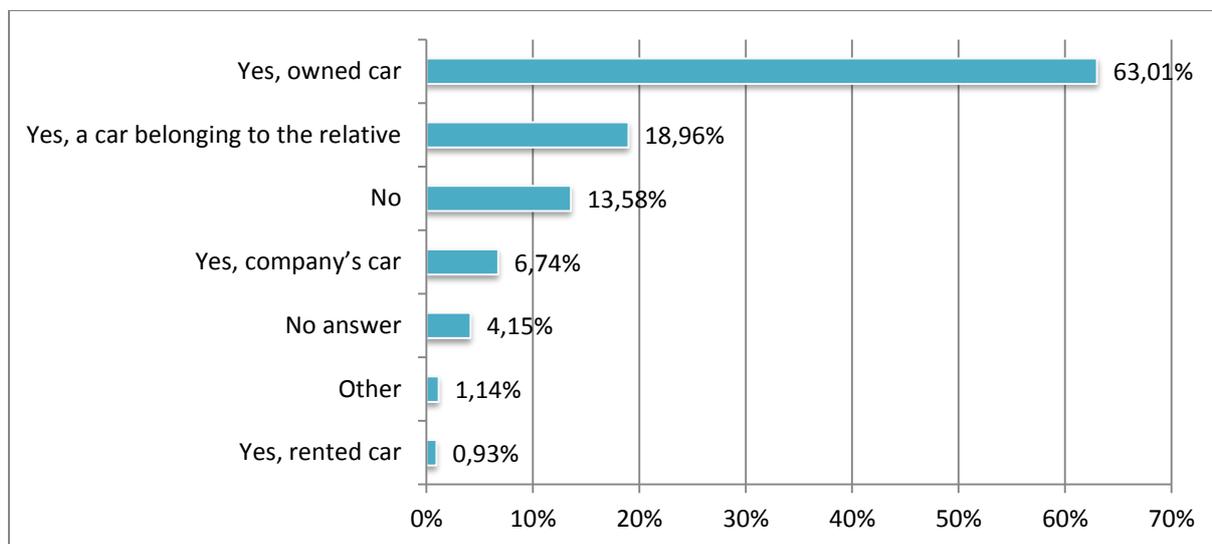**Figure 2. Passenger cars owned per 1000 people**
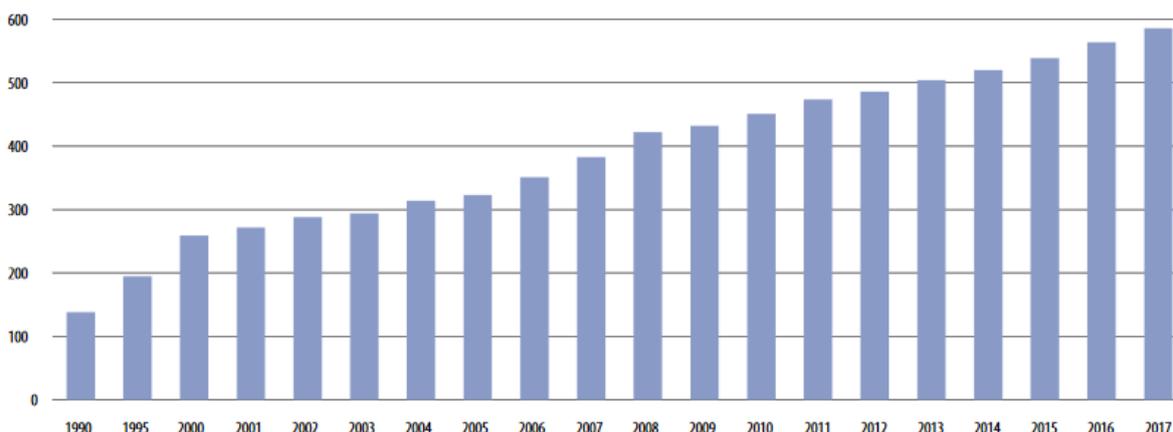
Source: Transport wyniki działalności w 2017 r., Statistics Poland.

Such trend can also be observed in the Pomeranian Voivodeship. The majority of its inhabitants (participating in the survey) travels by car. 63% of the surveyed owns a car, 19% travels by car owned by a relative and nearly 7% has the access to the company's car. Attention shall be drawn to the fact that less than 1% of participants of the survey rents a car, therefore merely 13% od respondents does not have the possibility to travel by car.

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Figure 3. Do you have the possibility to travel by car?

Yes, owned car — 63,01%
Yes, a car belonging to the relative — 18,96%
No — 13,58%
Yes, company's car — 6,74%
No answer — 4,15%
Other — 1,14%
Yes, rented car — 0,93%

Source: Own research based on conducted studies.

Similar results were observed within the survey conducted among children. ¾ surveyed respondents constituting the youngest group stated that their parents owned a car.

Figure 4. Do your parents have a car?

Yes — 75,68%
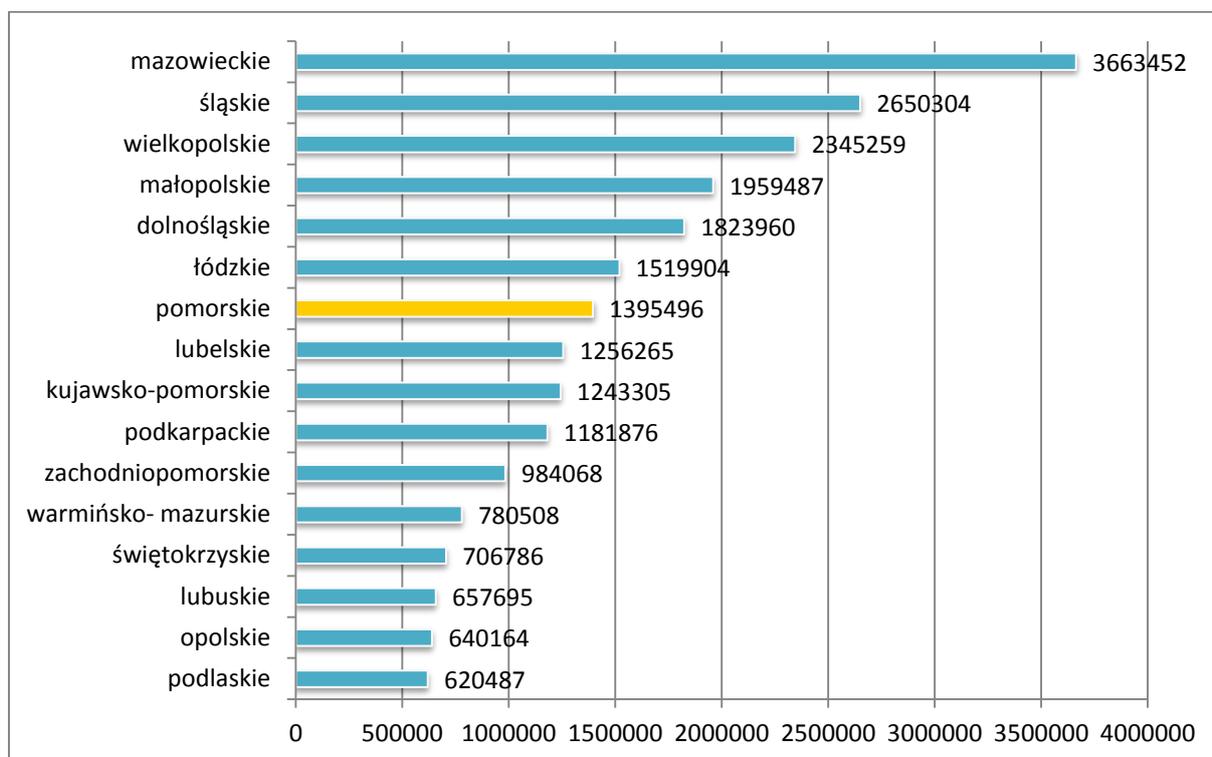No — 18,92%
No answer — 5,41%
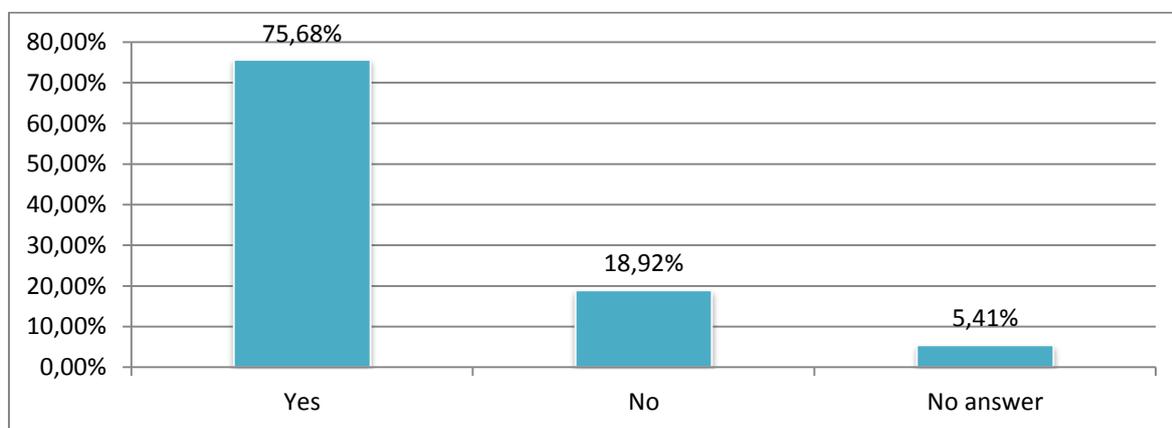
Source: Own research based on conducted studies.

Moreover, it should be stated that Pomeranian Voivodeship constitutes the seventh region in Poland in terms of the number of passenger cars.

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Figure 5. Number of passenger cars in individual voivodeships

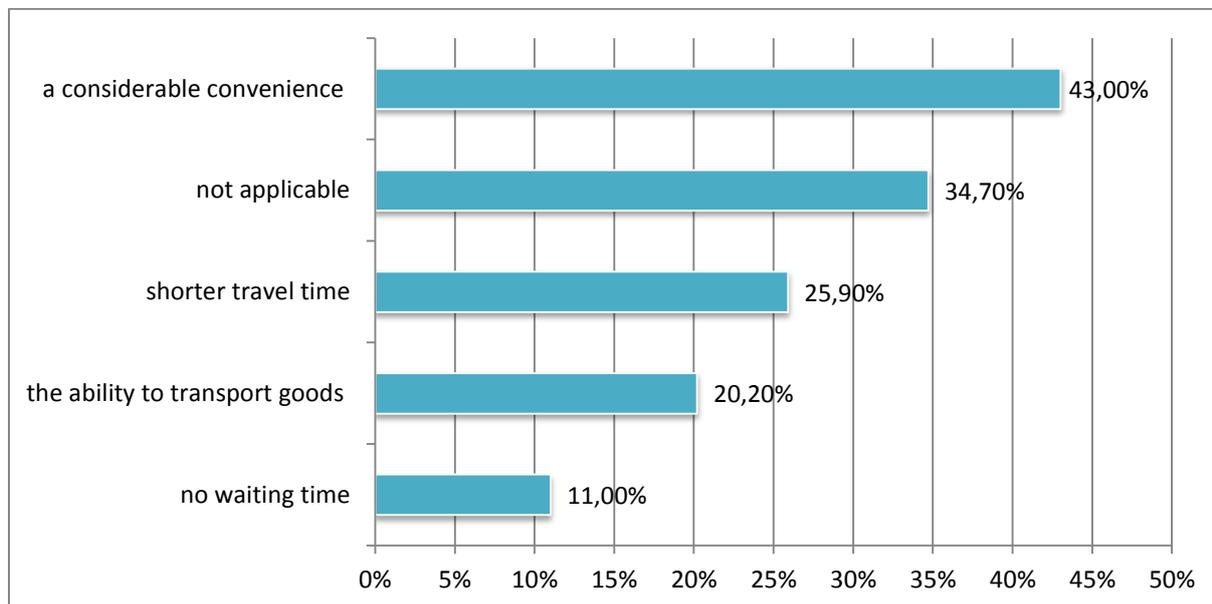| Voivodeship	Number
mazowieckie	3663452
śląskie	2650304
wielkopolskie	2345259
małopolskie	1959487
dolnośląskie	1823960
łódzkie	1519904
pomorskie	1395496
lubelskie	1256265
kujawsko-pomorskie	1243305
podkarpackie	1181876
zachodniopomorskie	984068
warmińsko- mazurskie	780508
świętokrzyskie	706786
lubuskie	657695
opolskie	640164
podlaskie	620487

Source: Own research based on data of Central Vehicle Register.

Such a situation results from the increasing affluence of society and from the increasing availability of this mode of transport, at the same time serving as the symbol of a social status and an expression of individual independence (this situation results, among others, from experiences related to the past times, when a car was a specific type of luxury goods, strongly correlated with the wealth). Owning a car has also more practical conditions - observing Gdańsk it can be concluded that reasons for owning a car vary. The analysis led to the conclusion that the main reasons in this scope are a considerable convenience (40.3%), shorter travel time (25.8%), the ability to transport goods (20.2%), no waiting time (11%). However, it should be noted that approximately 35% of residents of Gdańsk do not travel by car.

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Figure 6. Reasons behind choosing a passenger car in everyday city travels
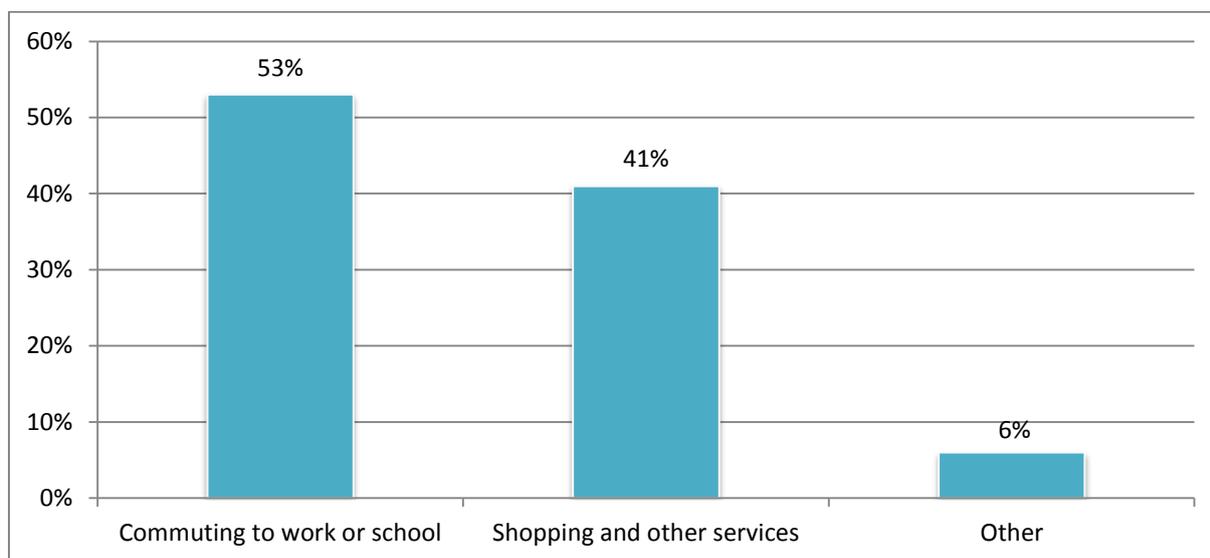

Source: Own research based on: Gdańskie Badania Ruchu 2016.

The most considerable challenge relates to answering the increasing requirements of passengers and to convince them to use public transport by ensuring convenient and efficient means of transportation. In the case of the Pomeranian Voivodeship, half of the population travels between poviats in order to go to work or school. For 41% of passengers shopping is the main cause of the travel. It could be concluded that the needs of the inhabitants of the region concerning transportation are mainly of an obligatory nature, being conditioned by the need for daily travels, directed to the same destinations and in a specific time range. Shopping and other services can be classified as relatively obligatory needs that are not characterized by such restrictions and occur in a more irregular manner. Other reasons defined as incidental and optional are associated with running errands or with leisure, tourism, entertainment and others.[3]

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[3] M. Mądziel, *Potrzeby transportowe w odniesieniu do komunikacji miejskiej, Rzeszów 2016*

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Figure 7. Cele podróżowania komunikacją publiczną w województwie pomorskim


Source: Own research based on: Plan for the sustainable development of public transport for the Pomeranian Voivodeship, March 2014, developed in consortium of Fundacja Rozwoju Inżynierii Lądowej (foundation for the development of civil engineering) and the Gdansk University of Technology.

Taking into consideration answers of surveyed respondents it should be noted that the main reasons for using public transport are entertainment (41.66%) and shopping (40.41%). Nearly 36% percent of the participants of the survey commute to work by public transport and 10.47% travel to school and study. Over 18% of answers related to other reasons, such as medical appointments, family matters, errands to run or the inability to use the car. The above data indicate that public transport is more often used by travellers as a means of carrying out activities related to daily duties in work or education, which constituted approximately 46% of answers of respondent - it should be assumed that more than half of participants of the study use the car for this activity.

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Figure 8. What is your the most common purpose of the use of public transport?
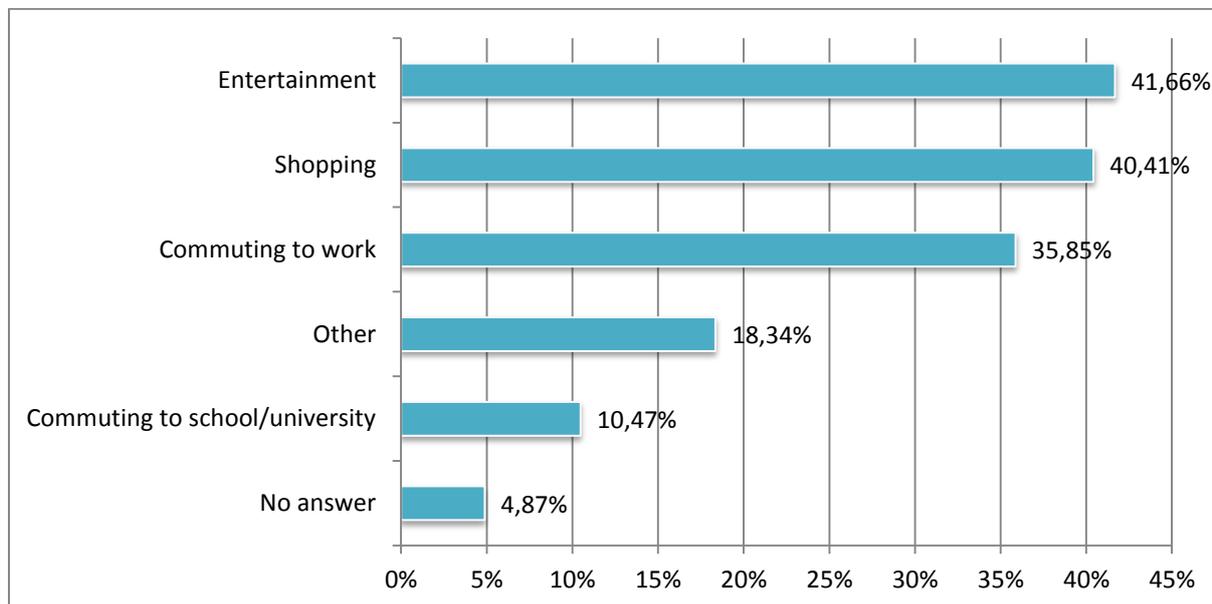
Source: Own research based on conducted studies.

Statistics below indicate the passenger transport in Poland, divided into individual voivodeships. In the Pomeranian Voivodeship an increase in the number of passengers transported in 2015 occurred compared to the previous year. Over the next two years the number remained at a comparable level, with an inconsiderable upward trend in 2018. Pomeranian Voivodeship was one of seven voivodeships in which an increase in this indicator was observed last year.

Table 1. Passenger transport services in 2014-2018

Region	Passenger transport [M]				
	2014	2015	2016	2017	2018
	[person]	[person]	[person]	[person]	[person]
POLSKA	3 711,1	3 672,2	3 766,3	3 739,4	3 774,1
DOLNOŚLĄSKIE	259,2	264,1	271,1	281,2	274,8
KUJAWSKO-POMORSKIE	168,9	181,8	182,9	172,0	172,4

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Region	Passenger transport [M]				
	2014	2015	2016	2017	2018
	[person]	[person]	[person]	[person]	[person]
LUBELSKIE	140,6	143,5	142,1	141,3	128,8
LUBUSKIE	39,2	43,1	42,9	43,5	43,4
ŁÓDZKIE	254,6	258,4	300,1	230,9	251,2
MAŁOPOLSKIE	484,9	396,9	418,2	444,9	450,7
MAZOWIECKIE	908,7	930,2	924,7	937,7	975,2
OPOLSKIE	21,5	25,4	25,5	25,8	25,9
PODKARPACKIE	53,4	52,6	55,5	59,6	63,3
PODLASKIE	108,8	108,9	108,5	106,3	101,8
POMORSKIE	**287,8**	**291,6**	**291,7**	**291,5**	**292,1**
ŚLĄSKIE	436,5	416,7	413,7	406,1	403,8
ŚWIĘTOKRZYSKIE	48,6	48,5	46,8	46,2	45,2
WARMIŃSKO-MAZURSKIE	64,4	53,8	63,2	66,3	65,1
WIELKOPOLSKIE	259,2	279,8	299,8	306,2	313,4
ZACHODNIOPOMORSKIE	175,0	176,7	179,5	180,1	166,9

Source: Own research basing on the data of the Local Data Bank, Statistics Poland.

A general upward trend in the number of transported passengers can be observed when comparing above data for the Pomeranian Voivodeship with the country's average number.
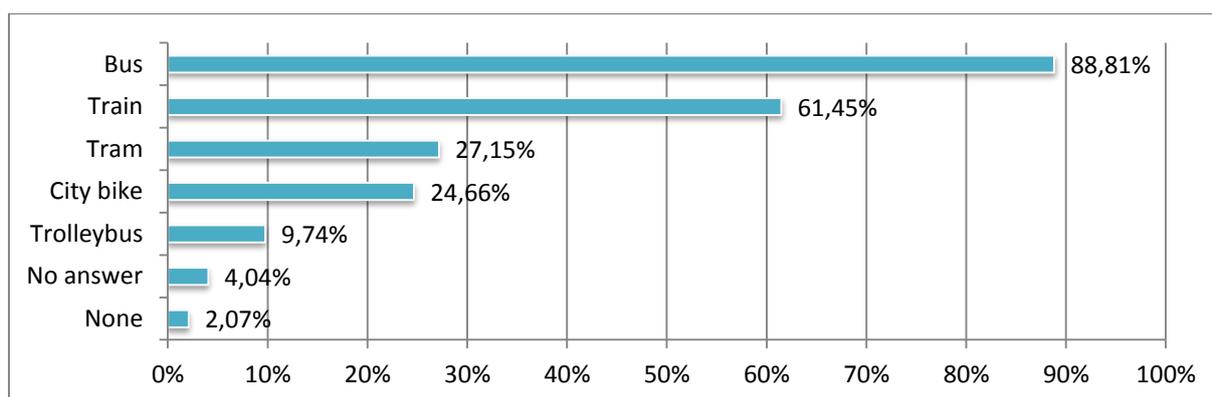
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Figure 9. Passenger transport - statistics
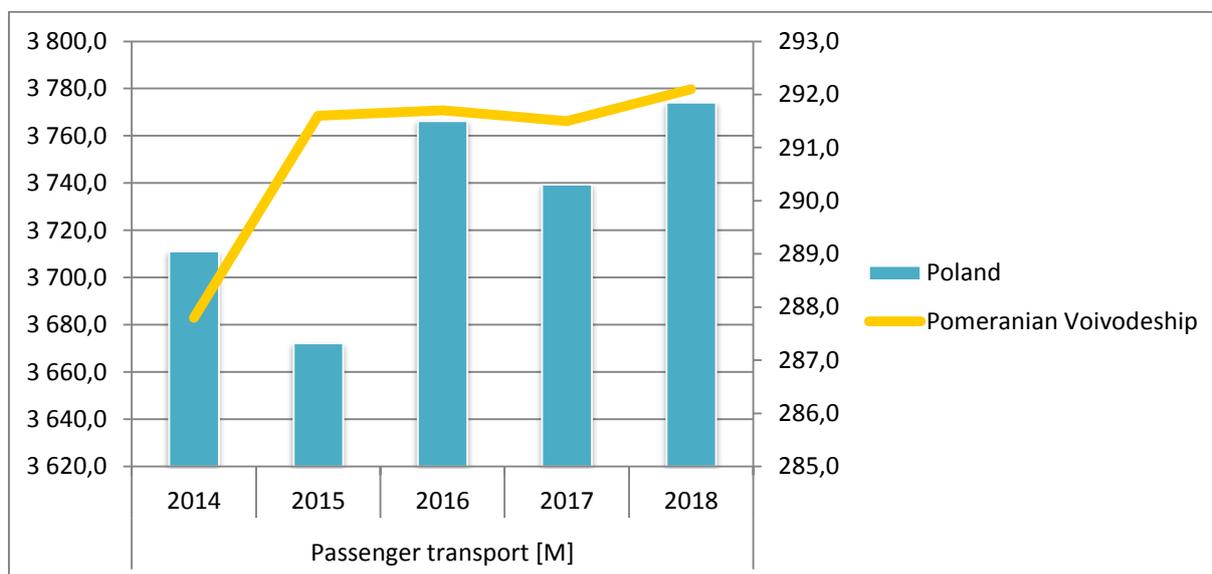
Source: Own research basing on the data of the Local Data Bank, Statistics Poland

Answers of respondents participating in the survey indicate a considerably high availability of public transport in the Pomeranian Voivodeship. The most commonly indicated means of transport were bus (89.81%) and train (61.45%). Other respondents chose tram (27.15%), trolleybus (9.47%), whereas nearly 1/4 of respondents can use a city bike (the survey was conducted in the period prior to the termination of the contract to the Mevo operator).

Figure 10. Do you have the possibility to use public transport?

Source: Own research based on conducted studies.

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As presented on the infographic below, the quality of public transport is rated highest in the metropolitan area, with a lower rating in peripheral areas, especially in the western part of the voivodeship. The most considerable problem in this area concerns the lack of direct connections between poviat cities, poviat capitals and large cities.

Figure 11. Synthetic assessment of the quality of public transport in cities
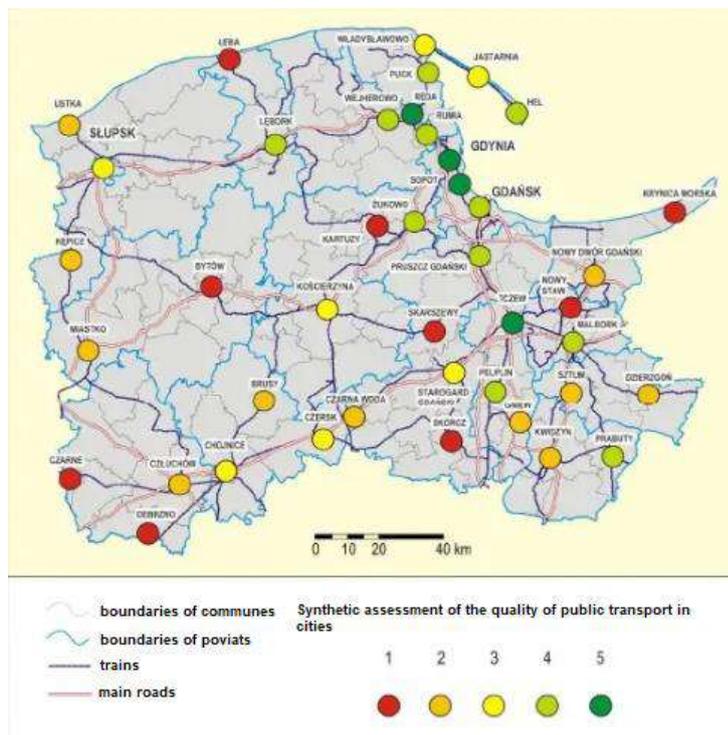
Source: Own translation based on R. Guzik, Analiza relacji funkcjonalno-przestrzennych między ośrodkami miejskimi i ich otoczeniem, Gdańsk 2015.

6.2. Transport in the Metropolitan Area

Indicators related to travels in the Metropolitan Area are expected to increase by 17.4% until 2030, that is almost to 4 million trips per day. Such situation will be related to an inconsiderable, 7% increase in the number of trips by car, although with a larger increase in the total number of trips, the share of trip by car will ultimately decrease (from 66% to 60%). According to forecasts, public transport will significantly benefit from expected increase. It is estimated that the use of public transport will increase by as much as 38%. Furthermore,

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considering the environmental reasons, it is estimated that the share of bicycles in metropolitan transport will increase by 35%. Trends related to a healthy lifestyle, ecology and environmental protection will also increase the share of travelling by foot - the increase is calculated at nearly 30% by 2030[4]. The data includes objectives of the integration of the metropolitan area transport system:

- internal integration of public transport by coordinating timetables and simplifying the tariff and tickets

- integration of public and individual transport with the construction of P&R, B&R, K&R parking lots

- extending the spatial range of the functioning of the intelligent transportation system

- maximal use of the intelligent transportation system to grant privilleges to public transport vehicles

Moreover, analyses and diagnostic studies conducted as part of the development of 2030 Metropolitan Area's Transport and Mobility Strategy point to adverse trends in the functioning and development of transport in MA until 2030. Such forecast is associated with an increase in the number of travels resulting from the increasing mobility of residents. Another aspect is related to the increase in the duration of the travel as a result of changes in the spatial development of the metropolitan area and the increase in the share of

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[4] L. Michalski, K. Jamroz, K. Grzelec, Strategia transportu i mobilności obszaru metropolitalnego do roku 2030, Gdańsk, 2015, p.14.

passenger cars as a form of travel in the core of the metropolis and from and to the core of the metropolis[5].

The main reasons for choosing public transport in everyday urban travel in Gdańsk are: lower travel costs (21.8%), parking difficulties (15.5%) and congestion in Gdańsk (12.7%)[6].

6.2.1. Railway

A systematic increase in the number of passengers transported by rail in Poland has been observed since 2014. The situation is different than in the case of road transport with a consistent decrease of this value observed in the analysed period.

Figure 12. Passenger transport in selected modes of transport
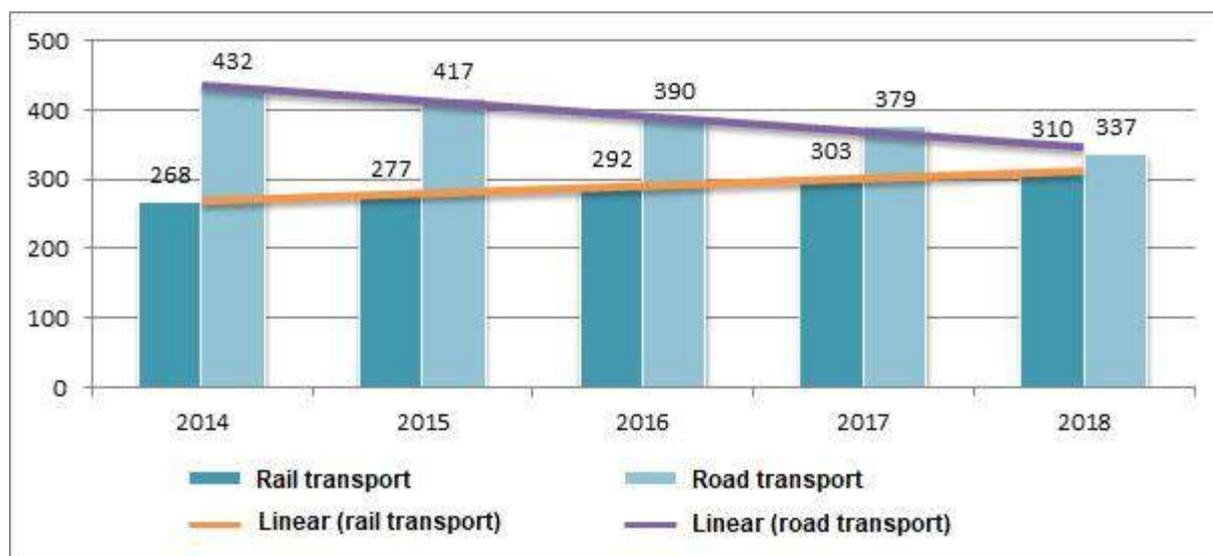
Source: Own research based on Transport wyniki działalności w 2018 r.

The Pomeranian Voivodeship is characterised by the highest rate of rail use in the country. Per year the number is equal to 24.8 train trips per capita. In 2018 over 57.5 million passengers were checked in the voivodeship. Over three years the increase exceeded 14.4%

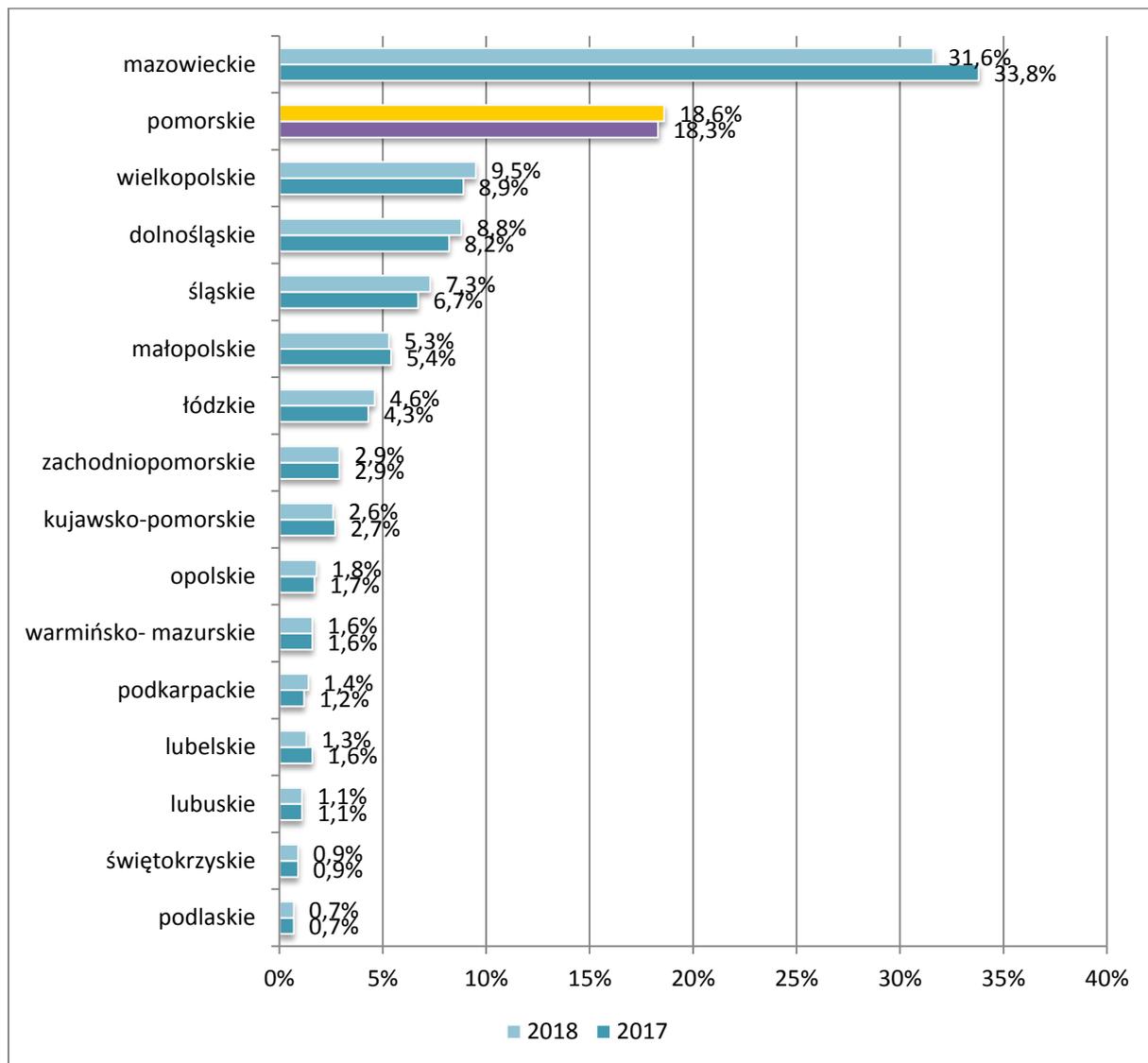Co-funded by the Horizon 2020
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- compared to 2015, the increase is equal to 7.2 million passengers. The level of indicator concerning the use has increased by 13.3% since 2015.

The analysis of the data contained in the table below leads to the conclusion that in 2018 an inconsiderable increase in the percentage of passengers traveling by rail was recorded in the Pomeranian Voivodeship in relation to the previous year. It should be added that the Pomeranian Voivodeship is the second region in Poland in terms of the number of passengers travelling by rail.

Figure 13. The structure of passenger transport by rail in selected voivodeships

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Source: Own research based on Transport wyniki działalności w 2018 r.

Abovementioned conclusions can be related to the data presenting the length of railway lines in individual voivodeships. As can be seen below, Pomeranian Voivodeship ranks sixth in the country, at the same time carrying out one of the largest numbers of passenger transport in the whole country, proving the considerable popularity of this form of public transport in the region.

Figure 14. The length of railway lines
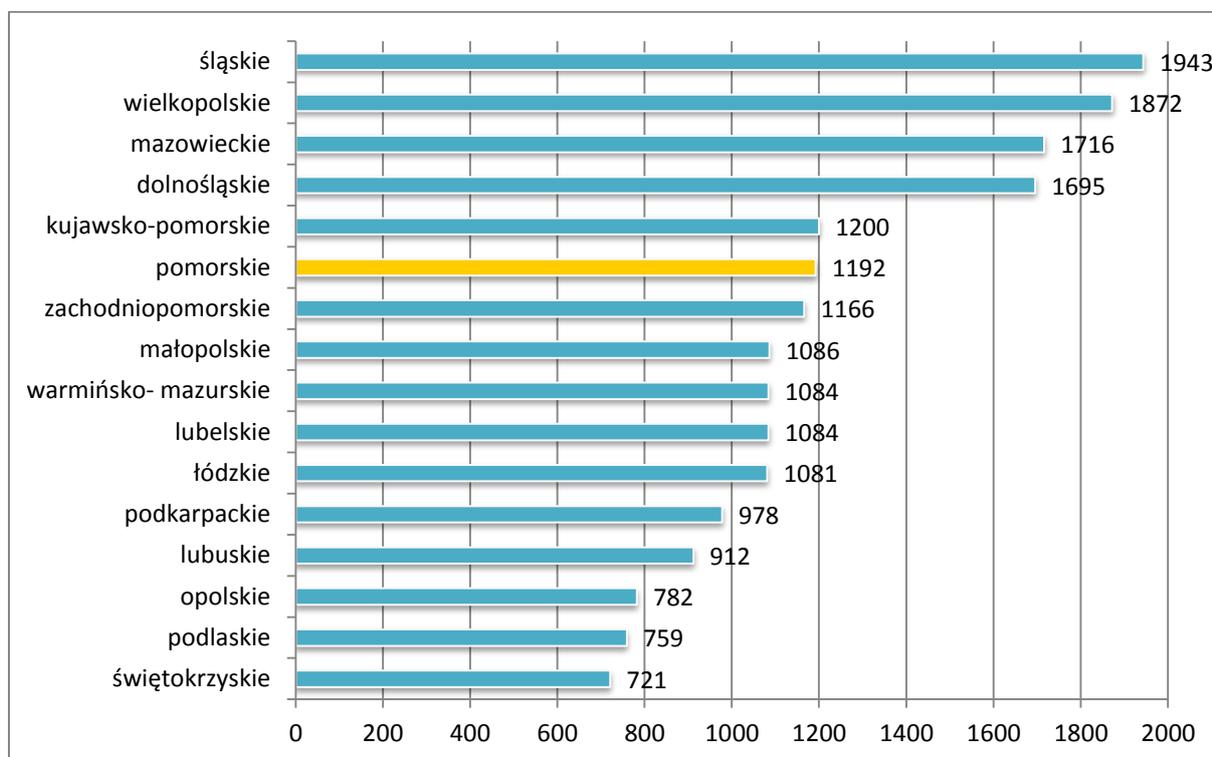
Source: Own research based on Transport wyniki działalności w 2018 r.

Regional transport constitutes 93% of the total number of travels within the voivodeship (53.3 million passengers). The organizer of transport by PKP SKM carried out 79% of this number, with the remaining number carried out by Przewozy Regionalne (21%). Nevertheless, in 2018 the importance of Przewozy Regionalne in transport services in the voivodeship increased. It was mainly connected to the fact that part of the transfer within PKP SKM was transferred to Przewozy Regionalne (e.g. from the Tricity to Słupsk), similarly to the part of the transfer previously carried out under Pomeranian Metropolitan Railway[7].

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[7] Kolej w województwach – wykorzystanie i polityka transportowa, Urząd transportu kolejowego, Warszawa, 2019.

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6.2.2. Bus and trams

Pomeranian Voivodeship is the seventh region in Poland in terms of the length of the lines of public transport within the city (bus, trams).

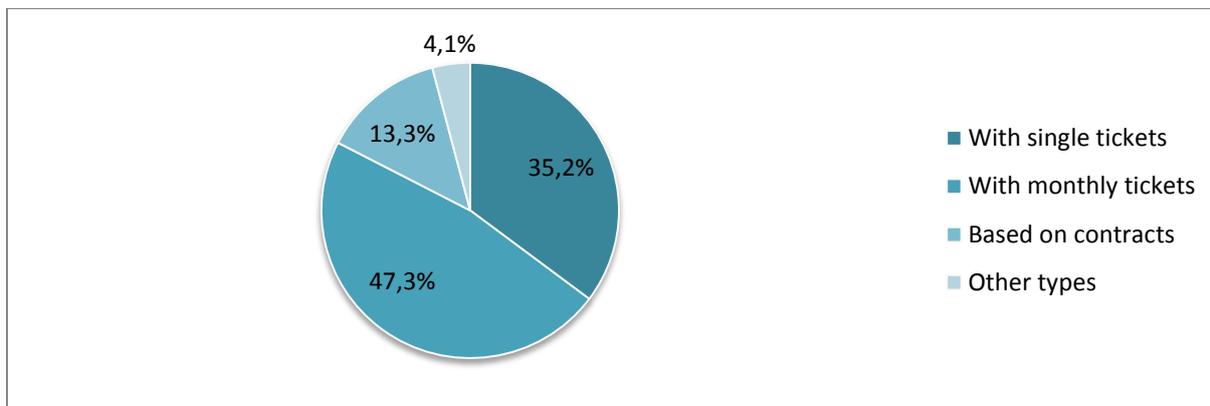**Figure 15. Lines of public transportation in cities in voivodeships [km]**
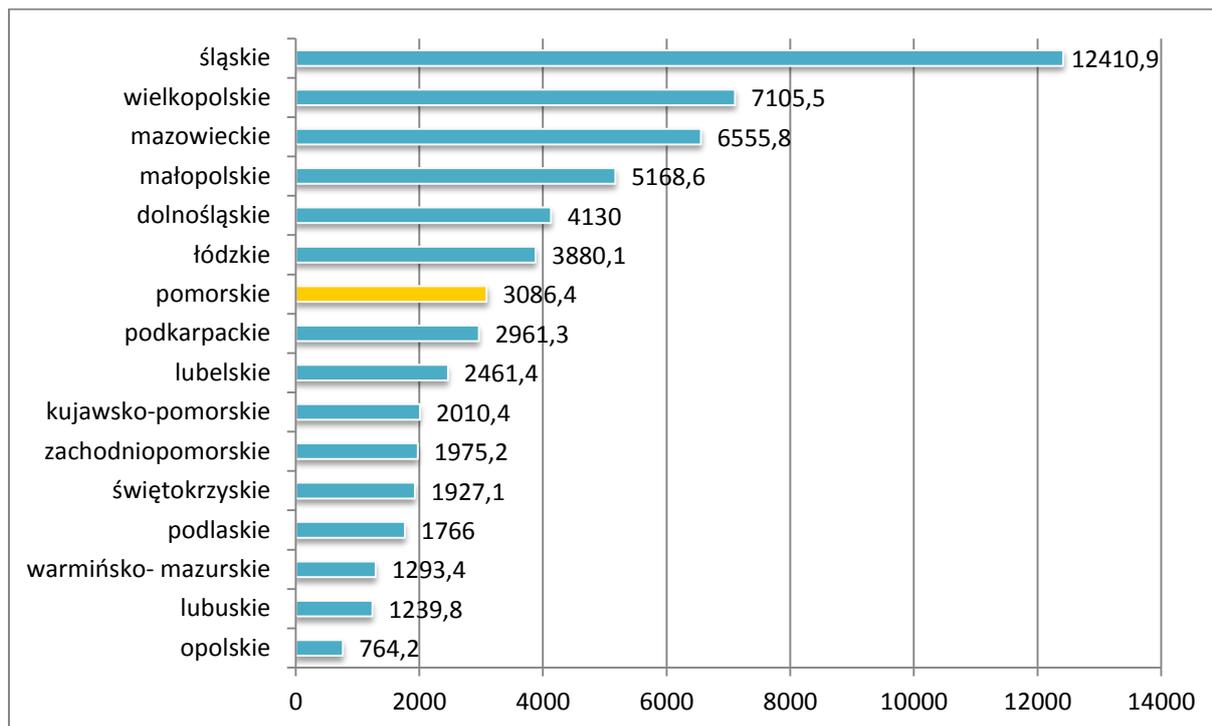
 Source: own research based on Transport wyniki działalności 2018 r.

Taking into consideration the national data, almost half of the passengers of national transport in 2017 used monthly tickets, 35% used single tickets, and 13% traveled on the basis of contracts. It is also beneficial to analyse data concerning the course of public transport. In the Pomeranian Voivodeship, respectively, 8% and 5% of the total mileage of trams and buses recorded in Poland in total. In the case of trolleybuses the number in 2018 amounted to 44%, which results from the fact that trolleybuses are being used in the public transport in only three cities in Poland.
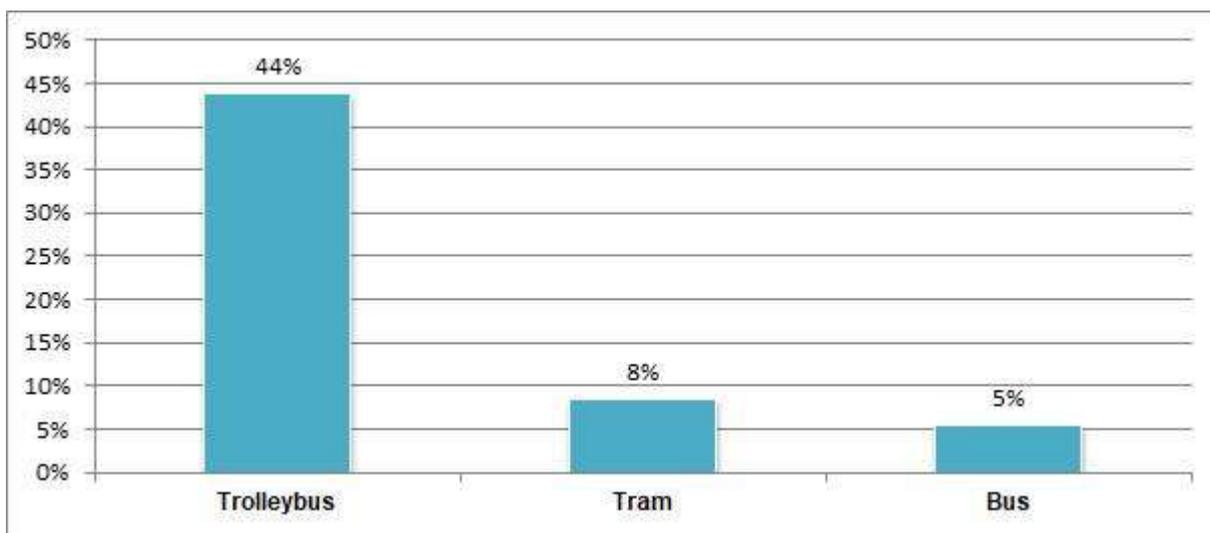
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Figure 16. Structure of passenger transport in domestic transport in 2017

Source: Own research based on Transport drogowy w Polsce w latach 2017 i 2017.

Figure 17. Total mileage of cars in vehicle-kilometres (in thousands) in the Pomeranian Voivodeship - in relation to Poland

Source: Own research based on Transport wyniki działalności w 2018 r.

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7. Sustainable public transport

The objective of the sustainable transport is to achieve the long-term stability in the scope of environment and economy. The key characteristic of the project is the aim to minimise the negative impact of modes of transport on the environment, public health and economy. This objective can be achieved by lowering the emission of harmful compounds in exhaust gases and by gradually transferring from transport vehicles based on the combustion of fossil fuels to vehicles powered by renewable energy. Another significant objective is to reduce the use of cars for the increased use of public transport, which would limit the amount of emitted fumes and contribute to free urban space that is currently overloaded with cars. The main means of implementing the above tasks are: promotion and development of public transport and the use of bicycles, education in the scope of pollution and road transport, development of P&R systems, promotion of travelling by foot and group travels.

Sustainable transport ensures the availability of solutions in the scope of transportation in a safe manner that does not endanger human health and the environment, and in an equal manner for present and future generations. It ensures the effective functioning, offers the possibility of choosing means of transport and contributes to sustaining the economy and regional development, limits emissions and waste to an amount that can be absorbed by the environment, uses renewable resources in quantities that can be restored and non-renewable resources in quantities that can be replaced by renewable substitutes, while minimising noise[8].
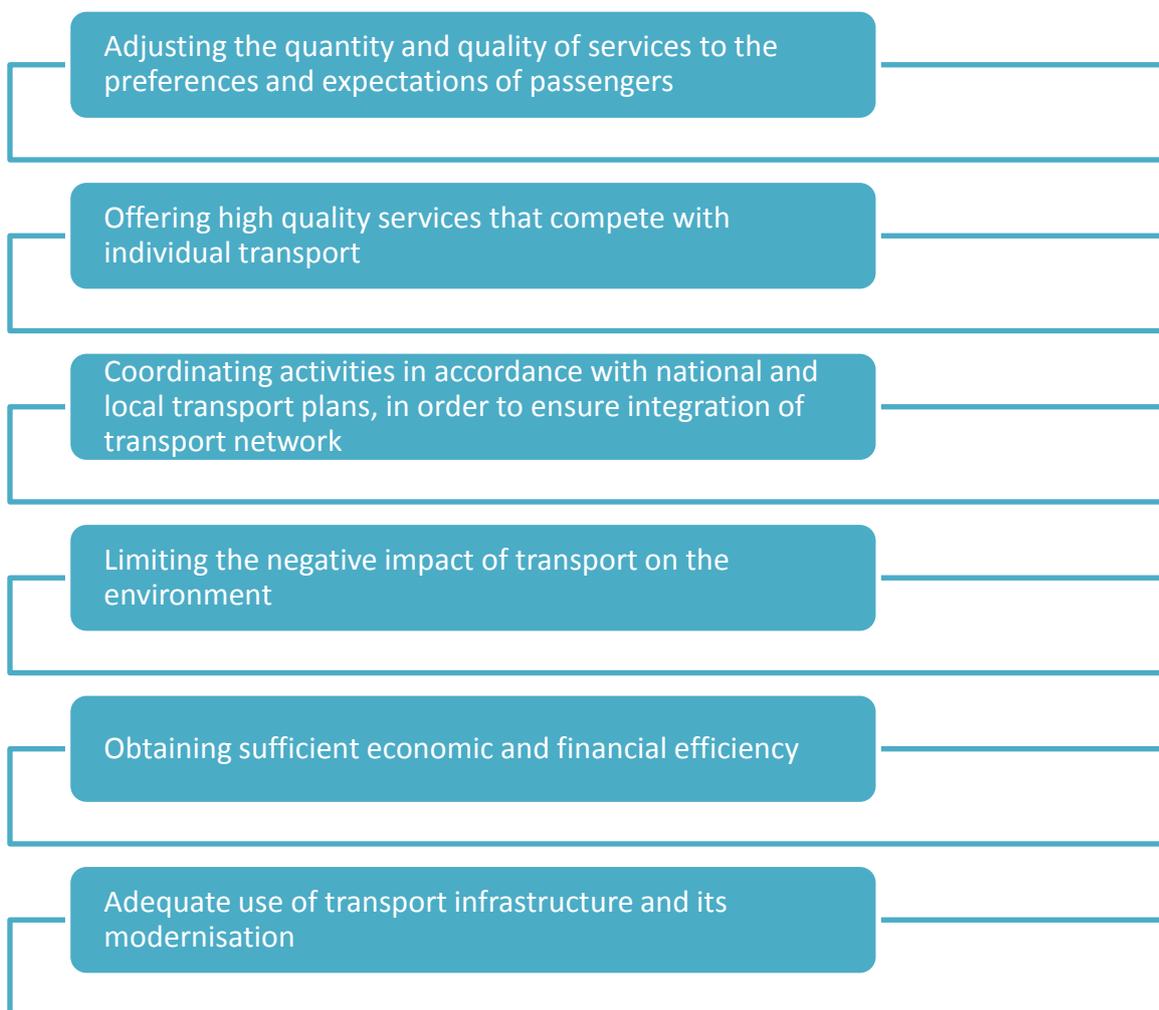
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[8] A. Brzeziński, M. Rezwow, Zrównoważony transport- ekologiczne rozwiązania transportowe.

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8. Sustainable public transport in Pomeranian Voivodeship

Plan for the sustainable development of public transport for the Pomeranian Voivodeship specifies the main challenges and directions for the development until 2025. The plan concerns voivodeship transport, including measures aimed at meeting the needs of passengers in terms of the rational scope of services through, among others:

- Adjusting the quantity and quality of services to the preferences and expectations of passengers

- Offering high quality services that compete with individual transport

- Coordinating activities in accordance with national and local transport plans, in order to ensure integration of transport network

- Limiting the negative impact of transport on the environment

- Obtaining sufficient economic and financial efficiency

- Adequate use of transport infrastructure and its modernisation

Source: H. Kołodziejski, Projektowanie rozwoju publicznego transportu zbiorowego w planach transportowych na przykładzie województwa pomorskiego, Autobusy 12/2014, pp. 23-24.

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According to the publication The needs of residents of the Pomeranian Voivodeship in the scope of transport in 2014, more than half of inhabitants of the region travelled to other poviats (different than the one they lived in) at least once every two weeks. The majority of those travels were conducted by car (74%). Attention shall be drawn to the fact that more than half of participants of the study declared that there was no possibility to change their preferences, therefore they would not consider the use of public transport. Public transport and individual transport constitutes the rest of answers of respondents.

Figure 18. Types of used means of transport in the Pomeranian Voivodeship
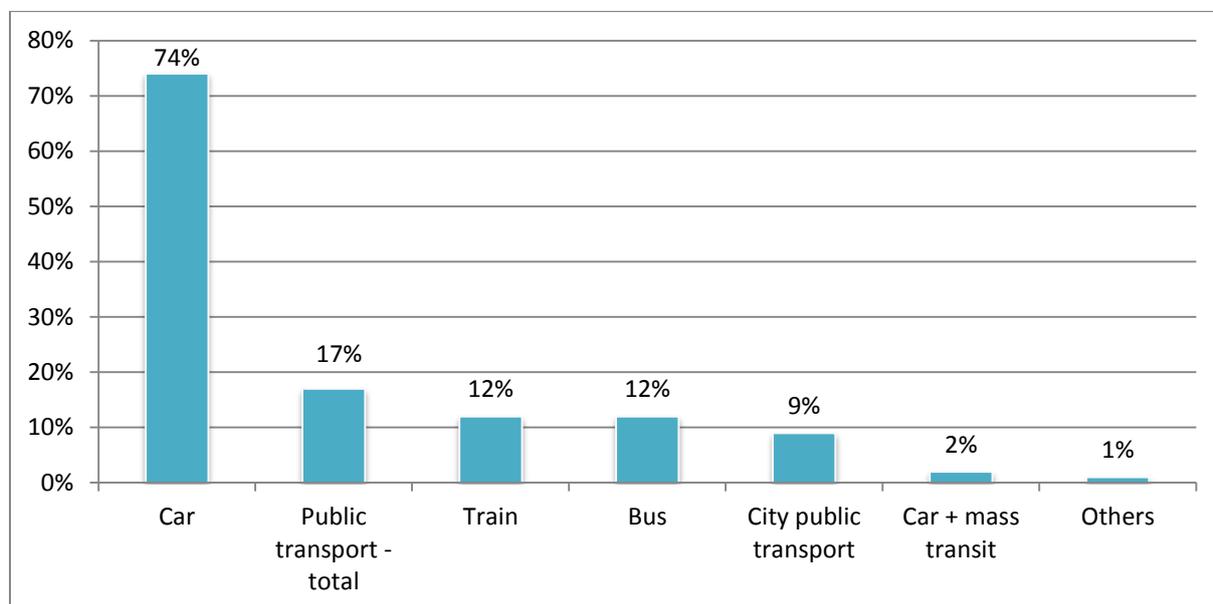
Source: H. Kołodziejski, Projektowanie rozwoju publicznego transportu zbiorowego w planach transportowych na przykładzie województwa pomorskiego, Autobusy 12/2014.

In 2018, 318 out of a total of 1753 villages of the Pomeranian Voivodeship were not included in the public transport network. The average distance between towns without an access to public transport and the nearest stop was about 2 km, resulting in the extended travel by approximately 60 minutes by foot to transfer nodes. Direct access to Gdańsk from other

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parts of the voivodeship is limited to key transport routes (426 cities - 67% of residents of the voivodeship living outside of Gdańsk)[9].

In the scope of sustainable urban mobility the plans of cities, communes and poviats of the Pomeranian Voivodeship include measures aimed at modernising and optimising public transport. The aim is to increase the share of public transport in the total of means of transport. Suggested solutions include, among others: tariff and ticket integration, technical integration and improvement of the quality of public transport connections with pedestrian, bicycle and motorised transport[10].

Studies conducted among users of public transport in Gdańsk lead to the conclusion that the intermodality and integration of various means of transport in terms of the tariff and the time would be a solution. The close cooperation of various operators was rated highly not only at the level of the city and the metropolis but even in a broader, regional level. Intermodality would ensure the possibility to travel faster by various public means of transport (e.g. tram, PKM, SKM, bus) within one tariff. Considerably coordinated transport mobility would ensure high quality transport and the adequate duration of a travel[11]. Moreover, respondents of the study expressed their opinion on the tickets - attention of passengers was drawn to the need to introduce a "shared ticket" and the possibility of paying for the travel from the application or by credit card.

Plan for the sustainable development of public transport for the Pomeranian Voivodeship, the region is forecast to run out of reserves in passenger rail transport capacity, including the following sections: Tczew - Gdynia, Gdańsk/Gdynia - Kartuzy, Gdynia - Wejherowo, which

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[9] J. Pietruszewski, Rozwój transportu zbiorowego w regionie i jego znacznie dla integracji społeczno-gospodarczej konkurencyjności pomorza, Gdańsk, 2017.
[10] Resolution nr LV/1615/18 Gdańsk City Council, 2018, p.30.
[11] Ibidem, p.33.

is estimated to occur by 2025[12]. Analysed doducment indicated that the integration of public transport in the Pomeranian Voivodeship should be implemented at four levels:

Institutional

Tariff and tickets

Timetables

Information on services
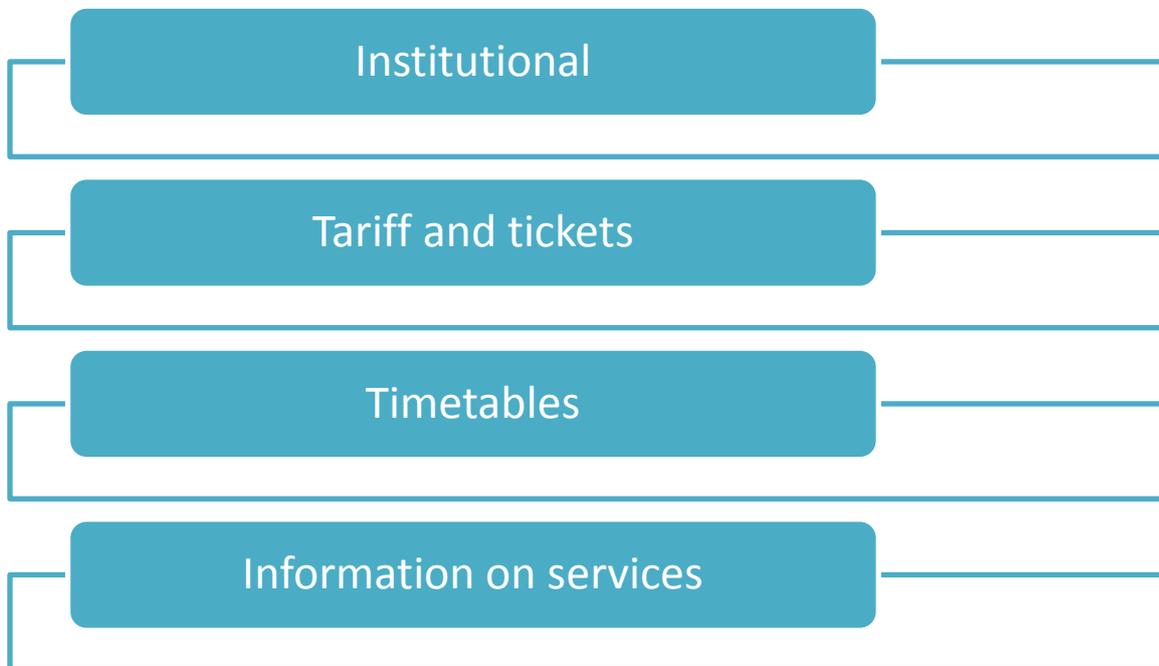
The EU projects concerning the support for mobility conducive to the sustainable transport in the Pomeranian Voivodeship are presented below:

Rozwój transportu rowerowego w powiązaniu z transportem zbiorowym-MOF Malbork-Sztum (Development of bicycle transport in connection with public transport - Malbork-Sztum Functional Urban Area)

The project aims at the improvement of the accessibility to public transport stops by expanding the infrastructure base of bicycle transport, used for an access to transfer nodes and integration stops. The planned infrastructure is to encourage drivers - residents of surrounding settlements and towns - to change their preffered means of transport to public transport, and, due to the facilitated bicycle parking system, expand the range of the public

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[12] Planu zrównoważonego rozwoju publicznego transportu zbiorowego dla województwa pomorskiego, Gdańsk, 2014, p. 68.

transport and railway junction, increasing the number of people willing to resign from travelling by car.

Budowa węzła integracyjnego Gdynia-Karwiny (Building the Gdynia-Karwiny transfer hub)

As part of the project a multi-level car park with spaces for cars, motorbikes and bicycles will be built in the vicinity of the Gdynia Karwiny stop of the Pomeranian Metropolitan Railway. Bus lanes and bicycle routes also constitute part of works undertaken within the project. Its implementation will facilitate the possibility to change buses when traveling by public transport. Drivers will be able to leave their cars in the parking lot and continue their journey by PKM, bus or trolleybus, which will reduce travel time and car emissions, therefore limiting environmental pollution.

Budowa węzła integracyjnego w Kwidzynie (Building the transfer hub in Kwidzyn)

Within the works on the construction, road infrastructure facilitating a direct access to the interchange centre was rebuilt and expanded, works included also new parking spaces, bus turnouts, bicycle paths, pedestrian-bicycle routes and a taxi stop. The objective of the project was to strengthen the role of public transport in the city and surrounding areas, contributing to the increase of its attractiveness and efficiency.

Budowa węzła integracyjnego w Gościcinie (Gmina Wejherowo) (Building the transfer hub in Gościcino (Wejherowo Commune)

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The objective of the project is the construction of a bus loopway and bus bay, parking spaces for cars and bicycles, sidewalks, bicycle paths and the extension of access roads to the hub in order to reduce road traffic.[13]

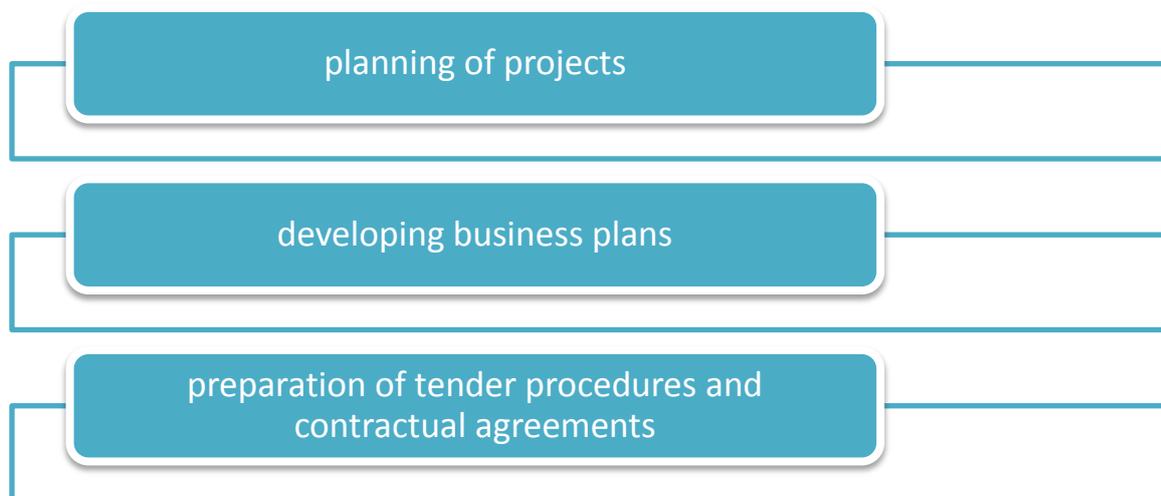## 9. The Integrated Mobility Services Platform

9.1. Financing

The Integrated Mobility Services Platform (*Platforma Zintegrowanych Usług Mobilności – PZUM*) is a project co-financed from external sources. The Pomeranian Voivodeship received pln 90 million from the funds under The Operational Programme Infrastructure and Environment (OPI&E) – this amount constitutes as much as 85% of the financial demand for the implementation of the system in the area of the voivodeship. Moreover, the system is also financed from European funds ELENA - European Local Energy Assistance, that is the financial instrument aimed at technical assistance and development of investment programmes. European funds of the programme were used to implement projects concerning the cooperation of various entities in order to improve natural environment and to ensure energy savings[14].

ELENA is the European instrument for technical assistance. Grants for projects implemented by local authorities, regions, agencies and associations under programmes make it possible to co-finance up to 90% of eligible costs including:

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[13] http://www.rpo.pomorskie.eu, [access: 18.12.2019]
[14] http://www.innobaltica.pl/1_87_wniosek-o-dofinansowanie-z-poii-zlozony.html, [access: 18.12.2019]

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planning of projects

developing business plans

preparation of tender procedures and contractual agreements

Source: https://ec.europa.eu/ *[access: 18.12.2019].*

The ELENA funds were also used for the financing of other tasks resulting from the project specifications - among others the integration of activities in developing a joint ticket, metropolitan bike and transport integration nodes[15].

Co-financing for InnoBaltica included also a grant under the Interconnect project. PLN 6.7 million was intended for cooperation with Germany, Denmark, Lithuania, Estonia and Sweden as part of the co-financing. The objective of the cooperation is to develop an innovative and the most intuitive model of paying for public transport, ensuring that tourists and businessmen from these countries could use public transport in cross-border traffic without any difficulties.

[15] The access to materials given by InnoBaltica

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9.2. Objectives of the implemented system

The objective of the Integrated Mobility Services Platform (*Platforma Zintegrowanych Usług Mobilności – PZUM*) is to facilitate the process of travelling by public transport in the Pomeranian Voivodeship. Reaching this objective will be possible due to the system available to general public, that will allow the users to travel by several means of public transport without the necessity to buy single tickets. The system of the integrated ticket "FALA" will be a modern solution for the purchase of tickets for public transportation in the Pomeranian Voivodeship. Developed informatics platform will positively affect optimised costs of travelling without passenger interference.

9.3. Functioning of the system

The system will operate based on a central base of passengers' profiles. Each person registering in the system will receive an individual identifier used in order to obtain information on the used means of transport and routes of passengers registered within the Platform. The role of the identifier will be performed by a smartphone with a special application, NFC card - e.g. a city card, credit card or a paper ticket with a QR code. The main tool, however, will be a smartphone and a free mobile app storing passenger data and their discounts. The application will also provide users with a possibility to plan the travel taking into consideration such features as the lowest travel cost, the shortest duration of the travel or the most considerable comfort of the travel[16].

Abovementioned options for registering in the vehicle of the public transport will ensure the possibility to monitor the quantity of passenger traffic. Such conduct will be possible due to

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[16]https://www.transport-publiczny.pl/wiadomosci/gdansk-fala-czyli-pomorski-bilet-z-dotacja-unijna-62346.html, [access: 18.12.2019]

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special infrastructure located at stops and in public transport (477 validation devices at railway stops, 4870 devices in vehicles, 300 000 NFC cards and approximately 30 customer service points in the Pomeranian Voivodeship). Special validation devices will collect data on the number of traveling passengers and, basing on current data, the application would inform passengers about current travel conditions in the vicinity of the passenger's geolocation. The system will display alternative forms of public transport travels based on current data. The system programmed in this manner will facilitate travelling and attract more passengers[17].

9.4.   Benefits from the implementation of the system

The benefits resulting from the implementation of the Fala system will be directed not only to passengers traveling by public transport in the Pomeranian Voivodeship - people will be able to travel in accordance to their own priorities without having to remember about payments and types of discounts when travelling by public transport. Therefore, it is certain that passengers would acknowledge the increase in both the travel comfort and the possibilities of planning the travel.

Due to the ongoing registration of travels local self-governments and the voivodeship self-government will be able to settle the cash inflow from public transportation in a transparent manner. As a result, the efficiency of surcharges for local transport would increase. The voivodeship self-government will be able to effectively use surcharges for regional transport, automate the system of settling cash inflow from statutory concessions, and to ensure an efficient adjustment of the frequency of public transportation to the actual needs of passengers.

The third, equally significant beneficiary of the measure will be public transport operators. The key advantage of the system would be the transmission of data enabling the ongoing

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[17] http://www.innobaltica.pl/1_120_rodki-z-poii-podpisanie-umowy.html, [dostęp: 18.12.2019r., g. 11:57]

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adjustment of timetables to the actual demand and traffic. Furthermore, ticket distribution and its costs will decrease. Drivers would not have to sell tickets which would result in the increase on the passenger safety and the reduction of delays in public transport[18].

The Integrated Mobility Services Platform is characterised by a considerable level of innovation, not only in the Pomeranian Voivodeship but also in Poland and in Europe. Such innovation aims at the integration in the scope of the joint system of collecting fees by organisers and operators of the public mass transport on a large area. Nevertheless, the scale of the undertaking does not constitute an obstacle to respecting the separateness of each of the traffic organisers while maintaining an individual tariff and the concessions granted as part of transport services.

According to the adopted project schedule, the first stage of the system (that is the mobile application) is expected to be launched in 2021. The second stage enabling passengers to travel with the card, completing the assembly of validation devices in vehicles and at railway stations, is scheduled for 2022[19].

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[18] http://www.innobaltica.pl/1_118_wielki-sukces-90-mln-zl-na-zintegrowany-bilet.html, [access: 18.12.2019]
[19] The access to materials given by InnoBaltica.

10.   Modern systems of public transport

The significance of public transport in large urban centres and agglomerations has increased significantly in recent years. The reason behind that is the continuous investment on the transport market, including the modernisation of roads, railways, stops and technical facilities. All implemented projects contribute to the improvements of transport systems, which should result in an increase of the use of public transport. However, attention shall be drawn to the fact that road infrastructure is not fully adapted to the current traffic load, especially in the case of public transport. Implementation of measures aimed at regulating traffic and optimising its flow is necessary in order to prevent traffic congestion and environmental problems. Therefore, Intelligent Transportation Systems (ITS) are introduced more and more frequently to increase the efficiency and safety of transport systems through the use of modern information technologies[20].

The concept of intelligent transport systems refers to innovative technological and organisational solutions in transport, facilitating the functioning of road infrastructure and improving the safety of traffic users. Intelligent transport solutions constitute an opportunity for a sustainable urban development. The main purpose of using ITS is the optimisation of commune services through the modernisation of the transport infrastructure. However, the introduced changes should be based on the simultaneous achievement of the objectives of smart policy on increasing mobility at an optimal price, improving traffic safety, low emissions, reducing fuel consumption and economic competitiveness in public transport[21].
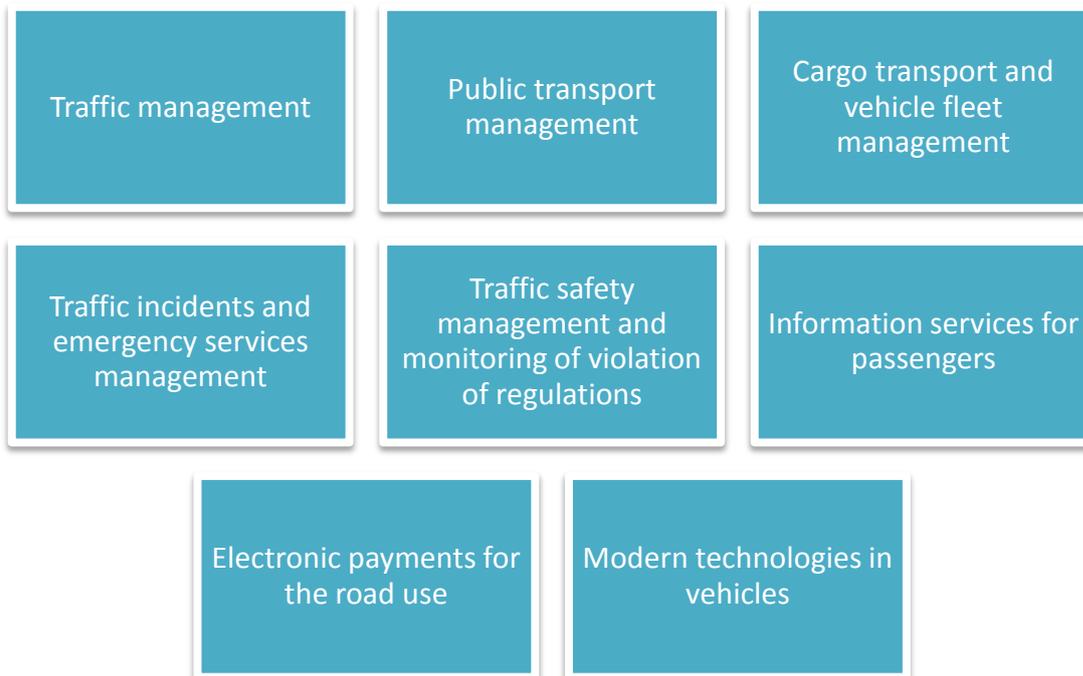
The scope of the use of ITS can be divided into individual areas of functionality and management of the public transport network:

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[20] Kut S., Nowotyńska I., Nowoczesne systemy transportowe w komunikacji miejskiej, Logistyka, 2016.
[21] E. J. Tomaszewska, Inteligentny system transportowy w mieście na przykładzie Białegostoku, Zeszyty naukowe Uniwersytetu Szczecińskiego, Szczecin, 2015.
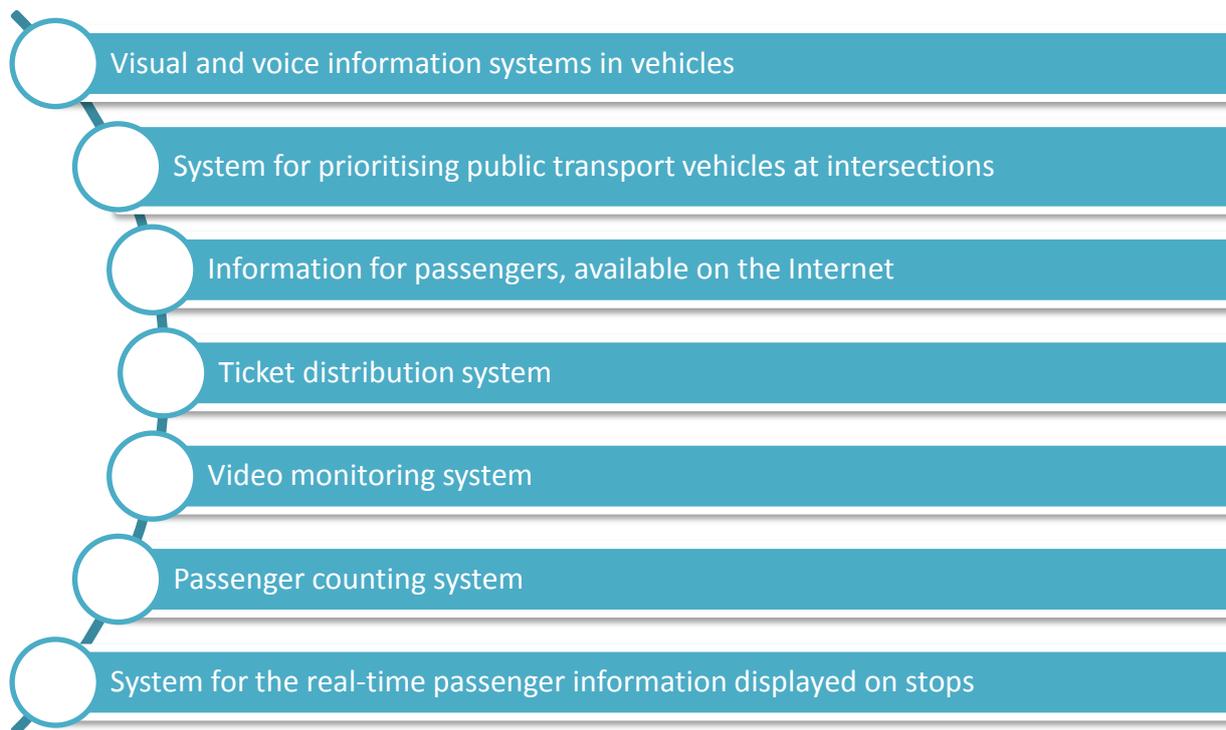
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Traffic management	Public transport management	Cargo transport and vehicle fleet management
Traffic incidents and emergency services management	Traffic safety management and monitoring of violation of regulations	Information services for passengers
Electronic payments for the road use	Modern technologies in vehicles	

Source: E. Szmidt, Mechanizmy działania inteligentnych systemów transportowych i ich wpływ na bezpieczeństwo ruchu drogowego, Instytut Transportu Drogowego, 2016, p. 84.

ITS in cities' public transport constitutes a number of cooperating modern subsystems designed to improve the functioning of public transport. ITS elements within public transport include:

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- Visual and voice information systems in vehicles
- System for prioritising public transport vehicles at intersections
- Information for passengers, available on the Internet
- Ticket distribution system
- Video monitoring system
- Passenger counting system
- System for the real-time passenger information displayed on stops

Source: Own research based on Kut S., Nowotyńska I., Nowoczesne systemy transportowe w komunikacji miejskiej, Logistyka, 2016.

All elements of a coherent system should connect by radio to ensure proper communication with: traffic and public transport management centres, stops and buses moving around the city. Such approach constitutes a challenge for public transport management given the necessity for the cooperation between various public institutions.

A number of measures should be undertaken in order for the endeavours for sustainable development in the area of public transport to be successful; it is necessary to implement investments aimed at modernising: the fleet, technical infrastructure, integrated tariff solutions and intelligent transport systems. Implemented applications should be universal enough to be used in every city, but also custom-made enough to be adapted to the specific needs of residents of a particular area. The optimal scheme for modernising urban transport is to reduce the external costs of transport related to the security of its performance, environmental pollution, and the growing traffic congestion. Moreover, the initiated

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applications should take into consideration the upward trend in the mobility of society, facilitate it and ensure an improvement in the availability of transport services.

Some European regions already had implemented public transport systems similar to Integrated Mobility Services Platform, an example of which is the Brandenburg region. The structure of the Verkehrsverbund Berlin-Brandenburg (VBB) included 40 operators and public transport organisers. The spatial area in which the implemented system operates covers 30 thousand square kilometres. The region is inhabited by nearly 6 million people, of which more than half (about 3.6 million) use public transport daily. The system includes buses, trolleybuses, trams, metro lines and long-distance regional trains, as well as space for ferry carriers and passenger cars constituting the part of the transport infrastructure functioning in the accordance with timetables[22].

Ticket prices in the VBB area depend on the zone in which the passenger is moving. In addition to zone tickets, the system includes also one-way tickets for travels with a shorter duration. These tickets operate regardless of the zones the traveller passes through. The system's website makes it possible for users to plan trips with the possibility of buying tickets on the planned route.

Other European regions have been adapting similar solutions. Travel planning by introducing a comprehensible tariff was also implemented in the North Westphalia, Lille Metropolis or the Moravian-Silesian Region[23].

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[22] http://www.innobaltica.pl/1_21_nowoczesne-systemy-na-swiecie.html, [access: 18.12.2019]
[23] Ibidem, [access: 19.12.2019].

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11.   Needs and preferences of public transport passengers

Research conducted for present report leads to the conclusion that the most significant change that could positively affect passengers' preferences in terms of using public transport is the necessity to ensure more frequent commuting options. Another considerably significant aspect is related to lowering the cost of tickets (indicated by more than 30% of respondents of the survey). Participants of the study drew their attention to the establishment of a platform of information on means of transport (26,11%), increasing the comfort of travelling (25,28%), different routes of vehicles (22,8%), facilitating the purchase of tickets (20,31%), improving punctuality (19,38%), and increasing availability of timetables and the possibility to purchase tickets through apps (10,16%). Other answers included: common tickets for all means of public transport, developing a common application joining all needed options for passengers and intensifying and initiating new lines of night services of public transport.

Figure 19. What changes would encourage you to use public transport more often?
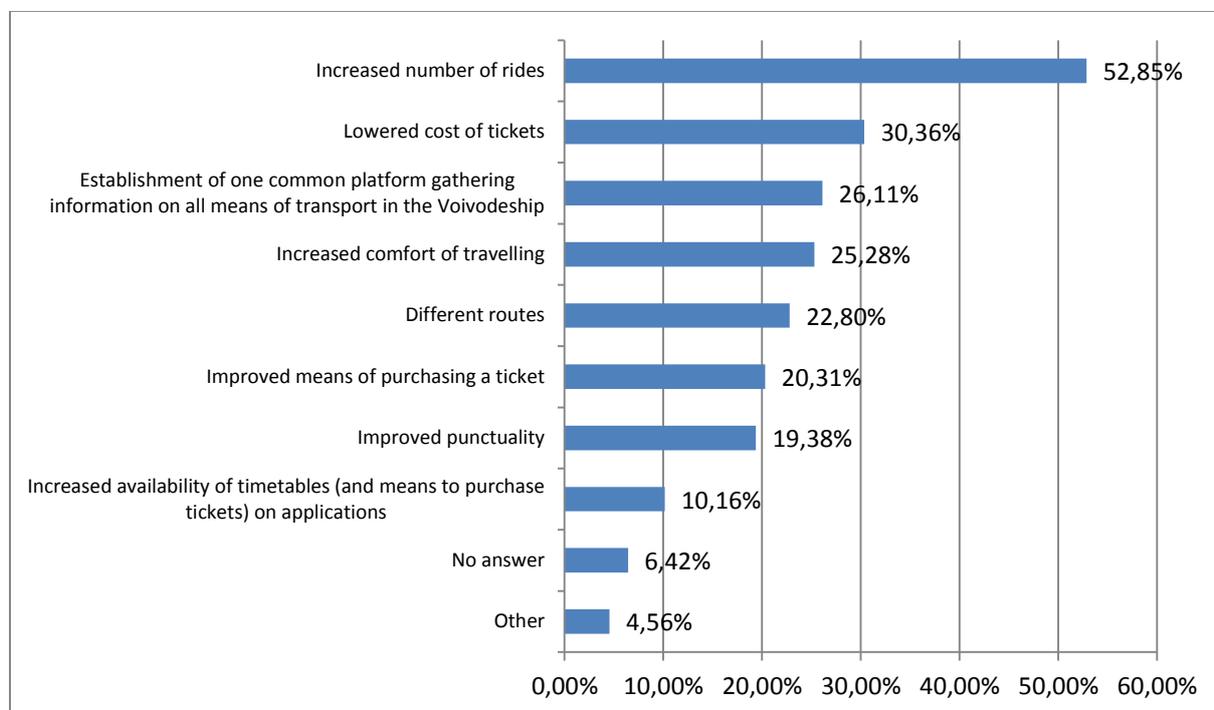
Source: Own research based on conducted studies.

Passengers participating in the study were asked to indicate their preferred means of transport - the most frequently chosen means of transport constituted buses (63.52%). A considerable part of respondents chose rail (44.46%) and trams (20.83%). 10.57% of participants of the study indicated other measures such as Uber, rented cars and electric scooters.

Figure 20. What is your preferred means of transport?
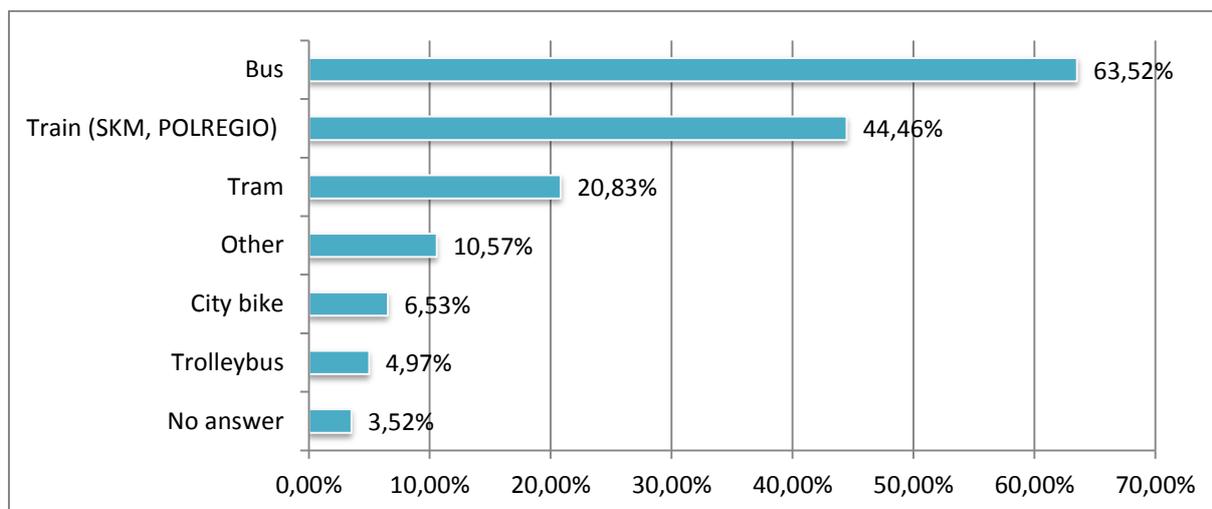
Source: Own research based on conducted studies.

One way tickets were the most frequently purchased types of tickets (58.86%). 18.86% of respondents purchase season tickets and 5.91% - day passes. Attention shall be drawn to the fact that 5.6% of survey participants travels free of charge, which may indicate rarely or irregularly used public transport.
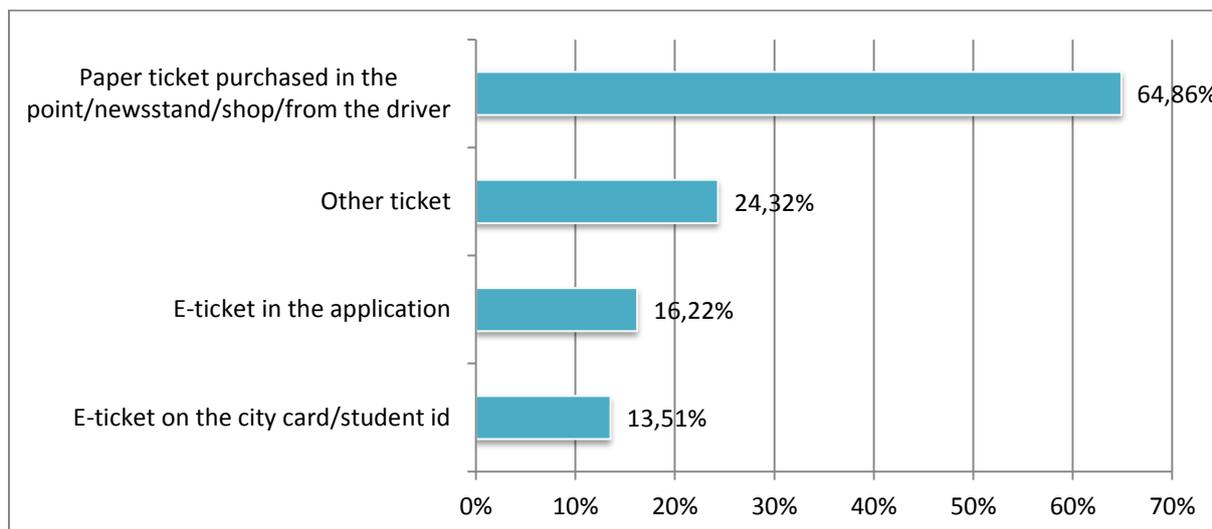
Figure 21. What type of tickets do you purchase the most often?
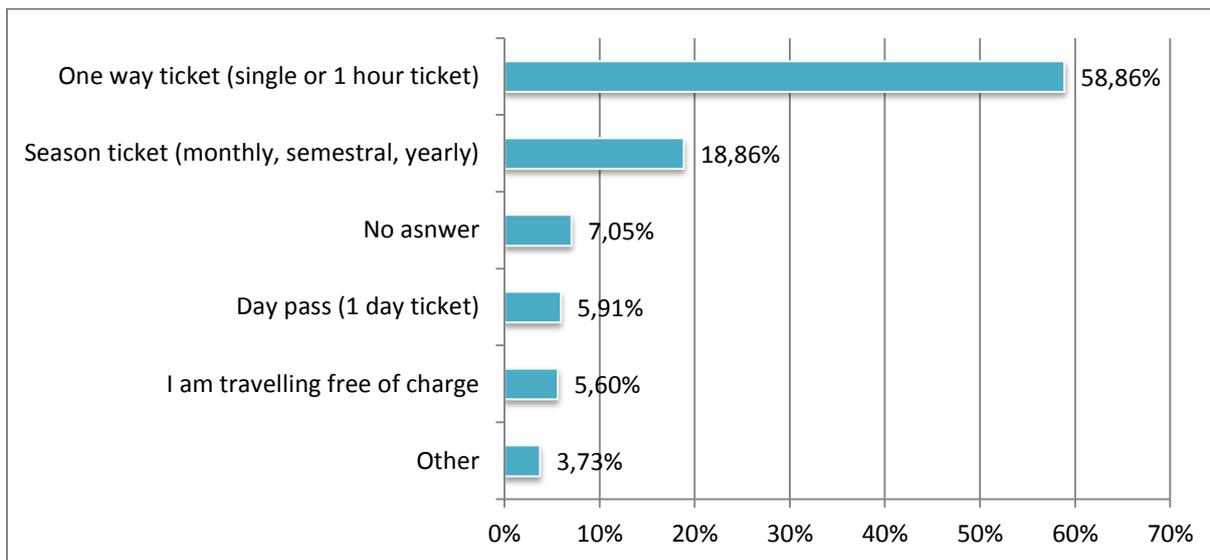
Source: Own research based on conducted studies.

Respondents of the survey indicated the most frequently purchased forms of tickets - the majority of passengers participating in the study chose a paper ticket purchased in the point/newsstand/shop (47.77%), other frequently indicated answer included buying a ticket from the driver (35.54%). Electronic tickets in mobile applications are characterised by a lesser popularity among the surveyed passengers (13.06%), similarily to e-tickets on a city card (11.19%). Respondents mentioned following mobile apps: Skycash, Jak dojadę, Mobilet, IC Mobile and Santander, Koleo, Polregio, SKM cards (11.19%), which may result from the preferences of passengers to use one-way tickets.

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Figure 22. How do you usually purchase the ticket for the public transport?
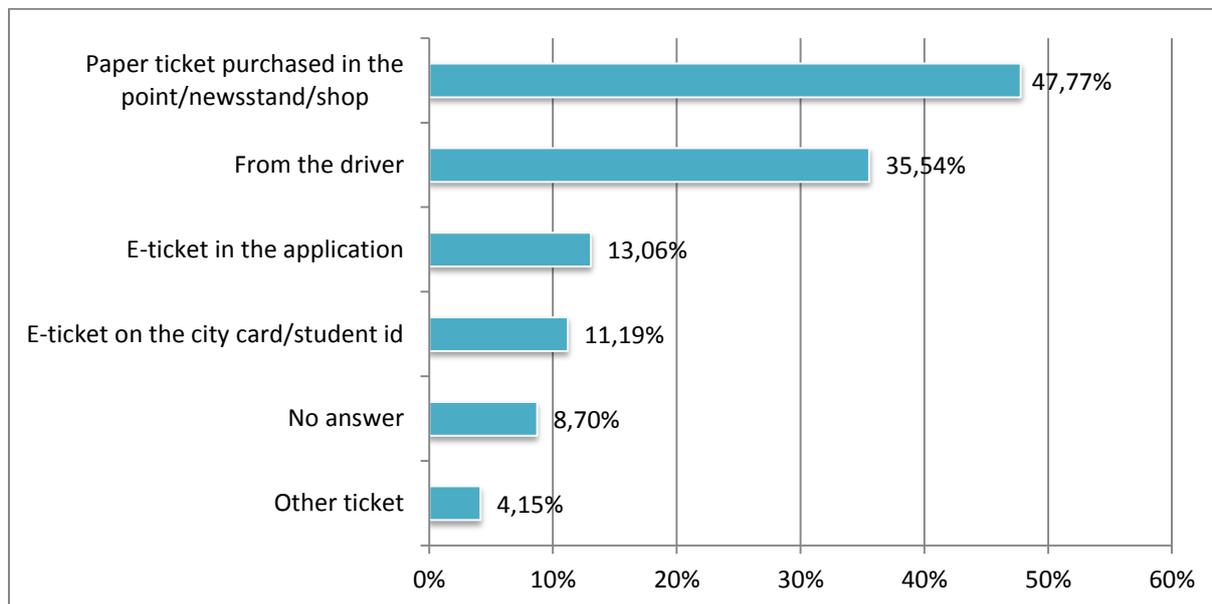
Source: Own research based on conducted studies.

Attention shall be drawn to the fact that paper tickets are the most frequently purchased form also among the surveyed children (45.95%). Season tickets were indicated by 13.51% of respondents, whereas 5.41% chose day passes. ¼ of the participants of the study conducted with the age group 8-15 travels free of charge.

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Figure 23. What type of tickets do you purchase the most often
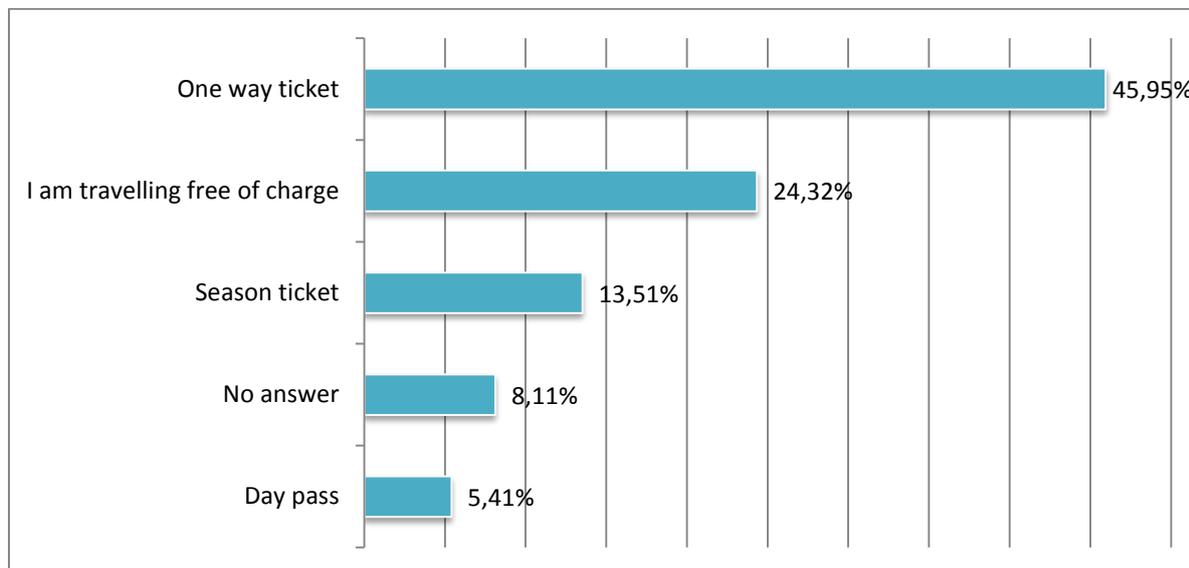
Source: Own research based on conducted studies.

The majority of surveyed children (65,86%) purchases paper tickets stationary, while almost 16% uses an e-ticket in the mobile app. Nearly 14% of passengers participating in the survey with the younger age group has an e-ticket on the city card or the student id.

Figure 24. How do you purchase tickets?

Source: Own research based on conducted studies.

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12.   Meeting the needs with introduction of the metropolitan ticket

Answers of surveyed passengers led to the conclusion that the main factor discouraging travellers from using public transport is the cost of tickets (35.85%). A considerable share of responses concerned complications and differences in ticket prices in different carriers, and a lack of certainty that the passenger would reach their destination on time (approximately 27% each). Respondents also mentioned: distance between the place of residence and the initial stop (21%), conditions of travelling (17.93%), distance between stops in the case of the need to change connections (13.47%) and the unavailability of timetables (7.56%). Other answers included travel time, unpleasant smell in means of communication, missing connections and low frequency of buses.

Figure 25.What discourages you from using public transport?
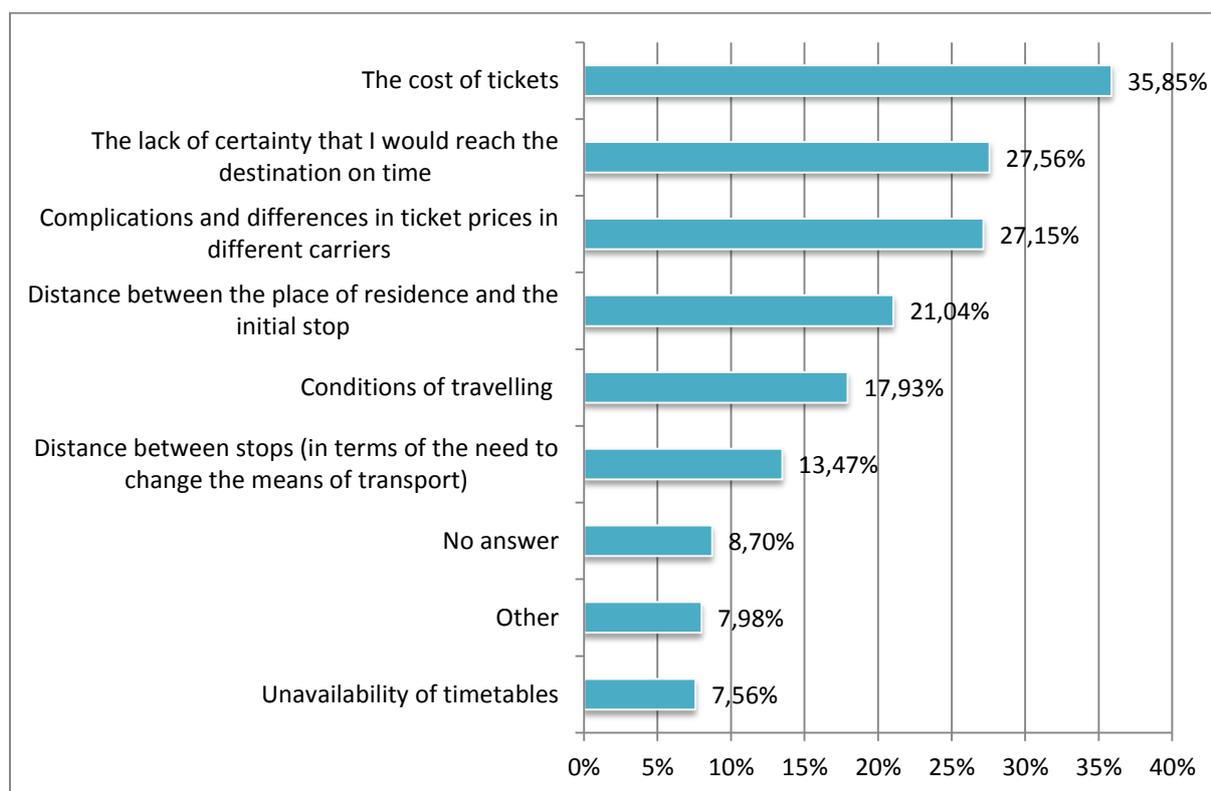
Source: Own research based on conducted studies.

Respondents of the survey were also asked to indicate factors that could encourage them to use the new system of payment for travels, e.g. validating the travel in a different manner when getting into the vehicle (which will be obligatory after introducing the new integrated system). The most considerable number of participants of the study indicated lower cost of the travel (52.95%). Significant improvements should also relate to a better comfort of the travel (42.18%) and more frequent connections (40%). Over 20% of respondents chose the possibility of paying for tickets in a different time schedule (daily, weekly, monthly), and 16% of participants indicated the organisation of competitions and receiving rewards for validating the ticket with the card when getting into the vehicle. Other responses stated that the system should be transparent and convenient to use.

Figure 26. After launching the new system for paying for public transportation what would encourage you to validate the travel when getting into the vehicle?
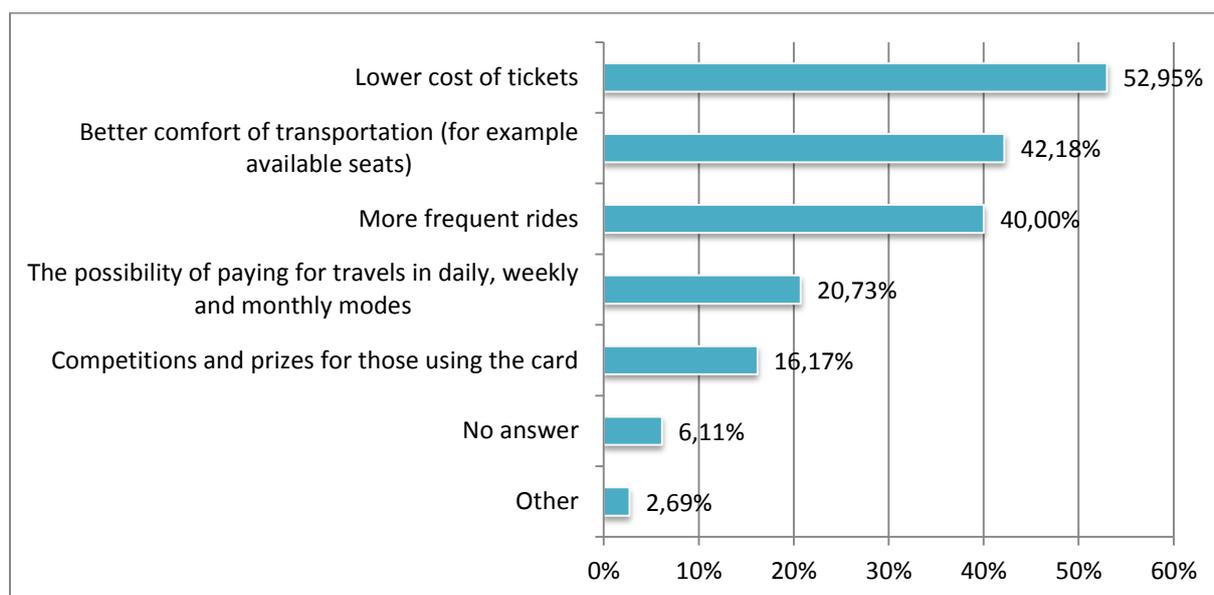
Source: Own research based on conducted studies.

The analysis of the answers of the youngest study participants showed that nearly half of the children considered a better travel comfort a significant factor that could encourage them to validate the ticket when getting into the vehicle. Other factors would be: lower cost of tickets (37.84%), more frequent connections (29.73), competitions and prizes (18.92%) and purchasing tickets in a different timeframe. (8.11%).

**Figure 27. What would encourage you to validate the travel when getting into the vehicle?**

Source: Own research based on conducted studies.

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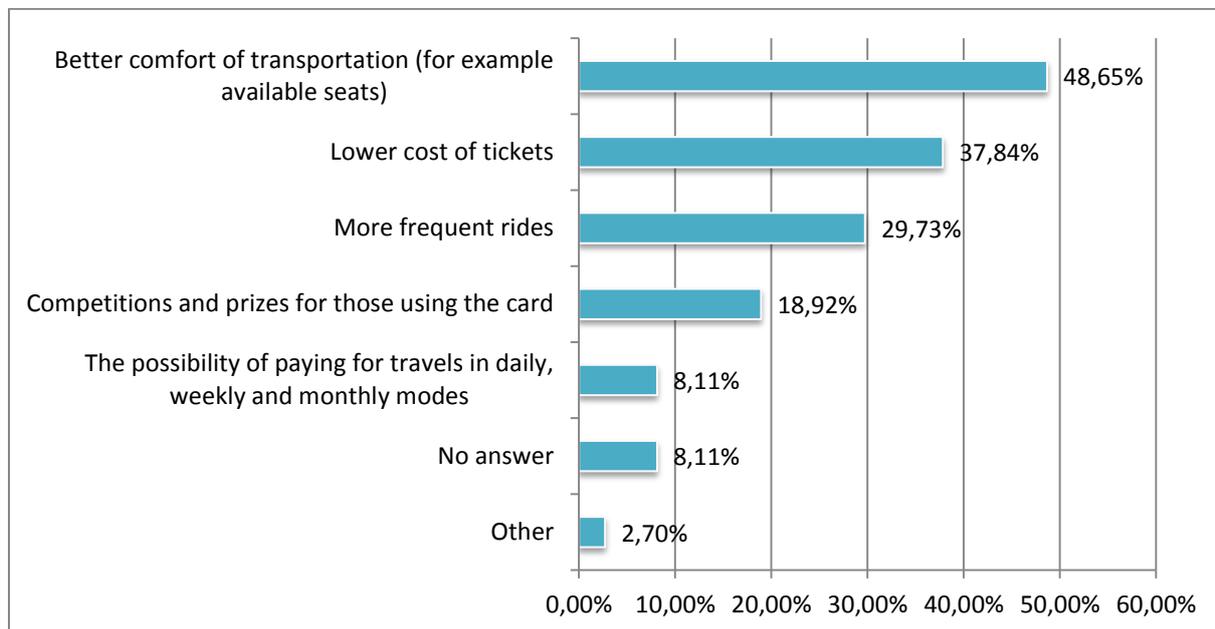
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13. Challenges related to the functionality of the system and their causes

A considerable number of respondents participating in conducted survey expressed the willingness to have the card as a substitute for a traditional ticket (73.26%). Furthermore, nearly ¾ of the surveyed passengers own a smartphone on which a special mobile application concerning transport could be installed. Therefore, it can be concluded that the positive attitude towards changes and modern tehchnology owned by travellers constitute significant reasons for the implementation of measures planned in the project.

Figure 28. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?
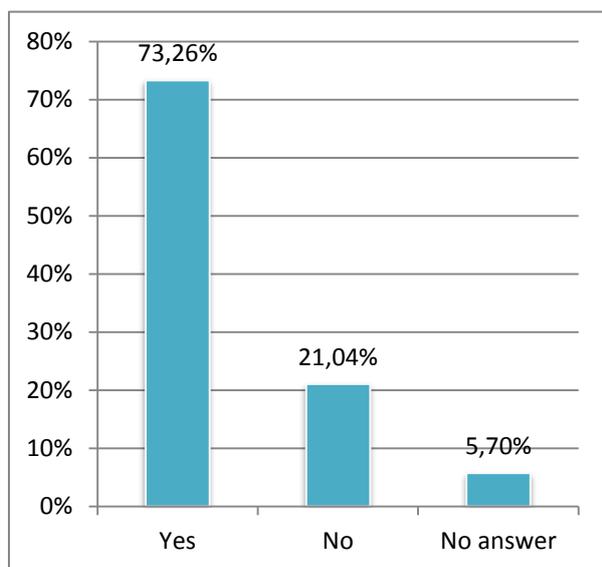
Figure 29. Do you have a smartphone that could run an app related to public transportation?
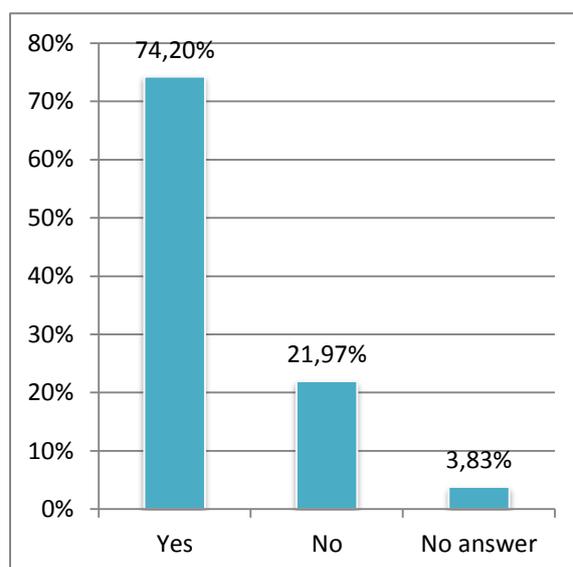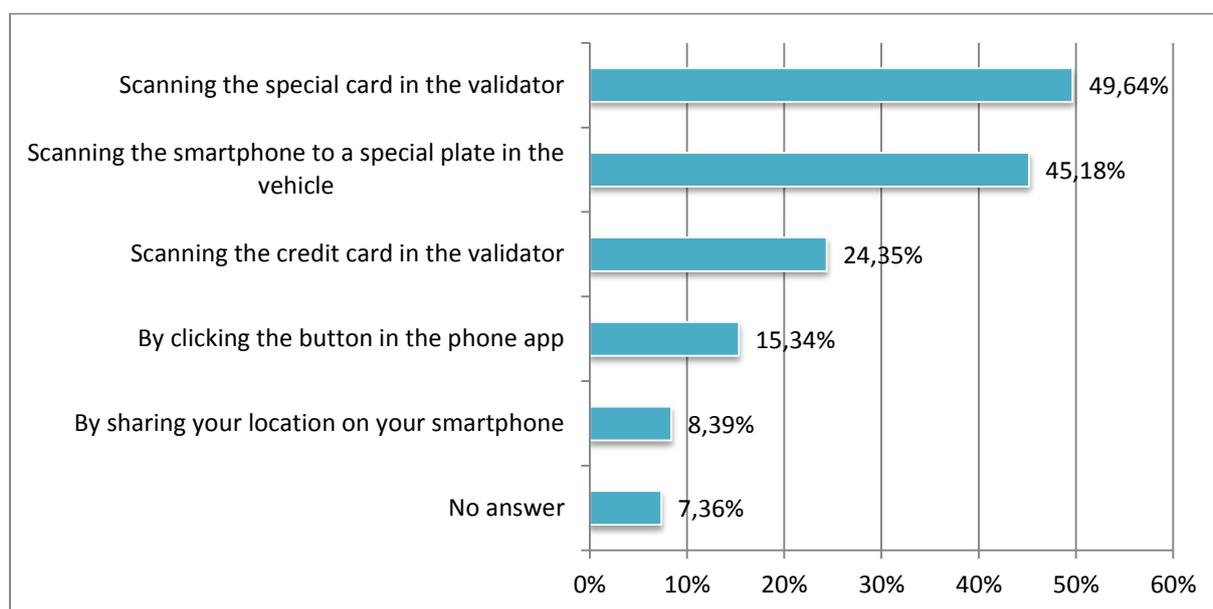

Source: Own research based on conducted studies.

Nearly half of respondents would like to validate the ticket in the vehicle by scanning the card in the validator. Approximately 45% of surveyed passengers would prefer to scan the smartphone to a special plate in the vehicle. 24.35% of answers concerned the possibility of scanning the credit card in the validator. Over 15% of respondents would choose to validate the ticket through the smartphone, and 8.39% would prefer to share their location on the smartphone.

Figure 30. How would you like to validate your travel in the vehicle?

Source: Own research based on conducted studies.

Attention shall also be drawn to the fact that the willingness to have a special card was expressed mostly by women (76.4%), young people aged 16-25 (81.3%) and those living in cities below 50 thousand residents (76.5%).

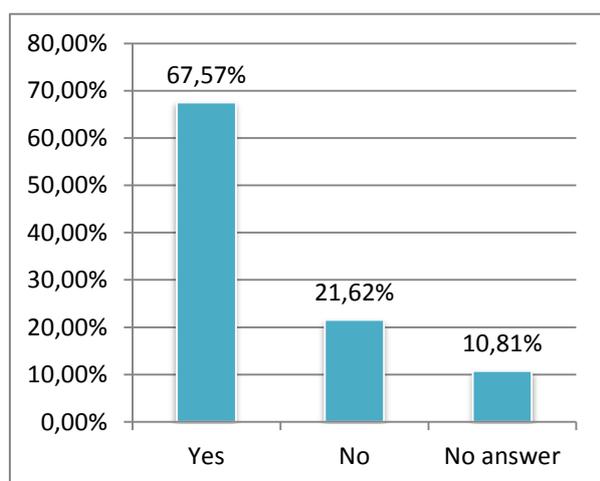Co-funded by the Horizon 2020 Programme of the European Union

Table 2. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?

Answer	Gender			Age			Place of residence				
	Total	Female	Male	16-25	26-64	65+	Village	City with less than 50 thousand inhabitants	City with 50 thousand to 150 thousand inhabitants	City with 150 thousand to 500 thousand inhabitants	City with more than 500 thousand inhabitants
Yes	73,3	76,4	68,5	81,3	73,4	65,5	70,0	76,5	70,9	73,5	73,5
No	21,0	18,3	25,2	16,7	21,2	23,6	21,7	19,3	23,2	19,3	23,5

Source: Own research based on conducted studies.

Among the younger age group participating in conducted survey 67.57% would like to have a special card instead of a traditional ticket. 83.78% of the youngest respondents have a smartphone on which a mobile transport app could run. Such results of the research lead to the conclusion that young people are characterised by a considerable technological potential, which could constitute a conducive factor for the implementation of the measures planned in the project.

Figure 31. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?

Figure 32. Do you have a smartphone that could run an app related to public transportation?
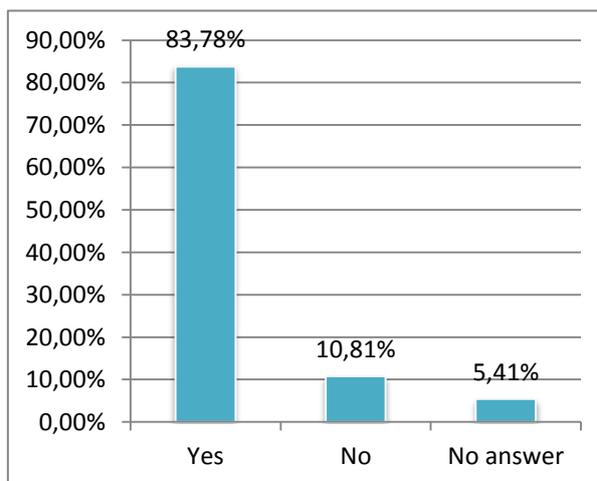
Source: Own research based on conducted studies.

The willingness to own a special card was expressed mostly by boys (93,3%) and children from small towns and very large cities (each = 100%).

Table 3. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?

Answer	Gender			Place of residence				
	Total	**Girl**	**Boy**	**Village**	**Small City**	**Medium city**	**Big city**	**Very big city**
Yes	75,8	64,7	93,3	60	100	76,5	60	100
No	24,2	35,3	6,7	40	0	23,5	40	0

Source: Own research based on conducted studies.

Moreover, nearly 60% of children would like to validate the ticket in the vehicle by scanning the smartphone to a special plate in the vehicle. About 40% would prefer to scan a special card to the validator, 10.81% through the application on the smartphone, and 5.41% - by scanning the credit card to a validator.

Figure 33. How would you like to validate your travel in the vehicle?
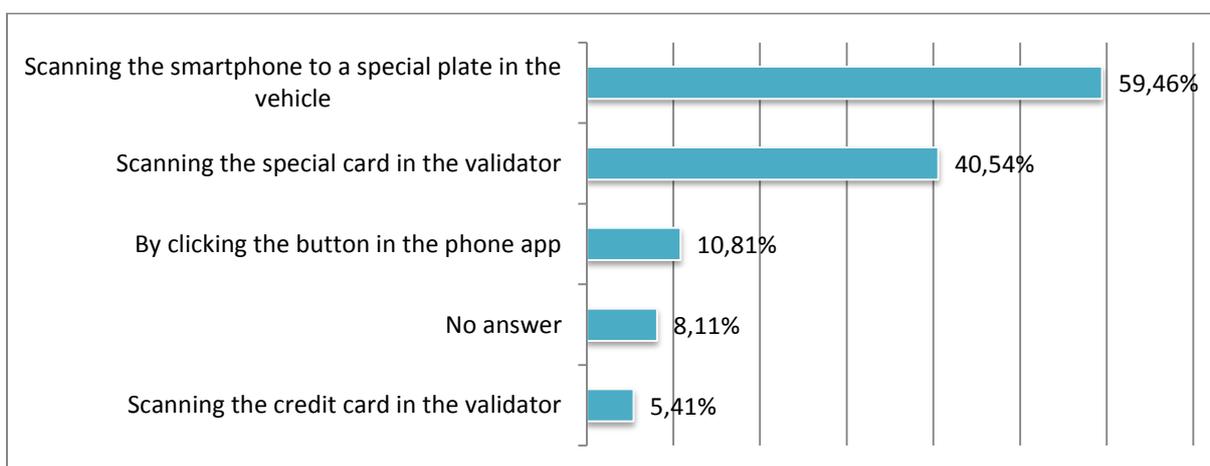
Source: Own research based on conducted studies.

More men than women had a smartphone (75.3%), as it was in the case of younger people aged 16-25 (88.2%).

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14. Detailed analysis of the needs of children in the scope of transport

Children and young people from the Pomeranian Voivodeship participated in conducted research in order to analyse the needs of this age group concerning transport. Over half of respondents live in a medium-sized city (51.35%). Other respondents indicated: 19% - big city, 13.5% - village, 11% - small city, and 5.5% - very big city.
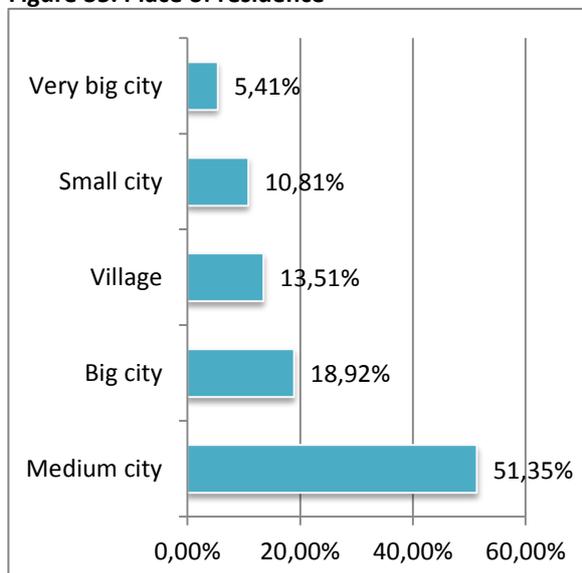
**Figure 34. Gender**
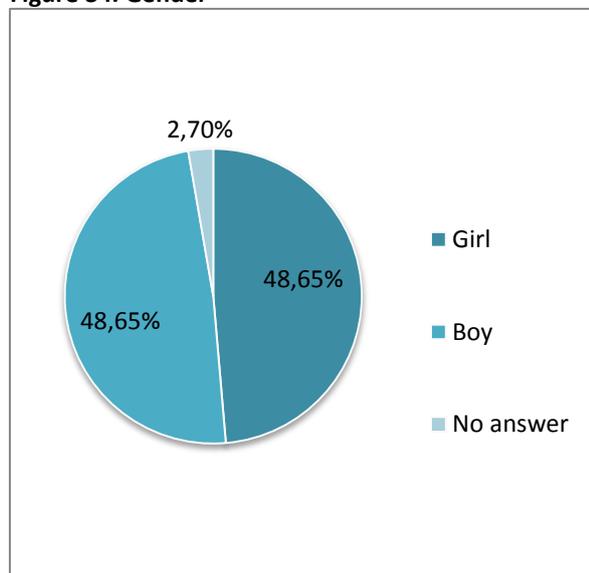
Figure 35. Place of residence

Source: Own research based on conducted studies.

Among the surveyed children ¾ stated that their parents own a car. Such question is significant given the analysis of the transport needs due to the fact that families which have a car are less probable to use public transport.

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Figure 36. Do your parents have a car?
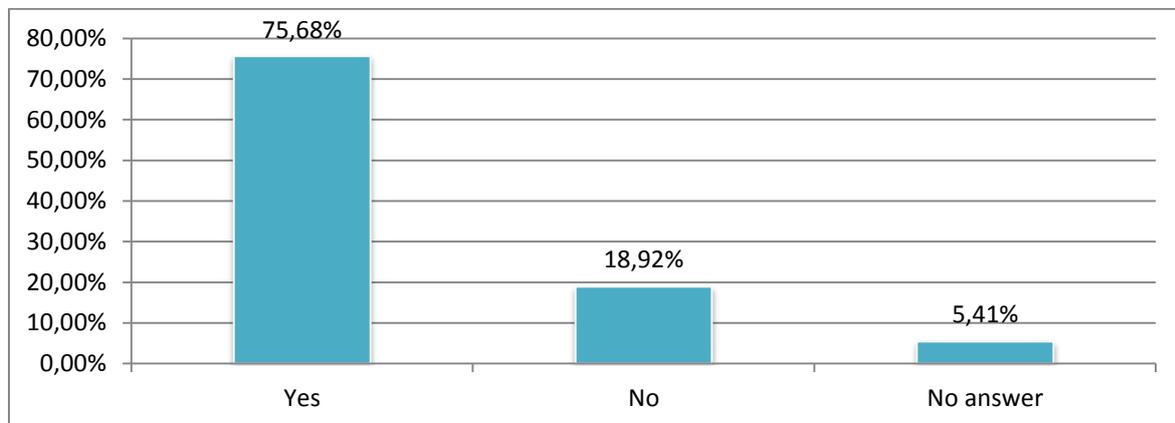
Source: Own research based on conducted studies.

Cars were owned by all parents of children living in big and very big cities.

**Figure 37. Do your parents have a car?**

Answer	Total	Girl	Boy	Place of residence				
				Village	Small city	Medium city	Big city	Very big city
Yes	80,0	83,3	75,0	100	75	64,7	100	100
No	20,0	16,7	25,0	0	25	35,3	0	0

Source: Own research based on conducted studies.

Half of surveyed children commute from home to school and back using public transport, whereas 40% travels by car.

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Figure 38. How do you commute from home to school or on your way back?
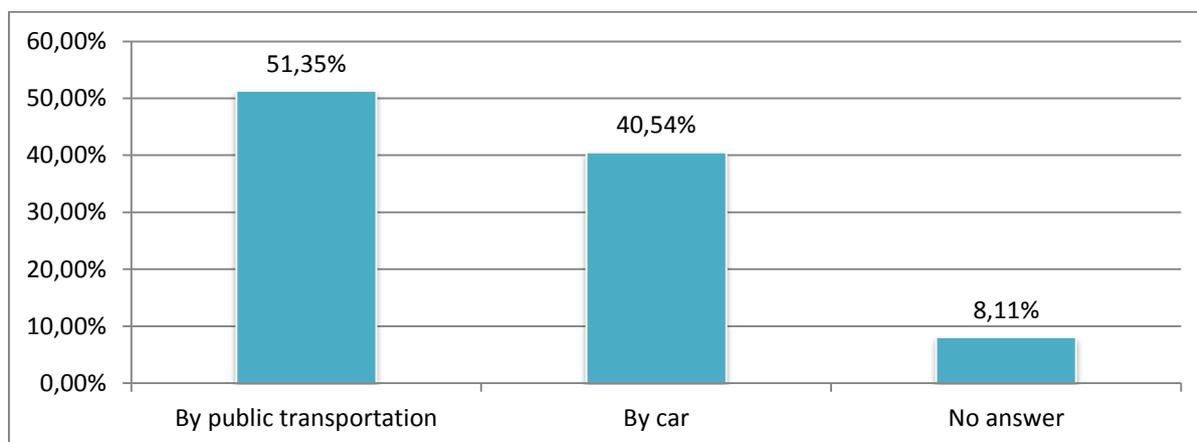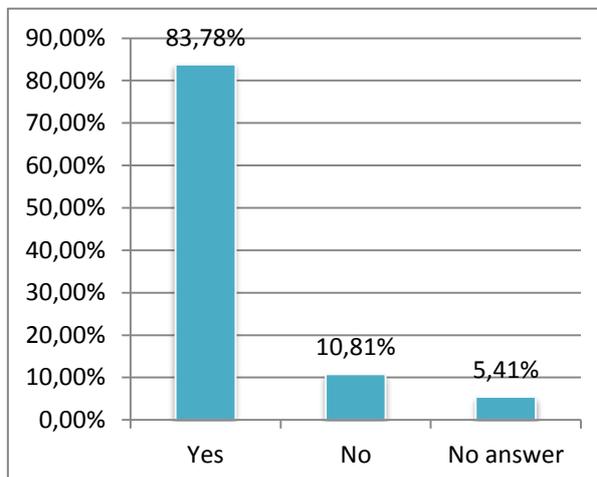

Source: Own research based on conducted studies.

Most children (67.57%) would like to have a special card replacing traditional tickets. 83.78% of the respondents from the youngest age group have a smartphone on which a transport app would run.

Figure 39. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?
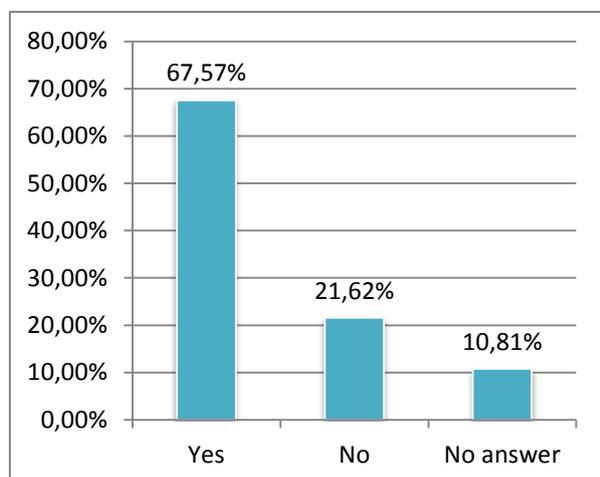
Figure 40. Do you have a smartphone that could run an app related to public transportation?

Source: Own research based on conducted studies.

The willingness to have a special card was expressed mainly by boys (93.3%) and children from small or very big cities (each answer - 100%).

Table 4. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?

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Answer				Place of residence				
	Total	Girl	Boy	Village	Small city	Medium city	Big city	Very big city
Tak	75,8	64,7	93,3	60	100	76,5	60	100
Nie	24,2	35,3	6,7	40	0	23,5	40	0

Source: Own research based on conducted studies.

An equal number of girls and boys (88.2% each) declared having a smartphone, this answer was also chosen by the largest number of children living in big cities (100%).

Figure 41. Do you have a smartphone on which you can install a mobile application?
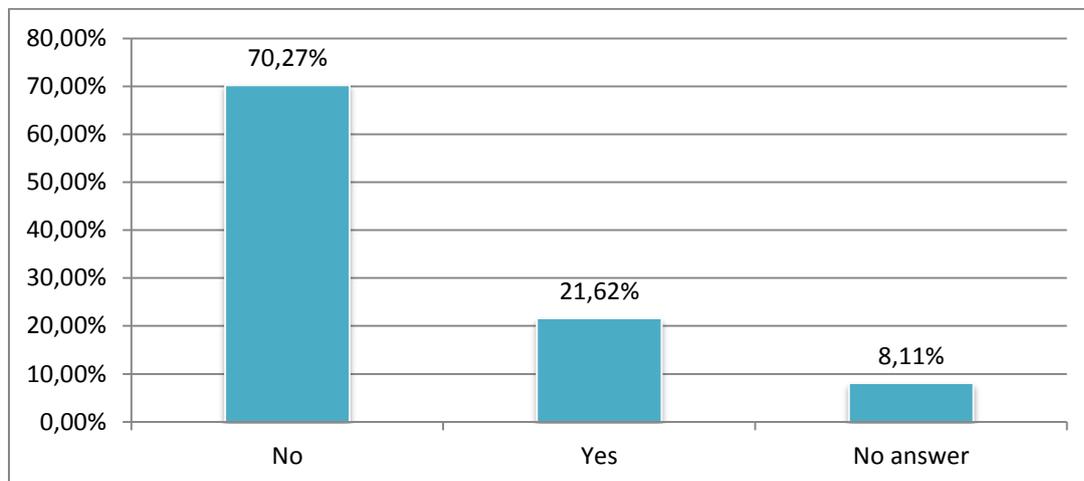
Answer				Place of residence				
	Total	Girl	Boy	Village	Small city	Medium city	Big city	Very big city
Tak	88,6	88,2	88,2	80	66,6	94,7	100	50
Nie	11,4	11,8	11,8	20	33,3	5,3	0	50

Source: Own research based on conducted studies.

70% of respondents from the youngest age group confirmed having a credit card. The highest percentage of owning credit cards was indicated by girls (31.3%) and children living in medium cities (82.4%).

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Figure 42. Do you have a credit card?

Source: Own research based on conducted studies.

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Table 5. Do you have a credit card?

Answer				Place of residence				
	Total	**Girl**	**Boy**	**Village**	**Small city**	**Medium city**	**Big city**	**Very big city**
Tak	23,5	31,3	11,8	60	0	82,4	40	0
Nie	76,5	68,8	88,2	40	100	17,6	60	100

Source: Own research based on conducted studies.

Nearly 60% of children would like to validate the ticket in the vehicle by scanning the smartphone to a special plate in the vehicle. About 40% would prefer to scan a special card to the validator, 10.81% through the application on the smartphone, and 5.41% - by scanning the credit card to a validator.

Figure 43. How would you like to validate your travel in the vehicle?

Source: Own research based on conducted studies.

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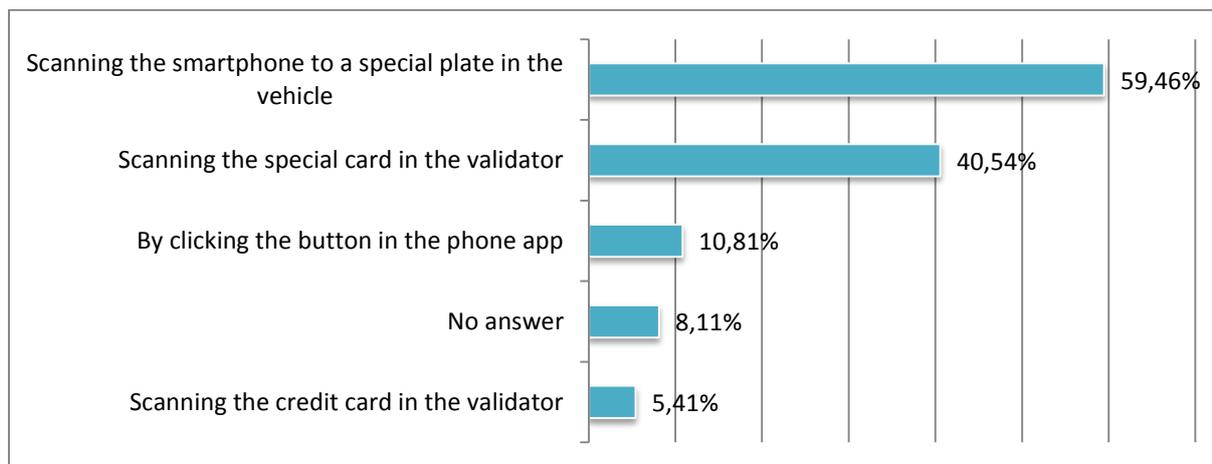
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15.   Final conclusions from the research, acknowledging the profiles of passengers

Basing on the conducted research, attention shall be drawn to the following conclusions:

1. Most of the respondents have the possibility to use a car, at the same time confirming high availability of public transport, particularly buses and railways.

2. The occasional manner of the use of public transport may also be indicated by the fact that the majority of respondents bought single tickets, choosing traditional methods of purchasing tickets at points of sale or from the driver.

3. According to respondents of conducted study, the factors discouraging passengers of the public transport are high cost of ticket, insufficient frequency and the lack of certainty of getting to the destination on time. Respondents expressed the need to improve the comfort and to simplify travel rules.

4. Despite the seemingly traditional approach to the means of purchasing tickets, the majority of respondents acknowledge the need to introduce modern solutions constituting the part of the project. Moreover, respondents have the necessary technology – smartphones and credit cards.

5. The willingness to use a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket was indicated by 73.3% of respondents (from 16-65+ age groups). More considerable interest was expressed by women (76.4%) and respondents aged 16-25 (81.3%). In this scope there were no major differences in relation to the size of the city of respondents. The fact of high interest in another type of payment for the public transport positively reflects the potential of the project.

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6. Abovementioned aspect was further researched in detail - giving respondents the option of specifying their answers by choosing different types of validating the payment. Special adapted card was the most frequently chosen option (nearly half of the respondents from the 16-65+ age group indicated this answer). However, a similar share of indications (over 45%) concerned the validation on a smartphone. In this scope no major discrepancies in the gender of respondents were noted (differences concerned the range of 2 pp). In the case of age groups, however, it was noted that the particularly high interest in using a smartphone was indicated within the 16-25 age group (up to 56%). The lowest interest in this form of validation was noted among respondents over in the age 65+ (less than 26%). Differences can also be observed in passengers' place of residence. The greatest interest in validating the travel on a smartphone was recorded among respondents from cities from 150 000 up to 500 000 inhabitants (51%), while the least considerable - in the case of rural residents (40%).

7. Attention shall also be drawn to the results of study conducted with the youngest age group (under 16 years old) - the most considerable share of indications concerned the validation of the travel with the use of a smartphone (60%), whereas the special card preferred by other age groups received in this case less than 41% of indications.

8. Taking into consideration the results of conducted study, a high demand for the introduction of a new, innovative form of payment for travels by public transport should be observed. The interest of potential users should be considered very high, and, according to respondents, the most interesting options for the validation of the travel in the vehicle are the use of a special card to the validator or a smartphone to a special plate. A particularly low interest of the elderly respondents of the study (group 65+) should be observed in the case of using a smartphone when traveling - this group of respondents would prefer to use a special card.

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16.   List of figures and tables

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17. Annex

17.1. PAPI questionnaire – age group 16-65+

Conducting the marketing analysis based on data and information obtained from passengers of the public transport in cities located in the Pomeranian Voivodeship (the metropolitan area of the Tricity and the urban fringe), as well as based on available studies.

Implemented under the European Local Energy Assistance (ELENA) as part of the preparation of final solutions under the Integrated Mobility Services Platform (*Platforma Zintegrowanych Usług Mobilności - PZUM*).

Please mark your answers with a circle

PERSONAL INFORMATION	
Gender	
A	Female
B	Male
Age	
A	up to 15
B	16-25
C	26-64
D	65+
Education	
A	Basic/in progress
B	Lower secondary
C	Upper secondary – general education
D	Upper secondary – vocational education
E	Higher

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	Situation on the labour market
A	Pupil or student
B	Unemployed
C	Employed – full-time job
D	Employed – civil law contracts
E	Employed – social cooperative
F	Employed – supported employment enterprise
G	Own business
H	Retirement
I	Pensioner
J	Other, which? ……………………………………………
	Place of residence
A	Village
B	City with less than 50 thousand inhabitants
C	City with 50 thousand to 150 thousand inhabitants
D	City with 150 thousand to 500 thousand inhabitants
E	City with more than 500 thousand inhabitants

	Poviat
A	Bytowski
B	Chojnicki
C	Człuchowski
D	Elbląski
E	Gdański
F	Kartuski
G	Kościerski
H	Kwidzyński

I	Lęborski
J	Malborski
K	Nowodworski
L	Pucki
M	Słupski
N	Starogardzki
O	Sztumski
P	Tczewski
R	Wejherowski
S	City with powiat rights: Gdańsk, Gdynia or Sopot
T	Other, which one? ……………………………………………………………………………

1. Do you have the possibility to travel by car? **(multiple choice question)**
   a) Yes, owned car
   b) Yes, a car belonging to the relative
   c) Yes, company's car
   d) Yes, rented car
   e) No
   f) Other, what?
   ………
   ………
   ………………….

2. Do you have the possibility to use public transport? **(multiple choice question)**
   a) Bus
   b) Train
   c) Tram
   d) Trolleybus
   e) City bike
   f) Other
   g) None

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3. How many times did you use public transport? **(please fill in with numbers)**

Means of transport	Yesterday	During the last week	During the last month
Bus			
Train (SKM, POLREGIO)			
Tram			
Trolleybus			
City bike			
Other (which?)			

4. What is your the most common purpose of the use of public transport? **(multiple choice question)**
   a) Commuting to work
   b) Commuting to school/university
   c) Shopping
   d) Entertainment
   e) Other, what?
   ………
   ………
   …………………………….

5. Do you use city/intercity public transport during weekends
   a) Yes
   b) No, why? **(Please go to the question 7.)**
   ………
   ………

6. What is your the most common purpose of the use of public transport on weekends? **(multiple choice question)**
   a) Commuting to work
   b) Commuting to school/university
   c) Shopping
   d) Entertainment
   e) Other, what?
   ………

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7. What is your preferred means of transport? **(multiple choice question)**
    a) Train (SKM, POLREGIO)
    b) Bus
    c) Tram
    d) Trolleybus
    e) City bike
    f) Other (for example Uber, rented car, electric scooter)

    ………
    ………

8. What type of tickets do you purchase the most often (in the case of each means of transport)?
    a) One way ticket (single or 1 hour ticket)
    b) Day pass (1 day ticket)
    c) Season ticket (monthly, semestral, yearly)
    d) I am travelling free of charge
    e) Other, which one?

    ………

9. How do you usually purchase the ticket for the public transport?
    a) Paper ticket purchased in the point/newsstand/shop (mark the right answer)
    b) From the driver
    c) E-ticket in the application (please indicate which apps you use)

    ………
    ………..
    d) E-ticket on the city card/student id
    e) Other ticket, which one?

    ………
    ………

10. What changes would encourage you to use public transport more often? **(multiple choice question)**
    a) Increased number of rides
    b) Different routes
    c) Increased comfort of travelling
    d) Improved means of purchasing a ticket
    e) Establishment of one common platform gathering information on all means of transport in the Voivodeship
    f) Lowered cost of tickets
    g) Improved punctuality

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h) Increased availability of timetables (and means to purchase tickets) on applications

i) Other, what?

....

....

11. What discourages you from using public transport? **(multiple choice question)**
   a) The cost of tickets
   b) Complications and differences in ticket prices in different carriers
   c) Distance between the place of residence and the initial stop
   d) Distance between stops (in terms of the need to change the means of transport)
   e) The lack of certainty that I would reach the destination on time
   f) Conditions of travelling
   g) Unavailability of timetables
   h) Other, what?

....

....

12. Do you use the reduced-fare tickets for the public transport?
   a) Yes, which reduced fare?

....

   b) No

13. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?
   a) Yes
   b) No

14. Do you have a smartphone that could run an app related to public transportation?
   a) Yes
   b) No

15. Do you have a credit card?
   a) Yes
   b) No

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16. After launching the new system for paying for public transportation what would encourage you to validate the travel when getting into the vehicle? **(multiple choice question)**
   a) Better comfort of transportation (for example available seats)
   b) Lower cost of tickets
   c) More frequent rides
   d) Competitions and prizes for those using the card
   e) The possibility of paying for travels in daily, weekly and monthly modes
   f) Others
   ....

17. How would you like to validate your travel in the vehicle? **(multiple choice question)**
   a) Scanning the smartphone to a special plate in the vehicle
   b) Scanning the credit card in the validator
   c) By sharing your location on your smartphone
   d) By clicking the button in the phone app

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17.2. PAPI questionnaire – age group 8-15

> Conducting the marketing analysis based on data and information obtained from passengers of the public transport in cities located in the Pomeranian Voivodeship (the metropolitan area of the Tricity and the urban fringe), as well as based on available studies.
>
> Implemented under the European Local Energy Assistance (ELENA) as part of the preparation of final solutions under the Integrated Mobility Services Platform (*Platforma Zintegrowanych Usług Mobilności - PZUM*).

PERSONAL INFORMATION	
Gender (filled in by the pollster)	
A	A girl
B	A boy
Place of residence	
	Village
	Small City
	Medium city
	Big city
	Very big city
Place of residence (city/ poviat)	
....	

18. Do your parents have a car?
    a) Yes
    b) No

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19. How do you commute from home to school or on your way back?
    a) By car
    b) By public transportation (trains, trams, buses etc.)

20. How many times did you use public transport? **(please fill in with numbers)**

Means of transport	Yesterday	During the last week	During the last month
Bus			
Train (SKM, POLREGIO)			
Tram			
Trolleybus			
City bike			
Other (which?)			

21. What type of tickets do you purchase the most often (in the case of each means of transport)?
    f) One way ticket (single or 1 hour ticket)
    g) Day pass (1 day ticket)
    h) Season ticket (monthly, semestral, yearly)
    i) I am travelling free of charge

22. How do you purchase tickets? **(you can choose more than one answer)**
    a) Paper ticket purchased in the point/newsstand/shop/from the driver (mark the right answer)
    b) E-ticket in the application (please indicate which apps you use)
    ……………………………………………………………………………………………………
    c) E-ticket on the city card/student id
    d) Other ticket, which one?
    ………

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23. Would you like to have a special card that would be pressed to the validator when entering the vehicle instead of validating the ticket?
  c) Yes
  d) No

24. Do you have a smartphone that could run an app related to public transportation?
  c) Yes
  d) No

25. Do you have a credit card?
  c) Yes
  d) No

26. What would encourage you to validate the travel when getting into the vehicle? **(you can choose more than one answer)**
  a) Better comfort of transportation (for example available seats)
  b) Lower cost of tickets
  c) More frequent rides
  d) Competitions and prizes for those using the card
  e) Możliwość rozliczania się za przejazdy w trybie dobowym czy np. tygodniowym lub miesięcznym The possibility of paying for travels in daily, weekly and monthly modes
  f) Others
  ………

27. How would you like to validate your travel in the vehicle? **(you can choose more than one answer)**
  a) Scanning the smartphone to a special plate in the vehicle
  b) Scanning the special card in the validator
  c) Scanning the credit card in the validator
  d) By sharing your location on your smartphone
  e) By clicking the button in the phone app

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17.3. Scenario of the educational meeting

Scenario of information meetings preceding conducted surveys *

Duration	Thematic scope
10'	Initiation of the meeting held by the leading moderator: − Welcoming the participants − Presentation of the project objectives and meeting goals − Presentation of the project schedule and meeting agenda
30'	Presentation of the main objectives of the Integrated Mobility Services Platform *(Platforma Zintegrowanych Usług Mobilności)* and the principles of sustainable transport with the introduction of the Stories of meeting participants. (*the task of a leading moderator with the support of a moderator of PAPI*)
10'	1. Activities for children (face painting, artistic activity conducted under the supervision of a children's activities organiser) 2. Presentation of the FALA system *(the task of the leading moderator)*
20'	Moderated workshops concerning the frequency of the usage of public transport and benefits for the environment resulting from implementation of low-emission means of transport *(the task of the leading moderator)*
25'	Q&A session for participants of the meeting *(the task of the leading moderator with the support of PAPI moderator and the representative of InnoBaltica)*
5'	Summary and the closure of the meeting *(the task of the leading moderator)*
20'	Conducting surveys (PAPI) among participants of the meeting *(the task of the PAPI moderator)*

* A continuous coffee break consisting of coffee/tea/water and cookies is held during the meetings

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17.4. Scenario of outdoor events

Thematic scope*
– Welcoming the participants of the outdoor event by the leading moderator – Presentation of the project for the ticket integration and introduction to the subject of sustainable transport *(the task of the leading moderator)* – Presentation of dates of launching the pomeranian ticket FALA for public use *(the task of the leading moderator)*
Workshops concerning objectives of the the Integrated Mobility Services Platform (*Platforma Zintegrowanych Usług Mobilności*) with the elements of workshops regarding the sustainable transport *(the task of the leading moderator with the support of PAPI moderator)*
Activities for children (including talks on subjects related to sustainable transport and elements of transport education - face painting, visual arts and physical activities conducted with the support of a professional organiser of activities for children*)*
Presentation of the FALA system *(the task of the leading moderator)*
Promotional activities at the event *(the task of two PAPI moderators – including: handing out gadgets, fudges and information leaflets, conducting PAPI survey)*
Q&A session for participants of the event *(the task of the leading moderator with the support of PAPI moderator and the representative of InnoBaltica)*
Conducting surveys (PAPI) among participants of the event *(the task of two PAPI moderators)*

* Outdoor meetings are characterised by the cyclical nature of the elements described in above scenario

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