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## TARIFFS AND TICKETING INTEGRATION OF COLLECTIVE PUBLIC TRANSPORT IN THE REGION AT THE EXAMPLE OF POMORSKIE VOIVODESHIP

### Abstract

Public transport in the region should be integrated in terms of tariffs and ticketing system. The objective of this article is to present the requirements and project of the tariffs and ticketing integration regarding public transport in the region on the example of Pomorskie Voivodeship. The article begins with information on the circumstances of tariffs and ticketing integration in public transport and models of tariffs integration regarding the said transport in the region. Further the article presents the issue of tariffs and ticketing integration in Pomorskie Voivodeship, where the polycentric metropolis of Gdansk Bay is located. The subsequent parts of the article are devoted to the electronic ticketing system as an instrument of the tariffs and ticketing integration in Pomorskie Voivodeship, and the project of tariffs and ticketing integration within the said area. The implementation and functioning of the tariffs and ticketing integration in the region, satisfactory for the passengers, results from accepting the principles of integrated ticket settlements by the integration participants, based on data regarding the completed travels. In Pomorskie Voivodeship it is planned to start the electronic ticket system providing such data.

**Keywords:** tariffs and ticketing integration, public transport, region, Pomorskie Voivodeship

### Introduction

The public authorities at various levels responsible for managing public transport define in the transport plans the required modal split in urban transport.

It requires providing public transport with proper conditions for the qualitative and quantitative development ensuring effective competition with regularly and dynamically developing, frequently in an uncontrolled manner, individual motorization. The support of public transport by public authorities should result in maintaining or increasing its share in handling transport needs by increasing its potential in terms of quantity and quality. Such growth should also be accompanied by the qualitative development of public transport (Laskowska, 2008).

The development of public transport in the light of the Act on public transport should be sustainable (Komsta, 2015). It means that the process (Act on public transport, 2010) shall:

- take into account social expectations regarding common availability of services,
- enable using various means of transport,
- promote environmentally friendly means of transport equipped with modern technical solutions.

One of the major directions for the development of public transport involves its integration. The integration is ensured in practice, if on the market there is one organizer of the public transport. However, it is difficult to integrate the public transport on the transport markets with the variety of offers coming from different organizers. The problems with integration occur when the organizers offer substitute and complementary services.

From the viewpoint of passengers, the clearest indication of the lack of integration involves tariffs which include no ticket option allowing the use of transport provided by different organizers. It may constitute grounds for low rating of the public transport offer, and consequently lower demand and income from the sale of tickets. The counteracting activities require cooperation of the public transport organizers. The cooperation on the tariffs and ticketing integration can be facilitated by the use of modern technologies regarding charges for tickets and records of charges. Their advantage involves not only more convenient use of public transport for passengers, but also more convenient financial settlements between the organizers. The technological change makes it possible to implement such technologies locally and on a larger scale – in the region and in the country.

## **1. Conditions for Tariffs and Ticketing Integration**

The issues regarding the tariffs and ticketing integration in public transport can be analysed under various aspects and from different points of view. However, the key importance refers to taking into account the formal and legal framework enabling cooperation between the organizers of public transport aiming at introducing and maintaining the integrated tariffs and ticketing solutions.

The main legal act defining the principles for organization and operation of the public transport, i.e. in the Act on public transport says little about the tariffs and ticketing integration. There is only a definition of such system, as a solution which makes it possible “for passengers to use the ticket allowing the use of various means of transport within the area managed by the organizer of public transport”

(Ustawa, 2010). As a result, there are no legal requirements defining the principles for the tariffs and ticketing integration and organizers may determine the terms of cooperation providing the integrated tariffs and ticketing offer, as they see fit, both under public and private laws.

The lack of legal regulations concerning the tariffs and ticketing integration does not mean that the tariffs of public transport can be set freely. The entities responsible for establishing the prices must follow the statutory rights of selected groups of people to free and discount travels. The resulting loss of income is compensated from the state budget to the operators of regional transport. However, the compensation for lost income from the state budget is not currently available for municipalities which cover from their budgets the loss of income from the sale of tickets, resulting from free and discount travels by vehicles of urban transport under statutory discounts. The lack of compensation adversely affects the urban transport development opportunities.

The financial resources of the organizers of public transport are an important element in the tariffs and ticketing integration. The basic sources of financing dedicated to contract the transport services are the budgets of local authorities of various levels and income from the sale of tickets. The lack of possibility to increase the financial flows to support the tariffs and ticketing integration significantly limits its scope and the effectiveness of maintaining and acquiring new passengers. In such situation the integration may only involve combining within one operator two tickets of the same price, as in the situation when tickets are sold separately.

The objective of the tariffs and ticketing integration should involve strengthening the competitiveness of public transport compared to private cars (Kopeć, 2016). The integrated tariff constitutes only one of the elements affecting the decisions on selecting the means of transport taken by the inhabitants and tourists (Klemba, 2017). Nevertheless, at fixing ticket prices regarding public transport, in particular integrated ones, apart from typical price-generating factors, we need to take into account the costs of private car travels.

From the viewpoint of passengers, the tariffs and ticketing integration should:

- optimize expenses on public transport services,
- limit the time necessary to purchase tickets of different organizers',
- provide services using various means of transport under one ticket,
- provide possibility to use the offer of all organizers on common routes,
- provide possibility to buy integrated tickets at the points of sale of all public transport organizers.

The introduction of fully integrated tariffs combining services of different organizers, in particular regional and urban transport, makes it impossible to differentiate, in a statutory manner, the groups of people entitled to free and discount travels, and the level of discount (Mazur, 2016). In the regional transport the discount amounts to 93%, 78%, 51%, 49%, 37% and 33%, and in urban transport to 50%. The laws fail to encourage to increase the level of discount in the regional transport to adjust it to the level applicable in the urban transport, i.e. to add to 37% statutory discount, another 13% of commercial discount to obtain the total discount in amount

of 50%, since in such case the operator in regional transport loses the possibility to receive compensation from the state budget for lost income.

The political circumstances are also important in the tariffs and ticketing integration. They may result in the lack of interest of particular entity in participating in the process of integration or excluding it from the process by another entity. In such context, the tariffs and ticketing integration implemented in the region may, due to significant number of participants, run into considerable difficulties. Large number of entities responsible for the organization of transport and fixing the prices for their services independently may complicate decision making processes, mutual financial settlements and fixing common tariffs. One of the problems include substitution of integrated offer relative to individual offer and the related resistance of organizers and operators who may worry about the negative economic and financial results of the implemented integrated offer.

## 2. Models of the Tariffs and Ticketing Integration in the Region

The tariffs and ticketing integration of public transport in the region may take different forms which were presented in Figure 1.

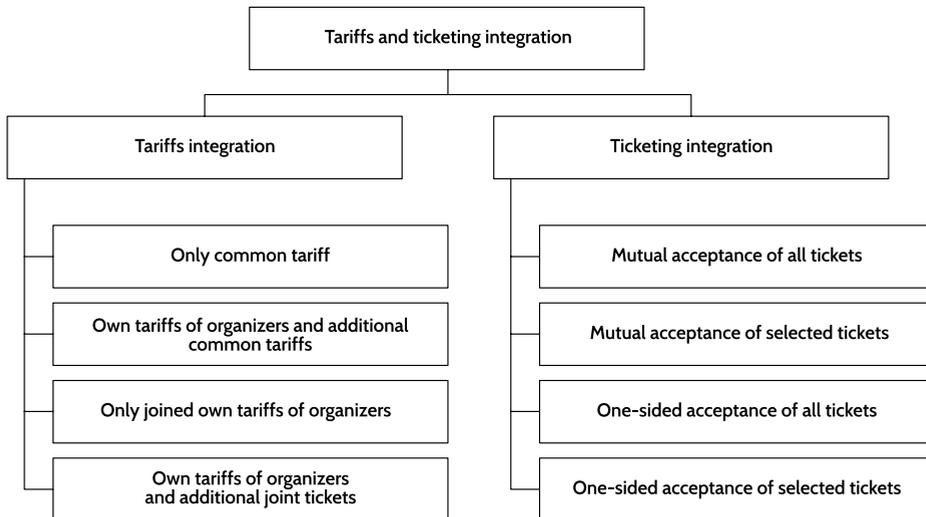


Figure 1. Forms of the Tariffs and Ticketing Integration in the Region

Source: (own elaborations)

The objective of tariffs integration is to unify all or part of tariffs regulations by entities entitled to determine the tariffs. The entities may remain independent or may integrate as an organization, which may result in the complete tariffs and ticketing integration. The lowest level of tariffs integration may involve introducing additional integrated ticket for travelling by various means of transport of more than one organizer. Such ticket constitutes additional offer relative to the existing

tariffs of particular ticket issuers. The additional ticket could be the combined ticket or may consist of combined tickets sold at the same time.

In the case of full or partial integration based on combined tariff it is necessary to unify the rights to free and discount travels and the amount of discounts. Therefore, such solution is difficult to apply relative to the tariffs integration in the public transport in the region, including urban transport and regional transport – railway and bus services. As a result of the diversified amount of discounts and groups of people entitled to discount and free travels and the existing principles of lost income compensation, including the urban transport and regional railway and bus transport within the tariffs integration makes it impossible in the current legal circumstances to obtain compensation for statutory discounts from the state budget. Whereas, adopting in the urban transport the tariffs existing in the regional railway and bus transport, which requires proper amendments in the urban council resolutions, is inconvenient from the marketing, social and political point of view.

The ticket integration involves mutual recognition of tickets by the organizers rendering services within particular area. Then the transport organizers honour the mutually defined types of tickets. Such integration may cover the area where services are rendered by two or more organizers. All ticket issuers may cooperate with each other provided that they determine the system of mutual settlements. In special circumstances when the share of recognized tickets is rather small it is possible to resign from mutual settlements.

The grounds for financial settlements within the tariffs and ticketing integration between the cooperating parties may include:

- marketing research results;
- data from electronic ticket system and/or electronic payment for tickets;
- simple or complex indicators related e.g. to the number of inhabitants, number of carried passengers, volume of completed operational work.

The complete transport integration, including the tariffs and ticketing integration of the public transport in the region can be ensured only by establishing and functioning of one organizer of such transport.

### **3. Tariffs and ticketing integration in Pomorskie Voivodeship**

Pomorskie Voivodeship covers 18 310 km<sup>2</sup>, which constitutes nearly 6% of the total area of the country. It is divided for administrative purposes into 16 county districts, 4 cities with county district rights (townships) and 123 municipalities (including 42 cities). The voivodeship is inhabited by approx. 2.3 million people, with over 65% in urban municipalities. The majority of people live in cities with county district rights Gdańsk – approx. 460 thou. and Gdynia approx. 250 thou. forming together with several other municipalities the polycentric metropolis of Gdansk Bay.

Within Pomorskie Voivodeship the voivodeship is the organizer of public railway transport and orders services from the consortium of two transport companies: *Przewozy Regionalne Sp. z o.o.* and *PKP Szybka Kolej Miejska in Trójmiasto Sp. z o.o.* and to smaller extent from *Arriva RP Sp. z o.o.* The most important role in handling

the transport services belongs to the city SKM railway lines Gdańsk–Wejherowo and the Pomeranian Metropolitan Railway (PKM) Gdynia–Gdańsk–Zukowo–Kartuzy.

In Pomorskie Voivodeship there are over 2.5 thou. lines of public urban and regional transport handled by nearly 70 operators. The bus regional transport covers approx. 35% of the total operational work, provided by bus transport in the voivodeship and approx. 6% of the total number of passengers carried by bus transport in the voivodeship (Plan, 2014).

The organization of urban transport within Pomorskie Voivodeship is managed by professional entities in Gdańsk, Gdynia and Słupsk, whereas in other cities by the municipal departments. The cities providing the transport organization handle the services in municipalities related with them under inter-municipal agreements. The operators are both municipal and private companies.

The ticket issuers include railway transport operators, regional bus transport operators and cities or specialized entities representing the cities in managing the organization or operation of urban transport services.

The process of tariffs and ticketing integration in Pomorskie Voivodeship began upon establishing in 2007, by 13 municipalities the inter-municipal union – the Metropolitan Public Transport Association of Gdansk Bay (MZKZG). By way of such form of cooperation between local authorities the concept of “combined ticket” was planned to be introduced. The concept referred, first of all, to tickets valid in the urban transport organized autonomously by: Gdansk, Gdynia and Wejherowo. Apart from that, by virtue of the role of agglomeration railway transport, various types of combined tickets were introduced making it possible to use urban and railway transport within MZKZG. However, it was not possible to obtain full unification of the tariffs. In 2009, under the initiative of MZKZG only the tariffs of municipal organizers were unified. The previously existing tariff differences created one of the barriers for public transport integration in the metropolis, whereas the regulations on the rights to discount and free travels were not unified.

However, the most crucial issue is the lack of tariffs and ticketing integration between the urban and railway transport. The basic barriers for integration include the laws which in a diversified manner control the operation of urban and regional transport (railway and bus transport) regarding the rights to discount and free travels and rules of their compensation. Overcoming the barrier would require significant increase in funding public transport system within the MZKZG scope of operation by 67 million PLN annually (Kołodziejcki et al., 2015). Such additional amount would ensure full tariffs and ticketing integration within MZKZG, which means that for the whole region the amount would have to be much higher.

#### **4. Electronic Ticketing System as an Instrument of Tariffs and Ticketing Integration in Pomorskie Voivodeship**

Within the last decade, the electronic ticket in urban transport became the standard solution existing practically in every large and medium-sized city. In Tri-City it has been present for nearly 10 years – in 2006, it was introduced in the services

provided by *Zarząd Transportu Miejskiego* (ZTM) in Gdansk, and a year later by *Zarząd Komunikacji Miejskiej* (ZKM) in Gdynia. Passengers using the services of ZTM and ZKM can load on the cards only all 30 day, 24 hour and 72 hour metropolitan tickets. Only in two other cities in Pomorskie Voivodeship, in Wejherowo in 2005 and in Tczew in 2009 the system of electronic ticket was introduced, and they are complete systems equipped with the so-called electronic purse. Moreover, in Tczew payment for the travel was introduced in the vehicle via bank card.

So far, the electronic ticket system has been introduced neither by the organizer nor by railway operators providing services within Pomorskie Voivodeship. However, PKP SKM in Tri-City and Przewozy Regionalne honour in their trains the metropolitan tickets loaded on electronic cards, using special readers and dedicated software to read the tickets (Grzelec, Kołodziejski, Wyszomirski, 2015).

The municipalities within MZKZG and the city of Tczew took a decision on joint implementation of the project entitled "Implementation of electronic ticket system as an instrument of tariffs and ticketing integration in the public transport within the Tri-City Metropolitan Area providing the introduction of combined ticket" to be co-financed by the European Union Regional Operational Program for Pomorskie Voivodeship within the mechanism of Integrated Territorial Investments. Under this project it was planned to purchase software for handling the electronic ticket system with card readers to be installed in buses, trolleybuses and trams of urban transport organized by ZTM in Gdansk, ZKM in Gdynia, City Hall in Wejherowo and City Hall in Tczew. Moreover, the electronic ticket readers were to be installed at all railway stations and stops within the area of operation of public transport organizers taking part in the project, which aimed at including the railway transport organized by the local authority of Pomorskie Voivodeship in the electronic ticket system. The scope of the project also assumed the purchase of technical infrastructure indispensable for the sale and inspection of electronic tickets.

During the preparatory stage of the project the voivodeship local authority suggested extending the scope to cover not only the metropolis but the whole area of Pomorskie Voivodeship. It means that the combined electronic ticket shall function in the whole, and not only in the agglomeration railway transport, urban transport in other cities in the voivodeship and optionally in the bus regional transport at the operators interested in the tariffs and ticketing integration (Pniewska, 2016).

The proposal to extend the scope of the project was approved, with a possibility to replace the traditional electronic ticket system – with electronic payment system for the tickets (open payment).

The solution based on the electronic ticket and electronic payment shall facilitate the development of integrated tariffs and ticketing offer, contributing at the same time to the increase in quality and competitiveness of public transport in the whole region (Lipowski, 2015). The main advantages of the system include:

- optimization and automation of collecting charges for travels with changes (when there are many changes the system calculates and takes the most reasonable charge, in amount which does not exceed the price of 24-hour ticket);
- facilitated records of travels made by passengers;
- settlements of income from the sale of integrated tickets.

## 5. Tariffs and Ticketing Integration Project in Pomorskie Voivodeship

The implementation of electronic ticketing system shall constitute introduction to the tariffs and ticketing integration between the urban and regional transport within Pomorskie Voivodeship. The previous experience related to the tariffs and ticketing integration implemented within MZKZG make it possible to indicate the following directions for integration:

- strengthening the tariffs and ticketing integration within urban transport;
- developing the offer of combined tickets covering the railway transport and urban transport in the metropolis;
- introducing the combined tickets covering the railway transport and urban transport in cities outside the metropolis;
- introducing combined tickets covering the regional railway transport, urban transport and regional bus transport.

The basic assumption of the integrated ticket offer shall include providing the railway and bus operators in the regional transport with possibilities to obtain compensation for lost income resulting from recognizing the statutory discounts and free travels. As a result, instead of promoting one ticket – two tickets sold at the same time are promoted. Such offer will be addressed, first of all, to the holders of season tickets.

Whereas, in the metropolitan area it will be possible to replace completely the tariffs of particular urban transport organizers from Gdansk, Gdynia, Tczew and Wejherowo – with one tariff, thanks to the precise records of the use of tickets by the electronic ticketing system and charging system.

Nevertheless, regardless of the development of tariffs and ticketing integration in Pomorskie Voivodeship actions should be taken to unify the rights to discount and free travels. Unfortunately, it requires amendments to the national law. The alternative solution involves transferring additional financial resources to cover the deficit arising from the lack of possibilities to obtain compensation from the state budget for lost income resulting from discount and free travels. Therefore, we could postulate that the voivodeship governors should be able to manage the resources for compensation in a flexible manner, allowing the possibility to establish one ticket for the passenger, and accepting the mechanism of internal settlements regarding that ticket between the entities who make it possible for passengers to travel under the said ticket by their own means of public transport.

By implementing the tariffs and ticketing integration process we need to remember that it is dedicated to passengers. They expect additional benefits, either extending the scope of transport offer available for passengers buying the integrated ticket for the amount equal to the prices of tickets from various organizers, or lowering the price of integrated ticket compared to the sum of tickets included in the integrated one which provides the same scope of services as before.

## Conclusion

The tariffs and ticketing integration of various types of public transport in the region is the condition for increasing its competitiveness relative to private cars. It provides ground for optimization of: public transport network, use of its transport potential and expenses of local authorities for its operation.

The voivodeship local authorities and city centre boards managing the organization of urban transport should become the participants of integration process since the systems of regional and urban public transport complement each other. The cooperation of organizers from different levels should generate the synergy effect which will not be reached, if each organizer takes decisions and acts autonomously, without taking into account the behaviours of other stakeholders of the supply side of the market.

Railway transport is predestined to handle large number of passengers, which is especially important in services rendered at the core of metropolitan area. High standard of railway transport services should be supported by integrated tariffs and ticketing solutions. The solutions should finally cover the operators of the regional bus transport.

The acceptance of integrated tickets settlement principles based on data on completed travels, by the integration participants, constitutes ground for the implementation and functioning of the tariffs and ticketing integration in Pomorskie Voivodeship. Indispensable information can be provided by the electronic ticket system. The plans for introducing such system in Pomorskie Voivodeship constitute an example of comprehensive approach to the tariffs and ticketing integration process in the region. However, the electronic ticketing system is only an instrument which, when properly used, can become ground for implementing integrated tickets and increase the attractiveness of public transport services for the passengers.

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