

## CHALLENGES OF MANAGING PASSENGER TRANSPORT IN THE REGIONS ON THE EXAMPLE OF POMERANIAN VOIVODESHIP

Krzysztof GRZELEC<sup>1\*</sup>, Wojciech BĄKOWSKI<sup>2</sup>, Olgierd WYSZOMIRSKI<sup>3</sup>

<sup>1</sup> University of Gdańsk, Sopot; krzysztof.grzelec@ug.edu.pl, ORCID: 0000-0002-5722-8239

<sup>2</sup> University of Szczecin, Szczecin; wbakowski524@gmail.com, ORCID: 0009-0002-9448-8336

<sup>3</sup> University of Gdańsk, Sopot; olgierd.wyszomirski@ug.edu.pl, ORCID: 0000-0001-8463-9845

\* Correspondence author

**Purpose:** The research objective of the study is to determine the conditions, threats and challenges of passenger transport integration in the regions using the example of the Pomeranian Voivodeship.

**Design/methodology/approach:** The study was conducted based on the assumptions of the concept of passenger transport integration in the Pomeranian Voivodeship (Poland). In the article were used qualitative research methods from the field of social sciences. It is based on scientific and practical own author's studies, in particular in the scope of economics and management.

**Findings:** The article shows that the scope and method of integrating passenger transport in the region must be determined by precisely formulated objectives; integrated passenger transport in the region must provide a transport offer competitive with other means of transport in the region, decision-makers should abandon the current political management of the offer of this transport services.

**Research limitations/implications:** The limitations result from the assumptions of the analysed document, which may change during work on the integration of public transport.

**Practical implications:** The article indicates the conditions for the effective implementation of the concept of public transport integration in the Pomeranian Voivodeship in Poland. Its significance and value for practice result from the identification of integration goals and potential threats to their achievement. The authors are scientists and practitioners in the field of passenger transport systems operation.

**Originality/value:** The study is the first critical assessment of the concept of public transport integration in the Pomeranian Voivodeship. It indicates its weaknesses and threats, taking into account the experiences of Poland and other countries.

**Keywords:** management, urban transport, integration.

**Category of paper:** research paper.

## 1. Introduction

The systemic approach to transport due to its structure (road network, transport hubs, means of transport and transport processes) has been subordinated in economic sciences to the need for integration. Transport integration has been recognized as one of the processes improving its functioning. Contemporary researchers in the field of economic sciences have enriched the requirements for all processes in urban transport and transport integration. Every activity for the benefit of the community should bring useful value to the customer (Pine, Joseph, 1998). And this useful value should be improved in order to introduce added value. Added value is a contemporary requirement for every activity (economic and social institutions) in improving services and processes. In the case of integration of passenger transport (as one of the transport subsystems), the aim is to introduce added value for the passenger by improving the quality of transport services, shortening the time of covering space or reducing costs. One of the creators of the process approach to management – M. Hamer states that: "value for the customer is created by processes" (Hammer, 1999), and these are the essence of transport operation.

In the practice of integrating passenger transport at the regional level, it is very difficult to meet the three above-mentioned criteria for assessing value simultaneously. In the case of a public transport service, the assessment is carried out by the customer (passenger). Its utility value is assessed in the context of the individual needs of household members for mobility and their household budget. The household budget covers the expenses for traveling by public and private transport.

Households that have a car will always use the travel mode they find useful depending on the nature of the need. Therefore, the integration of public transport in the region may not result in significant changes in the reduction of traveling by private car.

In the transport policy, the functioning of passenger transport in the last decade has been subordinated to the goals of sustainable mobility policy. Achieving these goals requires offering residents attractive and competitive public transport services in relation to journeys by passenger cars. The main challenges of managing public transport services in the Pomeranian Voivodeship are the integration of this transport in the agglomeration, which has a polycentric character, and the region, as well as stable financing of its services. So far, it has not been possible to integrate public transport in the Tri-City metropolis in a way that would significantly affect its attractiveness and competitiveness. Regional bus transport in the Pomeranian Voivodeship operates as a separate system, or more precisely as a number of separate subsystems. Rail transport is integrated internally in terms of tariffs and tickets, but it is not integrated with municipal transport in the Tri-City metropolis (and other cities in the province) and with district and regional bus transport.

The research objective of the study is to determine the conditions, threats and challenges of passenger transport integration in the regions using the example of the Pomeranian Voivodeship. The following research hypotheses were put forward in the article:

- the scope and way of integration of passenger transport in the region must be determined by its objectives,
- integrated passenger transport in the region must provide a transport offer that is competitive with other modes of transport in the region.

In the article were used qualitative research methods from the field of social sciences. It is based on scientific and practical studies, in particular in the scope of economics and management.

## **2. The essence of passenger transport integration**

The aim of integration is to increase the share of public transport in modal split by removing barriers related to the use of public transport services and by exploiting synergies, although convincing evidence of their occurrence is lacking (May, Kelly, Shepherd, 2006).

According to K. Nosal and K. Solecka, the integration of public transport should include: infrastructure, organization, economic and financial issues, information and spatial development (Nosal, Solecka, 2014). According to S. Chowdhury and A. Ceder, integrated public transport systems should be characterized by the integration of: networks, fares, information, stops, timetables (Chowdhury, Ceder, 2013).

The biggest challenge of integrating passenger transport in the regions is the integration of fares and tickets. This integration facilitates transfers encouraging the use of public transport. (Shiftan, Sharaby, 2012). It may consist in introducing: a single fare covering all means of public transport or an additional fare which makes possible the use of all means of public transport. The most important feature of the integration of fares and tickets is that passengers do not incur additional costs of journeys with transfers and that only one ticket distribution system operates. In the objective approach, the integration of fares and tickets of public transport may cover selected or all services.

Analyses conducted in 69 cities in Italy showed that integrated fares increased the number of trips by 2% in the short term and 12% in the long term (Abrate, Piacenza, Vannoni, 2009). However, the increase in demand generated by relatively lower travel costs, in the situation of price inelastic demand for public transport<sup>1</sup>, is not enough to compensate, especially in the short term, for the loss of revenues resulting from integration (White, 1981).

---

<sup>1</sup> For more on price elasticity of demand, see: (Litman, 2012; Webster, Bly, 1981).

The process of tariff and ticket integration is facilitated by technical progress in the field of ticket carriers. The currently commonly used electronic cards are being replaced by applications in mobile devices. From the point of view of ticket integration goals, the most important functions of electronic tickets are the ability to buy a single ticket or pay for a door-to-door journey by a single transaction. Electronic ticketing systems not only allow for transfers based on a single ticket, but also select the cheapest travel option for the passenger.

The development of integrated mobility platforms has been accompanied by the concept of Mobility as a Service (MaaS). MaaS encompasses transport services carried out in five stages: registration, travel planning, booking, payment and travel (Malasek, 2018), as well as providing a more flexible offer and more travel options (Mobility..., 2017).

### **3. Integration of passenger transport in regions - examples from the EU**

In Germany, three forms of cooperation have been developed within the framework of public transport integration, which provide passengers with the possibility of using various public transport services. These are:

- tariff agreement,
- transport agreement,
- transport union.

The tariff agreement consists of providing common tickets and eliminating price competition that could lead to a deepening financial deficit in the service of some lines. The transport agreement includes tariffs and timetables. Transport association is a specialized entity managing the entire public transport offer in a given area. One of the tasks of the association, apart from the integration of public transport, is the division of revenues between individual operators, which reflects their share in the passenger travel. Transport association is indicated as an effective example of full integration of passenger transport in the region (Knieps, 2006). This form is frequently used in public transport integration in Germany.

In Sweden, regional transport authorities are usually jointly controlled by municipal and regional authorities and operate as commercial law companies (not municipal associations). The principle has been adopted because their deficit is covered half by the regions and half by the municipalities, in proportion to the operational work in their area. Half of the votes belong to the province, and the remaining half to the municipalities, in proportion to the number of inhabitants. In most tenders, the gross revenue model is used, in which the operator's revenues are independent of the number of carried passengers. The disadvantage of the model is the relatively low decision-making possibility and motivation of operators to acquire passengers, which requires extensive high competences of regional transport authorities, fully responsible for matching the offer to market needs (Wolański et al., 2016).

#### **4. Experiences in passenger transport management in the Pomeranian Voivodeship**

Public passenger transport in the Pomeranian Voivodeship consists of the following subsystems:

- municipal urban transport in the cities of the province, including the Tri-City metropolis,
- district and regional bus transport,
- urban and regional rail transport.

These subsystems are integrated only to a small extent of the service offer. Integration most often concerns the adjustment of city and regional bus timetables to train departures.

In the Tri-City metropolis, despite many plans, preparing of a dozen or so studies and several attempts to unify the offer of services, the integration of municipal urban transport with rail transport has not been achieved. In this respect, the possibilities and potential of the Metropolitan Transport Association of the Gulf of Gdańsk (MZKZG), established in 2007 by 14 towns and communes in the Tri-City metropolis, have not been used. The main reasons for the disintegration of urban transport in the metropolis are:

- particular political interests of local government authorities and the inability to reach compromise on key issues related to integration,
- maintaining and deepening the differences in entitlements to reduced fares and free travel in urban, district and regional bus and rail transport, resulting in the need to allocate significant financial resources from local government budgets for their unification in the case of integration, at the expense of a possible expansion of the range of services,
- non-participation of the state budget in financing metropolitan municipal transport by transferring funds for the refund of concessions to the budgets of local governments,
- formal and legal factors, manifested in the adoption of regulations and organizational solutions that reduce the efficiency of the functioning of organizers and passenger transport subsystems, including by making it difficult to employ private operators in favor of municipal ones (*in-house*).

The Bus Transport Development Fund has created the possibility of enriching the offer of this transport in rural communes, districts and the region. In the Pomeranian Voivodeship, in order to use the funds from the FRPA, district- commune associations were established, which launch new bus lines co-financed from this fund. They ensure integration in terms of tariffs and timetables. So far, no solutions have been implemented that would integrate bus transport within more than one county-municipal association.

Rail transport has been integrated internally in the Pomeranian Voivodeship. Passengers can travel on complementary rail lines and on substitute routes, e.g. in the metropolitan area, on the basis of a single ticket.

The three passenger transport subsystems mentioned in the province are not integrated. In the metropolitan area, MZKZG, as a supplement to the tariffs of individual organizers of municipal urban transport and rail transport, issues metropolitan tickets valid in the area of 14 cities and communes. This solution is not comprehensive and does not meet modern tariff and ticket standards.

The main problems of the current functioning of passenger transport in the region focus on the shortcomings of separate transport offers and the lack of interoperability of urban and regional transport systems (Adamkiewicz, 2024).

## **5. Assumptions for the functioning and integration of passenger transport in the Pomeranian Voivodeship**

The integrated passenger transport system in the Pomeranian Voivodeship should be based primarily on the pursuit of meeting the transport needs and expectations of passengers as well as improving the quality of the services offered.

The concept prepared by the consulting company Marcin Gromadzki Public Transport Consulting (PTC, 2022) assumes the integration of passenger transport in the Pomeranian Voivodeship by creating:

- the metropolitan transport authority, established within the Tri-City metropolis, which is to operate on the basis of a metropolitan act that has not yet been adopted,
- district and regional transport authority, integrating the bus transport offer operating within the framework of district-commune associations,
- railway transport authority.

The metropolitan transport authority is to take over the tasks of the entities organising urban transport services (ZTM in Gdańsk, ZKM in Gdynia and UM in Wejherowo) and metropolitan rail transport (Marshal's Office) on the lines operated by PKP SKM in the Tri-City and by the Pomeranian Metropolitan Railway. A solution was recommended in which the area of operation of the integrated metropolitan passenger transport would correspond to the area of MZKZG (14 cities and communes) with the possible inclusion of the city of Tczew and two neighbouring communes. No solutions have been presented so far regarding the structure and organisational form of the metropolitan transport authority, the way of its financing and the employment of operators.

The Regional Transport Authority (ZTR) is to perform the function of integrator of district and regional bus transport in the province, assuming that the organizers of this transport will be exclusively district-commune associations. The task of ZTR will be to achieve tariff and ticket integration and coordination of bus timetables between district-commune associations.

A solution was recommended consisting in increasing the financing of bus lines from FRPA in a situation where district-municipal associations decide to integrate the offer through ZTR.

The Railway Transport Authority, in the event of integration of this transport offer already at this stage, is to play the role of the entity that will ensure integration of rail transport with metropolitan (as well as urban outside the metropolis) and district and regional bus transport.

The basis for the integration of the three passenger transport subsystems in the Pomeranian Voivodeship are to be tariff agreements. Within the framework of the agreements, integrated tickets of a given transport authority would be honored by the other two.

## **6. Opportunities and threats for effective management of passenger transport in the Pomeranian Voivodeship**

Previous foreign and domestic experience, especially from the Pomeranian Voivodeship, in the scope of functioning and integration of passenger transport allows for the identification of opportunities and threats to the effective management of such transport services.

The course of passenger transport development management processes in the Pomeranian Voivodeship indicates their subordination to a large extent to political goals. This is obvious, in a situation where this transport is subsidized in 60-80% from local government budgets and the state budget. Also, implementing transport and social policy goals through public transport justifies the involvement of politicians in the issues of the functioning of this transport. However, this involvement should only concern strategic issues, leaving the tactical and operational level to experienced managers. Meanwhile, in recent years, Poland has seen an intensification of filling managerial positions and positions on supervisory boards of companies and official positions in public administration units with politicians without appropriate qualifications. Excessive politicization of public transport management also favors the implementation of ideological concepts that diverge from achieving the goals of sustainable mobility by rationalizing the functioning of passenger transport by increasing the quantity and improving the quality of public transport services.

Strong politicization of passenger transport management may constitute a barrier to its effectiveness, in a situation of divergence of interests in the development of public transport. The process of creating the Tri-City metropolis is accompanied by two different visions of using additional financial resources. The first one assumes using a significant part of these resources to cover the costs of the integration process in the metropolis, including in particular the refund of discounts in rail transport and the unification of tariffs, and transferring the released financial resources from the budget of the Marshal of the Pomeranian Voivodeship to the development of railways in the region. Supporters of the second one point to the need to use additional resources to develop the transport offer of metropolitan transport, including in particular rail

transport in Gdańsk. Achieving a political consensus on this issue will not mean an optimal choice, because it may turn out that the quality of services will not improve significantly in either the metropolis or the region, which is important from the point of view of achieving the goals of the sustainable mobility policy.

Regardless of the additional funds allocated for the functioning of metropolitan transport, local governments must take into account the need to increase the funding of public transport in the province as part of its integration. Integrated ticket prices must correspond to passengers' preferences and encourage changes in transport behaviour through a greater use of public transport, especially rail and regional bus. It should be assumed, taking into account the low price elasticity of demand in public transport, that discounts on trips made within the networks of more than one transport authority will not generate sufficient demand to cover the lost revenue. The same principle must be taken into account by metropolitan and regional transport authorities when integrating tariffs in metropolitan, district and regional bus transport.

A significant challenge that determines the effectiveness of the actions taken from the point of view of sustainable mobility goals is ensuring a stable system of financing public transport in the province. An example of how additional funds can significantly increase the offer of public transport services is the use of money from the FRPA in the Pomeranian province. This method of financing has one major drawback. Like other sources of funding from the budget, it is exposed to political recognition. A change in the political situation may be a sufficient premise for changing the rules of using or even liquidating this fund. Therefore, basing the goals of the sustainable mobility policy predominantly on budget funding may by its nature lead to difficulties in achieving them. Therefore, those financial solutions that are aimed at improving the quantity and quality of public transport services and its competitiveness in relation to trips made by passenger cars should be preferred. The factors of public transport competitiveness (including ticket prices) should be identified based on the results of marketing research. On the other hand, solutions should be introduced that favor effective spending of funds on the purchase of transport services based on open tender mechanisms. In this context, additional sources of financing for public transport in the voivodeship (financial resources for the Tri-City metropolis, FRPA, additional resources from local government budgets for integration) and increasing the scope of competition and privatisation of some municipal operators should be perceived as actions enabling the achievement of synergy effects.

A threat to the effective management of passenger transport in the province is a lack of a consistent long-term energy policy of the state. The actions taken so far in the field of electromobility in public transport have been ineffective.



## 7. Summary

The research conducted in this study allowed to achieve the goal of determining the conditions, threats and challenges of passenger transport integration in the regions, using the example of the Pomeranian Voivodeship. It also proved the hypotheses that:

- the scope and way of integration of passenger transport in the region must be determined by its objectives, taking into account the preferences of residents who decide on the modes of transport,
- integrated passenger transport in the region must provide a transport offer that is competitive with other modes of transport.

Political considerations did not allow even municipal transport in the Tri-City metropolis to be integrated in the early 1990s, despite the preparing of a mature concept in this area by a team of experts from the University of Gdańsk. As a result, three independent municipal urban transport systems were created: in Gdańsk, Gdynia and Wejherowo, which did not provide an integrated transport offer even to a small extent. After a dozen or so years, the Metropolitan Transport Association of the Gulf of Gdańsk began to operate, which was to implement the integration concept extended by including rail transport in the metropolitan system. Once again, political considerations determined the lack of the result expected by users. Only an additional offer of metropolitan tickets was provided, constituting the fourth tariff in the metropolis, operating in parallel with local ones in Gdańsk, Gdynia and Wejherowo. Its advantage was integrated tickets, not only municipal, but also municipal-railway, but all at unattractive prices.

Being aware of the small success, in the search for a solution for full integration, in Gdańsk, characteristically – outside the MZKZG structures, an integrated municipal-railway season ticket was introduced. On the other hand, in the area extending beyond the metropolis, the special unit called InnoBaltica began to implement a system of electronic tickets promoted as a modern, integrated system, potentially covering the entire Pomeranian Voivodeship, which could include separate tariffs of all organizers and operators of passenger transport. However, with the technological and electronic progress, this system turned out to be not very modern and created only an illusory impression of integration for passengers.

For local government authorities, the so-called lifeline has become the possible adoption of a law establishing the Tri-City metropolis, which is to provide additional funds from the state budget for integration, especially passenger transport. In this context, financial flow channels ensuring stable financing of public transport will be of great importance.

The metropolitan act will not, however, lead to full integration of passenger transport on a province-wide scale. As a result, a concept was created to establish three transport boards in its area: metropolitan, regional and railway, which are supposed to cooperate with each other. The basis for such a solution are the applicable legal and financial conditions, which do not support full integration of passenger transport in the province by one entity. The expected

conditions in this respect were not introduced by the act on public transport passed in 2010, in which integration issues were treated marginally. It did not eliminate various catalogues and levels of entitlements to concessionary travel applicable in municipal and regional transport, nor did it provide unified sources of their financing. In the meantime, mainly for populist reasons, the scope of these entitlements granted from their own funds by local governments has expanded. Some of them have even gone so far as to introduce free municipal transport.

Until the legal and financial barrier to integration is eliminated, solutions such as those proposed in the mentioned concept will be considered. As a result, integration will be neither complete nor effective. It will continue to deviate from the standards that determine the target solution with a single passenger transport authority in the province.

## References

1. Abrate, G., Piacenza, M., Vannoni, D. (2009). The Impact of Integrated Tariff Systems on Public Transport Demand: Evidence from Italy. *Regional Science and Urban Economics*, Vol. 39, No. 2, pp. 120-127. doi: 10.1016/j.regsciurbeco.2008.05.014
2. Adamkiewicz, T. (2024). *Organizatorzy usług transportu miejskiego i regionalnego. konkurencja i współpraca na przykładzie województwa pomorskiego*. Warszawa: CeDeWu.
3. Chowdhury, S., Ceder, A. (2013). Definition of Planned and Unplanned Transfer of Public Transport Service and User Decisions to Use Routes with Transfers. *Journal of Public Transportation*, Vol. 16, Iss. 2, pp. 1-20. doi: 10.5038/2375-0901.16.2.1
4. Hammer, M. (1999). *Reinżynieria i Jej Następstwa*. Warszawa: PWN.
5. Knieps, M. (2006). Vielfalt von Kooperationsformen Organisation Der Verkersverbuende. *Der Nahverkehr*, No. 12, pp. 7-15.
6. Litman, T. (2012). *Transit Price Elasticities and Cross-Elasticities. Report*. doi: 10.1007/s11116-011-9369-2
7. Malasek, J. (2018). MaaS: Kompleksowa Usługa w Zakresie Mobilności. *Transport Miejski i Regionalny*, No. 8, pp. 5-11.
8. May, A.D., Kelly, Ch., Shepherd, S. (2006). The Principles of Integration in Urban Transport Strategies. *Transport Policy*, Vol. 13, No. 4, pp. 319-27. doi: 10.1016/j.tranpol.2005.12.005
9. *Mobility As a Service: Implications for Urban and Regional Transport* (2017). Polis, Brussels, [https://www.polisnet-work.eu/wp-content/uploads/2017/10/polis-maas-discussion-paper-2017-final\\_.pdf](https://www.polisnet-work.eu/wp-content/uploads/2017/10/polis-maas-discussion-paper-2017-final_.pdf)
10. Nosal, K., Solecka, K. (2014). Application of AHP Method for Multi-Criteria Evaluation of Variants of the Integration of Urban Public Transport. *Transportation Research Procedia*, No. 3, pp. 269-78. doi: 10.1016/j.trpro.2014.10.006

11. Pine, B.J., Joseph, B. (1998). Welcome to the Experience Economy. *Harvard Business Review*, 93-103.
12. PTC (2022). *Integracja transportu publicznego w województwie pomorskim*. Gdańsk.
13. Shiftan, Y., Sharaby, N. (2012). The Impact of Fare Integration on Travel Behavior and Transit Ridership. *Transport Policy*, Vol. 21, pp. 63-70.
14. Webster, F.V., Bly, P.H. (1981). The Demand for Public Transport. *Transport Reviews*, Vol. 1, No. 4, pp. 323-51. doi: 10.1080/01441648108716470
15. White, P.R. (1981). 'Travelcard' Tickets in Urban Public Transport. *Journal of Transport Economics and Policy*, Vol. 15, No. 1, pp. 17-34.
16. Wolański, M., Paprocki, W., Mazur, B., Soczówka, A., Jakubowski, B., Czubak, M., Pieróg, M., Zachor, J. (2016). *Publiczny transport zbiorowy poza miejskimi obszarami funkcjonalnymi: diagnoza, analiza zróżnicowania, oddziaływania społeczne, rekomendacje*. Warszawa: Szkoła Główna Handlowa.