TENDERING OF RAIL TRANSPORT SERVICES IN SLOVAKIA

Zdenka Bulková

University of Žilina, Slovakia E-mail: <u>zdenka.bulkova@uniza.sk</u>

Jozef Gašparík University of Žilina, Slovakia E-mail: jozef.gasparik@uniza.sk

Vladislav Zitricky University of Žilina, Slovakia E-mail: vladislav.zitricky@uniza.sk

Borna Abramović University of Zagreb, Croatia E-mail: borna.abramovic@fpz.unizg.hr

> Received: June 28, 2023 Received revised: August 15, 2023 Accepted for publishing: September 4, 2023

Abstract

The population's rising standard of living also leads to a rise in passenger demands for the quality of transport and the provision of additional services in railway transport. This factor also caused the arrival of private rail carriers on the EU rail network, including Slovakia, which opened the rail passenger transport market to competition. In line with the intentions of the EU's common transport policy to create a fair competitive environment and open the railway sector to competition, processes aimed at improving the quality of transport services and streamlining the use of public funds necessary for their operation have been ongoing in Slovakia for several years. The research is focused on the process of public procurement of transport services. On the ground of describing the principles, experiences, and mistakes in organising public tenders in railway passenger transport, the methodology of the public tender process is proposed. That is applied to a case study on the railway line Bratislava – Banská Bystrica - Košice, while Slovakia has had several public competitions. A limitation of this research is the fact that only one public tender was successfully evaluated. The issue of the allocation of transport services in the public interest needs to be solved from the point of view of compliance with EU legislation as well as ensuring this service, so that the technological efficiency of the processes for the operator that will implement these services is also ensured.



Key words: public tenders, public service contracts, rail passenger transport, public competition

1. INTRODUCTION

Public transport services have a crucial role in passenger transport in the European Union, both from a political and an economic aspect. Many passenger transport services in the EU are currently provided within the context of public service contracts, which in many cases represent substantial revenue for railway undertakings. Public transport is an important social policy tool for public authorities (Johnson & Nash, 2012). The liberalisation process of the market for rail services has not yet been fully completed in all Member States. Liberalisation has contributed to fair competition and led to a customer-oriented approach and more efficient acquisition activities for railway undertakings. Transport services began to be provided based on market demand and requirements. Better and more affordable rail transport services have become more competitive with other transport modes. The liberalisation process needs to be further expanded and suitable conditions for the provision of quality rail transport services need to be prepared (Gutiérrez-Hita & Ruiz-Rua, 2019).

The European Union considers the liberalisation of the rail transport services market as the main solution to support economic competition, which can contribute to the development of rail transport and the higher utilisation of its capacity possibilities. Economic, ecological, and social aspects of rail transport are part of sustainable development (Solina & Abramović, 2022). The advantage of the liberalisation of the railway services market is the existence of economic competition based on basic market principles. The arrival of new railway enterprises can be identified as innovation, investment, an increase in service quality, increase in technological and organisational modernisation and, on the other hand, it allows the customer to choose from more than one provider of transport services, thus stimulating the relationship between quality and price (Broman & Eliasson, 2019).

Some transport services, often associated with specific infrastructure, are operated mainly for their historical interest or tourist value. As the purpose of these operations is clearly different from the provision of public passenger transport, they do not have to follow the rules and procedures applicable to public service requirements. Long-term contracts can lead to market foreclosure for longer than necessary, reducing the benefits of competitive pressure. To minimise distortions of competition, while protecting the quality of services, public service contracts should be of limited duration. In keeping with the principle of subsidiarity, competent authorities are free to establish social and qualitative criteria that will maintain and raise quality standards for public service obligations. This pertains, for instance, to minimum working conditions, passenger rights, the needs of people with reduced mobility, environmental protection, the security of passengers and employees, as well as collective agreement obligations and other rules and agreements concerning workplaces and social protection at the place where the service is provided. To ensure transparent and comparable conditions of competition between operators, the risk of social dumping should be avoided.



The issue of assigning services in the public interest needs to be addressed not only about compliance with EU legislation, but especially about their very nature. One of the obstacles to the implementation of public tenders is the non-existent uniform legislative basis for the course and functioning of public tenders in railway passenger transport and the current non-existence of a uniform methodology for the allocation of services in railway passenger transport based on public tenders.

The paper deals with the process of announcing and organizing public tenders in railway passenger transport in the Slovak Republic. Based on the analysis of the issue, a methodology was created for organizing public tenders under the conditions of the Slovak Republic, which is divided into individual stages of the public tender. Each of these phases forms a significant part of the entire public tender. Based on the proposed methodology, a case study of the announcement of a public tender for a specific railway line is developed, which is an example of how public tenders in railway transport should be organized under the conditions of the Slovak Republic. The case study shows that the correct setting of competence and evaluation criteria in public tenders, based on a non-discriminatory approach, are important steps.

2. EXPERIENCE WITH ORGANIZING PUBLIC TENDERS IN RAILWAY PASSENGER TRANSPORT

The allocation of services in the public interest is regulated mainly through regulations and directives. The basic legislation governing the allocation of services in the public interest is Regulation (EC) No 1370/2007 of the European Parliament and the Council on public passenger transport services by rail and by road, and Regulation (EU) 2016/2338 of the European Parliament and of the Council amending Regulation (EC) No 1370/2007 concerning the opening of the market for domestic passenger transport services by rail (European Commission, 2007; European Union, 2016). Within each state, the allocation of transport performance in the public interest in railway passenger transport is also regulated according to national legislation. In Slovakia, this national legislation is Act 343/2015 on public procurement and others (Slovak Republic, 2015).

The analysis of the organisation of railway passenger transport on the liberalised market describes Abramović, et al. (2018). Nash, et al. (2019) in their research solve the experience of Europe's three most liberalised railways - Sweden, Germany, and Britain - in opening-up rail passenger services to competition by means of competitive tendering and seeks to draw lessons for countries that are just starting the process, such as France. Litră & Burlacu (2014), in their research paper, propose to analyse the management of the public service contract through the current regulations in the field and to correlate trends in the railway industry with the specific situation. They conducted a series of comparative analyses and SWOT analyses considering the context of the Romanian railway industry. The issue of the effective conclusion of public service contracts in rail passenger transport has been analysed by Dementiev (2018). Hensher & Stanley (2008), Alexandersson, et al. (2008) and others conducted research of the same type. Further case studies and analyses of the liberalization of the railway market in individual countries, such as Sweden or Norway, have been

carried out. They include, for instance, Nilsson & Jonsson (2011), Odolinski & Smith (2016), and Alexandersson, et al. (2020). Competition in the railway passenger market in the Czech Republic was analysed by Tomeš, et al. (2014), Fitzová, et al., (2021) and liberalisation Czech rail market and capacity allocation were described in their research by Nachtigall, et al. (2020). Position of railway passenger transport companies in the current liberalised transport market solved Záhumenská, et al., (2018). Stojić, et al., (2018) propose a novel model for determining public service compensation in integrated public transport systems. Lakatos & Mándoki (2020) performed a sustainability analysis of competition in public transport systems in Hungary and Finland. Criteria for the quality of services of public interest organised by train operators proposed in their research Humić & Abramović (2019). Competitive tendering versus performance-based negotiation in Swiss public transport describe Filippini, et al. (2015). Brenck & Peter (2007) describes their experience with competitive tendering in Germany. Open access competition in longdistance passenger rail services in Poland solved Król (2017). In the Slovak Republic, the research about public tenders and liberalisation railway market conducted Gašparík, et al. (2017) and Bulková, et al. (2023) describes technological aspects of public tenders in Slovakia. The research of Mašek, et al. (2015) deals with the operation of regional passenger transport in Slovakia, liberalization and competition in railway transport, principles of the contract on transport services in the public interest, and the current state of regional passenger transport on the regional railway line Bratislava – Dunajská Streda – Komárno. Experience from the Bratislava – Košice railway line solved Kvizda & Solnička (2019). Dolinayová, et al. (2021) solved their research competition on the domestic rail passenger transport market under public service obligation in some selected European countries and Slovakia.

In 2009, the Ministry of Transport (hereinafter referred to as the Ministry) of the Slovak Republic announced a public tender for a carrier on the regional line Bratislava - Komárno. In the end, the Ministry assigned operation on this line to the private carrier Regiojet (in short, RJ) in 2011 directly (Kvizda & Solnička, 2019). The carrier concluded the contract until the end of 2020. Therefore, the Ministry announced a public tender for this line in 2019 (Slovak Republic, 2019a). This private carrier Regiojet has been operating on the Prague - Žilina line since 2011, and in 2014 extended this line to Košice in an open access regime. At the beginning of 2014, another Czech private carrier, Leo Express, entered on the line Prague - Košice. Both carriers have maintained their position on this segment until today on a commercial basis under the "open access" regime, i.e., without any financial support from the state. The next tendered line by the Ministry was Bratislava - Banská Bystrica in November 2015. The result was the non-awarding of the contract to any tenderer. The tender was cancelled due to changes in the common EU legislation and due to insufficiently defined rules for a uniform travel document recognised between carriers (problem of tariff integration). Table 1 shows a chronological overview of the allocation of transport performance in railway passenger transport in the Slovak Republic.

Year	Market event	Railway Line			
till	The state carrier Železničná spoločnosť Slovensko	Whole Slovak railway network			
2003	(ZSSK) monopoly				
2000	Announcement of the 1st public tender on the regional				
2007	line in Slovakia	Bratislava–Dunajská Streda–			
	Public tender completed, direct allocation to RegioJet	Komárno			
2011	carrier				
	Regiojet starts IC trains (open access)	Prague–Žilina			
2012	ZSSK starts IC trains (open access)	Bratislava–Žilina–Košice			
2014	Regiojet has extended the IC train line	Prague–Žilina–Košice			
2014	Leo Express starts IC trains (open access)	Prague–Žilina–Košice			
2015	Announcement of the 1st public tender on long-	Proticlava Danská Przetrica			
2013	distance railway line (cancelled)	Blausiava–Baliska Bysuica			
2016	ZSSK cancels IC trains (January)	Bratislava Žilina Kočice			
2010	ZSSK re-introduces IC trains (December)	Bratislava–Zinna–Kosiee			
2017	Regiojet cancels IC trains (January)	Bratislava–Žilina–Košice			
	Public tender on the regional line (cancelled)	Žilina–Rajec			
2018	Public tender on the regional line	Košice- Moldava nad Bodvou			
2018	Public tender on the regional line (cancelled)	Bratislava–Dunajská Streda–			
	I ushe tender on the regionar line (cancened)	Komárno			
2010	Plan of tender announcement on the regional line	Košice–Moldava nad Bodvou (not			
2019	Than of tender announcement on the regional fine	published yet)			
	Repeated public tender on the regional railway line	Žilina_Rajec			
2020	(cancelled)				
2020	Repeated public tender on the regional railway line	Bratislava – Dunajská Streda –			
	respensed public tender on the regional fallway life	Komárno (successful)			

Table 1 Opening of the public transport services market in Slovakia

Source: (authors, according to data of Ministry of Transport of the Slovak Republic)

Currently, there are two regional lines in the phase of the liberalisation process in Slovakia: Žilina – Rajec and Košice – Moldava nad Bodvou. The public tender for the carrier on the Žilina – Rajec line was announced twice (Slovak Republic, 2019b). Due to non-fulfilment of the conditions, even the state ZSSK did not win the competition, and therefore, in 2020 the Ministry announced the second public tender for this line (Slovak Republic, 2020). Three carriers have confirmed their participation in the public tender: ZSSK, LeoExpress, and Arriva. In the line Košice – Moldava nad Bodvou, the public tender began to be prepared in 2018. (Slovak Republic, 2018).

Several public tenders for selected regional railway lines and one long-distance railway line have already been announced in Slovakia. All of them ended in failure until the moment in August 2022, when the ministry announced the result of the first successful public tender for the operation of the Bratislava - Dunajská Streda -Komárno line. Thus, after many years of unsuccessfully announcing public tenders, the Ministry has reached the point where the method of setting the conditions of public tenders and their evaluation has a successful basis. All public tenders announced so far have been unsuccessful, due to insufficiently defined conditions and poorly set tender criteria. This made the given railway lines unattractive for carriers. All other lines were assigned by direct assignment to the selected carrier.

Performances in railway passenger transport are currently ordered by the Ministry based on one Contract on transport services in the public interest for the period 2021–2030, which is amended annually by an addendum containing the

ordered transport performance for a specific year. The required volume of transport performance intended for long-distance and regional rail passenger transport is always differentiated in the partial contract. Figure 1 shows an overview of ordered transport performance, i.e., the development of productive transport performance.

Figure 1 Overview of the ordered and realized transport performance of the operators ZSSK and RJ on the ŽSR network



Source: authors, according to Contracts of transport services and its additions

In the figure 1 is shown the carrier ZSSK (green curve) and for the carrier RegioJet (blue curve) within the scope of public transport services. Also, this figure shows the development of productive transport performance. This means that these are transport operations carried out on the ŽSR network by the carrier ZSSK (purple curve) and the carrier RegioJet (red curve).

3. RESULTS

Based on the analyses in the framework of tendering in railway passenger transport, we created the methodology of public tender process in railway passenger transport. This methodology can be applied when organising a public tender in the EU member state, while it is important to pay attention to the national legislation of the relevant state, which very often differs from the national legislation of other European Union states. The methodology of the public tender process in railway passenger transport is shown in Figure 2.

As the entity responsible for the preparation of the tender, its announcement and the selection of the winning carrier, we propose the national Ministry of Transport or other responsible transport authorities, e.g. national or coordinating public passenger transport body. This entity will be the contracting authority for the provision of public service in rail passenger transport with its main tasks:

definition of long-distance lines,



- defining performance and quality requirements for individual items of the public tender, scope of transport in train-kilometers, requirements for quality and equipment of railway rolling stock, etc.
- verification of track capacity, availability of additional and ancillary infrastructure services in cooperation with the infrastructure manager
- creation of a draft train schedule for the period of validity of the public service contract,
- determination of the terms and conditions of the tender to be met by the winning operator,
- on the basis of the established timetable and in cooperation with the infrastructure manager, identify the necessary infrastructure measures to ensure compliance with the required timetable,
- publication of a preliminary notice, preparation of tender documents and determination of evaluation criteria and their weight,
- receiving and evaluating requests to participate,
- evaluation of bids and selection of the most advantageous bid according to the set criteria,
- concluding a contract for the provision of services in the public interest with the selected tenderer and evaluation of its performance.

Adequate preparation is required before launching a call for tenders. The relevant lines will be divided into three groups depending on the need to implement infrastructure measures (Group 1-3).

Based on this methodology, a case study of the announcement of a public tender for the allocation of services in the public interest in railway passenger transport in the Slovak Republic has been prepared. This case study is applied precisely to the conditions established by this methodology and the relevant legislation of the state where the public tender is announced. The case study shows the optimization of the setting of the conditions and criteria of the public tender for the solved railway line.

Figure 2 Methodology of the public tender process in railway passenger transport – public tender phases



Source: authors

4. CASE STUDY OF A PUBLIC TENDER ANNOUNCEMENT IN THE SLOVAK RAILWAYS CONDITIONS

To illustrate the method of announcing a public tender in the Slovak Republic, a case study of the announcement of a public tender in the Slovak Republic is proposed on the exemplary example of the representation of the ministry as the customer for the selected line of long-distance railway passenger transport.

For this study, we chose the long-distance line Bratislava – Zvolen – Banská Bystrica/Košice, divided into Bratislava – Banská Bystrica as the main line and Zvolen – Košice as a secondary line. The subject of the contract is to ensure safe, efficient, and high-quality transport services for the traveling passengers between cities on the line Bratislava – Levice – Zvolen – Banská Bystrica and then Zvolen – Fiľakovo – Košice by long-distance trains through the carrier. A contract on transport services in the public interest will be concluded with the successful applicant in accordance with the provisions of § 21 of Act no. 514/2009 Coll. about transport on railways (SR, 2009). Technical and qualitative conditions will be set for the carrier to ensure transport performance. The expected start and duration of the contract or the period of execution is from 1.1.2031 for a duration of 120 months (from the beginning of the validity of the Contract, that means the validity of the new train traffic diagram - usually December, in this case December 2030).

The place of execution of the contract is the line Bratislava – Zvolen – Banská Bystrica and Zvolen – Košice. This line is divided into the main line (Bratislava – Banská Bystrica) and a minor line (Zvolen – Košice) within the evaluation. There are no regional lines associated with this line, this means that the tender is only for the long-distance main line with the associated branch line.

For such a competition, the duration from the first step to the start of operation of the line is 48 months. The case study proposes the start of line operation in train traffic diagram 2031/32 from December 2031.

The next step is the publication of the Preliminary Notice on the announcement of the public tender in the EU Gazette on 1/1/2029. The preliminary notice contains only basic information regarding the announcement of the given public tender, such as the identification data and contact points of the ordering party, the subject of the contract and its brief description, areas, which are the subject of the Contract, the expected start and duration of the Contract or the period of execution and information on subcontracts. The preliminary notice does not define the legal, economic, financial, and technical information, the conditions regarding the contract or the conditions of participation. Furthermore, this announcement does not define the range of train kilometres, the criteria for evaluating bids, the conditions for obtaining tender documents and supplementary documents, the deadline for submitting bids or requests to participate, the language in which bids or requests for participation can be submitted, the minimum period during which bids are bidders bound, conditions for opening bids and others.

The customer's requirements are listed in the tender documents of the public tender. The tender documents contain all the necessary information about the public tender, identification data of the customer, definitions of terms that define the subject of the contract, time and place of performance of the contract, requirements for proof

of qualification (ability), business and payment conditions, requirements for the method of processing the price of performance, evaluation method of tenders together with the defined evaluation criteria and their weights and subsequently also the method of evaluation of tenders. The tender documents also contain the binding nature of the customer's requirements, the possibility of inspecting the place of fulfilment, explanations of the tender documents, possible changes or additions to the tender documents, the deadline and place for submitting bids and information on opening envelopes with tender offers. It also defines the submission deadline, the form and amount of the bank guarantee, information in the event of a change in the qualifications of a participant in a public tender, conditions, rights, and obligations of the contracting parties.

When preparing tender documents, the relevant employees of the public tender contracting authority are obliged to find out whether the capacity of the railway infrastructure is sufficient and whether ancillary and supplementary services are available. A draft of the perspective train traffic diagram will also be published here on the public tender line for the period of validity of the Agreement. Subsequently, it will be determined whether the current state of the railway infrastructure meets the set requirements or whether measures need to be taken in the field of infrastructure to ensure the implementation of the required scope of train traffic diagram. The last point in the preparation of the tender documents is the determination of tender evaluation criteria, which will also be published in the Notice of the start of the public tender, as well as the determination of the deadline for submitting the application for participation and tender offers. As part of the preparatory phase, the timetable for the public tender will also be determined. After the finalization of the tender documents, the stage of the public tender process is reached, which begins now of publication of the Notice of the start of the public tender.

As part of the announcement of the public tender and the determination of the conditions and requirements of this tender, it is necessary to define the required operational, technical and economic parameters for the Bratislava – Zvolen – Košice long-distance line. Table 2 shows an overview of the required parameters for the relevant main and secondary long-distance lines.

Line		Line length (kilometres)	Number of trains in even / odd direction (train per day)	Transport performance per day (train kilometres per day)	Transport performance per year (train kilometres per year)	Charge per train kilometre (€)
Main line	Bratislava — Banská Bystrica	230.00	10 / 10	4,600	1,679,000	7
Connecting Zvolen – line Košice		233.00	9/9	4,194	1,530,810	7
Total				8,794	3,209,810	

 Table 2
 An overview of the parameters required by the customer for the long-distance

 line Bratislava – Zvolen/Banská Bystrica – Košice

Line		Minimum number of seats on the train (seats)	Transport performance (seats kilometres per day)	Transport performance (seats kilometres per year)	Amount for daily transport performance $(\mathbf{\epsilon})$	$\begin{array}{ll} \text{Amount} & \text{for} \\ \text{annual} \\ \text{transport} \\ \text{performance} \\ (\mathfrak{E}) \end{array}$
Main line	Bratislava — Banská Bystrica	286.00	1,315,600	480,194,000	32,200	11,753,000
Connecting line	Zvolen — Košice	286.00	1,199,484	437,811,660	29,358	10,715,670
Total	•	•	2,515,084	918,005,660	61,558	22,468,670

Source: authors

According to the definition of the order from the aspect of operational technology, the order body requests the composition of the train with the inclusion of a 1st class waggon, 2nd class waggons, a waggon for transporting wheelchair users, and a children's section. The capacity of the set is determined as the total number of seats in the train to a minimum value of 286 seats, while the condition of the evaluation is that 14.69% of the seats are seats in the 1st class, 69.93% of the seats are seats in the 2nd class, 14.69% of the places are places in children's sections, and 0.7% of the places are places for wheelchair users. Furthermore, the client established a timetable, which shows that on the main lines Bratislava – Zvolen and Zvolen – Banská Bystrica there will be 10 pairs of trains in the category Express train (Ex), and on the secondary line Zvolen – Košice there will be 9 pairs of trains in the category Express train (Ex).

 Table 3 An overview of the commercial parameters required by the order body for the long-distance line Bratislava – Zvolen – Košice

Line		Line length (kilometres)	Minimum number of seats on the train (seats)	Number of seats in 1 st class	Number of seats in 2 nd class	Number of wheelchair spaces	Number of seats in children's sections
						1	
Main line	Bratislava — Banská Bystrica	230.00	286	42 (14.69%)	42 200 (14.69%) (69.93%)		42 (14.69%)
Connecting line	Zvolen — Košice	233.00	286	42 (14.69%)	200 (69.93%)	2 (0.7%)	42 (14.69%)
a	1						

Source: authors

The order body sets the annual traffic performance on the main line at 1,679,000 train kilometres and on the secondary line at 1,530,720 train kilometres. The total annual traffic performance within the entire line is 2,955,810 train kilometres. The estimated unit price per train kilometre is 7 euros. The total amount for the annual transport performance within the entire long-distance line is 22,468,670 €. Table 3 shows the required numbers of seats in a train set and the relative numbers of seats within 1st class, 2nd class, wheelchair seats, and seats in children's sections.

At the same time, the order body sets the percentage values of the relative number of seats in the train, which are necessary for the evaluation of tenders. It is important to state that the ordering party, within the framework of determining all parameters for the competitive line, only specifies the minimum values of the given parameters, which must be met by the participant in the public tender. Failure to meet

these minimum required parameters will result in the applicant's exclusion from the competition.

	Criterion	Weight
K1	Price of seats kilometres on the main railway line	30.0 %
K2	Price of seats kilometres on connecting railway lines	30.0 %
К3	Price of seats kilometres of alternative bus transport	2.0%
K4	Number of seats in 1st class on the main railway line	3.0 %
K5	Number of seats in 2 nd class on the main railway line	1.5 %
K6	The possibility of reserving seats on the main railway line	1.0 %
K7	Wheelchair space on the main railway line	3.0 %
K8	The children's section on the main railway line	2.5 %
К9	Direct wagons on connections from the main line to the connecting line (minimum 50% of the connections of the main line without a transfer)	5.0 %
K10	Free Wi-Fi connection on the main railway line	1.0 %
K11	Possibility of refreshments on the main railway line	2.0 %
K12	Number of seats in 1st class on connecting railway lines	3.0 %
K13	Number of seats in 2 nd class on connecting railway lines	1.5 %
K14	The possibility of reserving seats on connecting railway lines	1.0 %
K15	Wheelchair space on the connecting railway lines	3.0 %
K16	The children's section on the connecting railway line	2.5 %
K17	Direct wagons on connections from the secondary line to the main line (minimum 50% of the connections of the secondary line without transfer)	5.0 %
K18	Free Wi-Fi connection on the connecting railway line	1.0 %
K19	Possibility of refreshments on the connecting railway line	2.0 %

 Table 4 Determination of evaluation quality criteria and their weights within the case study

Source: authors

The determination of evaluation criteria and the allocation of weights to individual criteria are carried out by the order body. As part of the evaluation of the competitive offers of the participants in the public tender, the ordering party established optional evaluation criteria, the fulfilment of which will favour the offer submitted by this applicant. In this competition, the bonus is for the electric traction (an electric locomotive or electric unit). Furthermore, the order body could favour the use of sleeper or couchette carriages in the train composition within the framework of night connections. The order body also set other bonus quality criteria, such as an entertainment portal on board and the possibility of bicycle transportation.

In the tender documents, it is stipulated that the criterion for the evaluation of offers is the economic advantage of the offer, depending on the established evaluation criteria. The scoring method on a scale of 0-100 points can be used to evaluate the tenders. Table 4 shows the proposed criteria and the weights assigned to them.

Each tender is awarded a point value that reflects the success of the tender within the relevant evaluation criterion. For a numerically expressive evaluation criterion for which the most advantageous tender has the lowest criterion value, the evaluated



tender receives a point value, which is a multiple of 100, and the ratio of the value of the most advantageous tender to the evaluated tender. The score will be calculated according to the formula:

number of criteria points =
$$\frac{offer \text{ with the lowest value}}{evaluated offer} \times 100 \text{ (points)}$$
 (1)

For a numerically expressive evaluation criterion, for which the most advantageous tender has the highest criterion value, the evaluated tender receives a point value, which is created by a multiple of 100 and the ratio of the value of the evaluated tender to the most advantageous tender. The score will be calculated according to the formula:

$$number of criteria \ points = \frac{evaluated \ offer}{offer \ with \ the \ highe \ value} \times 100 \ (points)$$
(2)

The score calculated in this manner is determined or rounded to the specified number of decimal places. For each criterion, the candidate is awarded several points, which are calculated as the product of the weight of the criterion and the points awarded. The final number of points for a given candidate is calculated as the sum of the points obtained for each criterion and is rounded to the appropriate number of decimal places. When the tender with the highest value is equal to zero, the above formula is not used, and the evaluated tender receives zero points.

4. DISCUSSION

The basis for the correct setting of the transport service offer, or, respectively, the definition of the subject of each public tender (railway passenger transport lines), is knowledge of the transport requirements of passengers. When defining them, it is possible to start from the analyses of transport flows or the potential of passengers carried out so far, or from the results of more extensive research into the behaviour of passengers. In addition to possible research, the proposed methodology also places demand on the operational and technical issues of securing transport processes. For the assumption of growth in the number of passengers, it is necessary to offer a more attractive timetable, ensuring punctual transport and a higher travel speed with a shorter travel time compared to other modes of transport.

A very important moment in planning a public tender for transport performance is the correct choice of lines that will be included in the tender package. The question is whether it is appropriate to mix long-distance and regional transport. According to experience, it is advisable to design the haulage package according to the traction and attraction circle so that it is possible to plan the perfect circulations and turns of vehicles and to achieve savings from the scale and uniformity of the vehicle fleet and technological advances in the service of track sections.

Based on this, the timetable for the tendered line section Bratislava – Banská Bystrica – Košice as part of the case study was created. Trains in this timetable run in the section Bratislava – Banská Bystrica and Zvolen – Plešivec – Košice and back.

Bratislava – Šurany – Zvolen

km	Train	Ex									
	From station										
0	Bratislava hl. st.	0 04	4 04	6 04	8 04	10 04	12 04	14 04	16 04	18 04	20 04
4	Bratislava Vinohrady	0 10	4 10	6 10	8 10	10 10	12 10	14 10	16 10	18 10	20 10
49	Galanta	0 38	4 38	6 38	8 38	10 38	12 38	14 38	16 38	18 38	20 38
60	Šaľa	0 47	4 47	6 47	8 47	10 47	12 47	14 47	16 47	18 47	20 47
89	Šurany	1 09	5 09	7 09	9 09	11 09	13 09	15 09	17 09	19 09	21 09
104	Podhájska	1 23	5 23	7 23	9 23	11 23	13 23	15 23	17 23	19 23	21 23
132	Levice	1 48	5 48	7 48	9 48	11 48	13 48	15 48	17 48	19 48	21 48
144	Kozárovce	1 59	5 59	7 59	9 59	11 59	13 59	15 59	17 59	19 59	21 59
159	Nová Baňa	2 14	6 14	8 14	10 14	12 14	14 14	16 14	18 14	20 14	22 14
170	Žarnovica	2 25	6 25	8 25	10 25	12 25	14 25	16 25	18 25	20 25	22 25
187	Žiar na Hronom	2 38	6 38	8 38	10 38	12 38	14 38	16 38	18 38	20 38	22 38
209	Zvolen os. st.	2 56	6 56	8 56	10 56	12 56	14 56	16 56	18 56	20 56	22 56
	To station	Optionall									
		y Zvolen									
		os.st./Ban									
		ská									
		Bystrica/									
		Košice									

Zvolen – Banská Bystrica

km	Train	Ex									
	From station	Optionally									
		Zvolen									
		os.st./									
		Bratislava									
		hl.st./									
		Košice									
0	Zvolen os.st.	3 02	7 02	9 02	11 02	13 02	15 02	17 02	19 02	21 02	23 02
1	Zvolen mesto	3 06	7 06	9 0 6	11 06	13 06	15 06	17 06	19 06	21 06	23 06
6	Sliač kúpele	3 11	7 11	9 11	11 11	13 11	15 11	17 11	19 11	21 11	23 11
20	Banská Bystrica mesto	3 23	7 23	9 2 3	11 23	13 23	15 23	17 23	19 23	21 23	23 23
21	Banská Bystrica	3 26	7 26	9 26	11 26	13 26	15 26	17 26	19 26	21 26	23 26
	To station										

Zvolen - Plešivec - Košice

km	Train	Ex								
	From station	Optionally								
		Zvolen								
		os.st./								
		Bratislava								
		hl.st. /								
		Banska								
		Bystrica								
0	Zvolen os.st.	3 11	5 11	7 11	9 11	11 11	13 11	15 11	17 11	19 11
23	Detva	3 29	5 29	7 29	9 29	11 29	13 29	15 29	17 29	19 29
26	Kriváň	3 33	5 33	7 33	9 33	11 33	13 33	15 33	17 33	19 33
54	Lučenec	3 58	5 58	7 58	9 58	11 58	13 58	15 58	17 58	19 58
69	Fil'akovo	4 12	6 12	8 1 2	10 12	12 12	14 12	16 12	18 12	20 12
69	Jesenské	4 39	6 39	8 39	10 39	12 39	14 39	16 39	18 39	20 39
114	Čiž kúpele	4 52	6 52	8 52	10 52	12 52	14 52	16 52	18 52	20 52
133	Tornal'a	5 08	7 08	9 08	11 08	13 08	15 08	17 08	19 08	21 08
149	Plešivec	5 23	7 23	9 23	11 23	13 23	15 23	17 23	19 23	21 23
162	Rožňava	5 37	7 37	9 37	11 37	13 37	15 37	17 37	19 37	21 37
202	Moldava nad Bodvou	6 10	8 10	10 10	12 10	14 10	16 10	18 10	20 10	22 10
233	Košice	6 35	8 35	10 35	12 35	14 35	16 35	18 35	20 35	22 35
	To station									

Banská Bystrica – Zvolen

km	Train	Ex	Ex	Ex	Ex	Ex	Ex	Ex	Ex	Ex	Ex
	From station										
0	Banská Bystrica	2 32	4 32	6 32	8 32	10 32	12 32	14 32	16 32	18 32	20 32
1	Banská Bystrica mesto	2 35	4 35	6 35	8 35	10 35	12 35	14 35	16 35	18 35	20 35
15	Sliač kúpele	2 46	4 46	6 46	8 46	10 46	12 46	14 46	16 46	18 46	20 46
20	Zvolen mesto	2 52	4 52	6 52	8 52	10 52	12 52	14 52	16 52	18 52	20 52
21	Zvolen os.st.	2 55	4 55	6 55	8 55	10 55	12 55	14 55	16 55	18 55	20 55

To station	Optionall									
	у	у	у	у	у	у	у	у	у	у
	Bratislava									
	hl.st./									
	Zvolen									
	os.st./									
	Košice									

Zvolen – Šurany – Bratislava

km	Train	Ex									
	From station	Optionall									
		y Zvolen									
		os.st./Ban									
		ská									
		Bystrica/									
		Košice									
0	Zvolen os.st.	3 00	5 00	7	9 00	11 00	13 00	15 00	17 00	19 00	21 00
4	Žiar na Hronom	3 18	5 18	7 18	9 18	11 18	13 18	15 18	17 18	19 18	21 18
49	Žarnovica	3 31	5 31	7 31	9 31	11 31	13 31	15 31	17 31	19 31	21 31
60	Nová Baňa	3 42	5 42	7 42	9 4 2	11 42	13 42	15 42	17 42	18 42	21 42
89	Kozárovce	4 00	6 00	8 00	10 00	12 00	14 00	16 00	18 00	20 00	22 00
104	Levice	4 12	6 1 2	8 1 2	10 12	12 12	14 12	16 12	18 12	20 12	22 12
132	Podhájska	4 36	6 36	8 36	10 36	12 36	14 36	16 36	18 36	20 36	22 36
144	Šurany	4 51	6 51	8 51	10 51	12 51	14 51	16 51	18 51	20 51	22 51
159	Šaľa	5 14	7 14	9 1 4	11 14	13 14	15 14	17 14	19 14	21 14	23 14
170	Galanta	5 25	7 25	9 25	11 25	13 25	15 25	17 25	19 25	21 25	23 25
187	Bratislava Vinohrady	5 52	7 52	9 52	11 52	13 52	15 52	17 52	19 52	21 52	23 52
209	Bratislava	5 58	7 58	9 58	11 58	13 58	15 58	17 58	19 58	21 58	23 58
	To station										

Košice – Plešivec – Zvolen

km	Train		Ex								
	From station										
0	Košice		3 21	5 21	7 21	9 21	11 21	13 21	15 21	17 21	23 21
31	Moldava nad Bodvou		3 46	5 46	746	9 46	11 46	13 46	15 46	17 46	23 46
71	Rožňava		4 18	6 18	8 18	10 18	12 18	14 18	16 18	18 18	0 18
84	Plešivec		4 32	6 32	8 32	10 32	12 32	14 32	16 32	18 32	0 32
100	Tornal'a		4 46	6 46	8 46	10 46	12 46	14 46	16 46	18 46	0 46
119	Čiž kúpele		5 02	7 02	9 02	11 02	13 02	15 02	17 02	19 02	1 02
135	Jesenské		5 17	7 17	9 17	11 17	13 17	15 17	17 17	19 17	1 17
164	Fiľakovo		5 44	7 44	9 4 4	11 44	13 44	15 44	17 44	19 44	1 44
179	Lučenec		5 59	7 59	9 59	11 59	13 59	15 59	17 59	19 59	1 59
207	Kriváň		6 24	8 24	10 24	12 24	14 24	16 24	18 24	20 24	2 24
210	Detva	1	6 28	8 28	10 28	12 28	14 28	16 28	18 28	20 28	2 28
233	Zvolen os.st.		6 46	8 46	10 46	12 46	14 46	16 46	18 46	20 46	2 46
	To station		Optionall								
		2	y Zvolen								
			os.st./								
		1	Bratislava								
		1	hl.st. /	hl.st./	hl.st. /						
]	Banska								
		1	Bystrica								

Source: authors

There is also a need to plan an infrastructure measurement of construction and reconstruction on the railway lines, which will ultimately contribute to increasing the line capacity to fulfil the planned timetable. Such measures can include, for example, increasing the number of traffic tracks in railway stations, extending their useful length, adjusting the slope and direction of the tracks, increasing speed, building crossing points, double-tracking, or electrifying railway lines.

From an operational aspect, it is also possible to encounter certain risks. This may be due to the risk of low passenger numbers in rail passenger transport due to the current state of the infrastructure and its lower ability to compete with the more flexible individual car transport; carriers' lack of interest in participating in public tenders and their unsatisfactory fleet of railway vehicles; and the risk of financing public passenger transport.

As part of further scientific and research activities, the area of economic focus could be examined in more detail, or economic factors related to the solved issue. It may refer to the area of payment for ordered transport services, or fees for a railway transport route. An important moment of the competition for transport performance in long-distance railway transport is the very subject of the competition, the operational nature of the line, the set timetable, the timing of the connections, the possibility to plan efficient turns of sets and their operational maintenance. For this reason, the setting of the line or set of lines that are the subject of the competition is an important moment from the operational point of view of their technology and conditions for planning efficient traffic, which creates a direct impact on the results of the economic efficiency of operating the line. Another important moment is the provision of a sufficient period to the selected applicant in the supply phase before the start of line operation. For the future direction of research in the area of the addressed issue, it would be appropriate to focus on a more detailed division of competences in the event of the emergence of possible risks within the framework of the implementation of services in the public interest in railway passenger transport, such as tariff risk, capacity risk with a focus on railway vehicles, which carriers must bear and also unpredictable circumstances.

5. CONCLUSION

A public tender is a method of selecting a carrier, which aims to reduce the amount of necessary financial resources due to competitive pressure. The funds are spent on the operation of transport services and at the same time it is about increasing the quality of transport services and their efficiency. This can make rail transport more attractive for as many passengers as possible. Compared to a public tender, direct award is the traditional way of concluding contracts for transport services in the public interest, as for many years the Ministry concluded contracts with the state carrier ZSSK.

Several public tenders have already been announced in Slovakia for selected regional railway lines and one long-distance railway line. All of them ended with an unsuccessful result until the moment when in August 2022 the Ministry announced the result of the first successful public tender for the operation of the line Bratislava – Dunajská Streda – Komárno. Thus, after many years of unsuccessfully announcing public tenders, the Ministry has reached the point where the method of setting the conditions of public tenders and their evaluation has a successful basis.

The case study can serve as an example of the announcement of public tenders in EU conditions. The correct setting of the complete methodology of public tenders for the allocation of services in the public interest in long-distance railway passenger transport can significantly reduce the identified risks in the field of economy. The issue of public tenders for the allocation of performance in rail transport needs to be resolved in view of the possible operational or economic benefits of conducting public tenders and at the same time in view of the common European legislation that every member of the European Union must comply with. However, for the needs of ensuring efficient transport on the entire railway network, it is necessary to develop a



methodology for awarding services in long-distance and regional transport through a public tender. It is necessary to assess whether public tenders will be held separately for regional transport or whether performance in regional transport will be associated with long-distance rail passenger transport as part of the introduction of integrated transport systems.

The public tender is relatively rigid and formalized in its process, but there is an easily applicable and controllable principle of transparency and non-discrimination. It is characterized by precisely defined conditions and deadlines, which are decided exclusively by the Department of Transport. These conditions are immutable, so it is important that they are set well. On the contrary, it may happen that the competition does not generate any winner, because no applicant will be able to fulfil the conditions. Based on the fourth railway package, from 2024 every carrier should be able to operate railway passenger transport services through a public tender. If the department of transport is interested in public tenders being as effective as a direct award, it is important that it prepares such tender documents that many carriers will be able to fulfil.

ACKNOWLEDGEMENTS

The paper is supported by the VEGA Agency by Project 1/0640/23 "Elements of quality in competitive public tendering in railway passenger transport", that is solved at the Faculty of Operations and Economics of Transport and Communication, University of Žilina.

6. REFERENCES

Abramović, B., Šipuš, D. & Leko, M. (2018). The analysis of the organisation of Railway Passenger Transport on the liberalised market, *5th International conference on Road and Rail Infrastructure*, Lakušić, S. (ed.) Faculty of Civil Engineering, Zagreb, 17-19 May 2018, p. 847-853. https://doi.org/10.5592/co/cetra.2018.658

Alexandersson, G., Hultén, S. & Jardón, J.J. (2020). Hybrid markets in public transport – contract design, performance and conflicts. *Research in Transport Economics*, 83, 100897. https://doi.org/10.1016/j.retrec.2020.100897

Alexandersson, G, Nash, C. & Preston, J. (2008). Risk nd reward in rail contracting. *Research in Transport Economics*, 22(1), p. 31-35. https://doi.org/10.1016/j.retrec.2008.05.008

Brenck, A. & Peter, B. (2007). Experience with competitive tendering in Germany. *Competitive Tendering in Rail Services*, p. 139-164. https://doi.org/10.1787/9789282101636-6-en

Broman, E. & Eliasson, J. (2019). Welfare effects of open access competition on railway markets. *Transportation Research Part A: Policy and Practice*, 129, p. 72-91. https://doi.org/10.1016/j.tra.2019.07.005

Bulková, Z., Gašparík, J., Poliak, M. & Pečený, L. (2023). Technological aspects of tendering in rail passenger transport in Slovakia. *Periodica Polytechnica Transportation Engineering*, 51(2), p. 200-2008. https://doi.org/10.3311/PPtr.20356

Dementiev, A. (2018). Contracting out public transport services to vertical partnerships. *Research in Transportation Economics*, 69, p. 126-134. https://doi.org/10.1016/j.retrec.2018.07.012

Dolinayová, A., Černá, L. & Dömény, I. (2021). Competition on the domestic rail passenger transport market under Public Service Obligation in some selected European countries and Slovak Republic. *Sustainable Rail Transport*, 4, p. 269–323. https://doi.org/10.1007/978-3-030-82095-4 12

European Commission. (2007). Regulation (EC) No 1370/2007 of the European Parliament an of the Council of 23 October 2007 on public passenger transport services by rail and by road and repealing Council Regulations (EEC) Nos 1191/69 and 1107/70. [available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R1370&from=EN, access June 18, 2023]

European Union. (2016). Regulation (EU) 2016/2338 of the European Parliament and of the Council of 14 December 2016 amending Regulation (EC) No 1370/2007 concerning the opening of the market for domestic passenger transport services by rail. [available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R2338&from=EN, access June 18, 2023]

Filippini, M., Koller, M. & Masiero, G. (2015). Competitive tendering versus performance-based negotiation in Swiss public transport. *Transportation Research Part A: Policy and Practice*, 82, p. 158-168. https://doi.org/10.1016/j.tra.2015.09.007

Fitzová, H., Kališ, R., Pařil, V. & Kasa, M. (2021). Competition in long distance transport: Impacts on prices, frequencies, and demand in the Czech Republic. *Research in Transportation Business & Management*, 41, 100655. https://doi.org/10.1016/j.rtbm.2021.100655

Gašparík, J., Záhumenská, Z. & Pečený, L. (2017). Competitive tendering in the rail passenger transport focusing to the long distance lines, *21st International Scientific Conference Transport Means*, Juodkrante, Lithuania, 20-22 September 2017, p. 351-355.

Gutiérrez-Hita, C. & Ruiz-Rua, A. (2019). Competition in the railway passenger market: The challenge of liberalization. *Competition and regulation in network industries*, 20(2), p. 164-183. https://doi.org/10.1177/1783591719858737

Hensher, D. A. & Stanley, J. (2008). Transcating under a performance-based contract: The role of negotiation and competitive tendering. *Transportation Research Part A: Policy and Practice*, 42(9), p. 1143-1151. https://doi.org/10.1016/j.tra.2008.05.004

Humić, R. & Abramović, B. (2019). Criteria for the quality of services of public interest organized by train operators, 13th International Scientific Conference on Sustainable, Modern and Safe Transport - TRANSCOM 2019, High Tatras, Slovakia,

29-31 May 2019, p. 259-264. https://doi.org/10.1016/j.trpro.2019.07.039

Johnson, D. & Nash, C. (2012). Competition and the provision of rail passenger services: A simulation exercise. *Journal of Rail Transport Planning & Management*, 2(1-2), p. 14–22. https://doi.org/10.1016/j.jrtpm.2012.09.001

Król, M. (2017). Open access competition in the long-distance passenger rail services in Poland. *Yearbook of Antitrust and Regulatory Studies*, 10, p. 155–166. https://doi.org/10.7172/1689-9024.yars.2017.10.16.7

Kvizda, M. & Solnička, J. 2019. Open access passenger rail competition in Slovakia – experience from the Bratislava – Košice line. *Journal of Rail Transport Planning & Management*, 12, 100143. https://doi.org/10.1016/j.jrtpm.2019.100143

Lakatos, A. & Mándoki, P. (2020). Sustainability analysis of competition in public transport systems: A comparative case study in Hungary and Finland. *Periodica Polytechnica Civil Engineering*, 64(2), p. 545-556. https://doi.org/10.3311/PPci.14824

Litră, M. & Burlacu, S. (2014). Management regulatory liberalization of the public service contracts in the rail industry. *Administratie Si Management Public*, (22), p. 73-84.

Mašek, J., Kendra, M., Čamaj, J. & Dolinayová, A. (2015). Liberalization of public passenger railway transport in Slovak republic, International Conference on Civil, Structural and Transportation Engineering - ICCSTE 2015, Ottawa, Canada, 4-5 May 2015, 279.

Nachtigall, P., Široký, J., Šourek, D., Ježek, J. & Matuška, J. (2020). Process of capacity allocation on public sidings. *Transportation Research Procedia*, 44, p. 69-77. https://doi.org/10.1016/j.trpro.2020.02.011

Nash, C., Smith, A., Crozet, Y., Link, H. & Nilsson, J.E. (2019). How to liberalise rail passenger services? Lessons from European experience. *Transport Policy*, 79, p. 11-20. https://doi.org/10.1016/j.tranpol.2019.03.011

Nilsson, J.E., & Jonsson, L. (2011). Lessons from the tendering of railway services in Sweden. Are some contracts better than others? *International Journal of Transport Economics*, 38(1), p. 71-90.

Odolinski, K. & Smith, A.S.J. (2016). Assessing the cost impact of competitive tendering in rail infrastructure maintenance services: Evidence from the Swedish reforms (1999 to 2011). *Journal of Transport Economics and Policy*, 50(1), p. 93-112.

Slovak Republic. 2009. Act on railway transport (in Slovak). Slovak Republic [available at: https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2009/514/, access May 13, 2023]

Slovak Republic. 2012. Contract of public transport services 2012-2020 (in Slovak). Slovak Republic [available at: https://www.mindop.sk/ministerstvo-1/doprava-

3/zeleznicna-doprava/liberalizacia-osobnej-zeleznicnej-dopravy/bratislava-komarno, access May 13, 2023]

Slovak Republic. 2015. Public Procurement Act. Slovak Republic (in Slovak). Slovak Republic [available at: https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2015/343/, access May 13, 2023]

Slovak Republic. 2018. Preliminary notice on public service contracts for the Košice – Moldava nad Bodvou line (in Slovak). Slovak Republic [available at: https://www.mindop.sk/ministerstvo-1/doprava-3/zeleznicna-doprava/liberalizacia-osobnej-zeleznicnej-dopravy/kosice-moldava-nad-bodvou, access May 13, 2023]

Slovak Republic. 2019a. Notice on the announcement of a public tender for the Bratislava - Komárno line (in Slovak). Slovak Republic [available at: https://www.mindop.sk/ministerstvo-1/doprava-3/zeleznicna-doprava/liberalizaciaosobnej-zeleznicnej-dopravy/bratislava-komarno/oznamenie-o-zacati-verejnejsutaze, access May 13, 2023]

Slovak Republic. 2019b. Notice on the announcement of a public tender for the Žilina – Rajec line (in Slovak). Slovak Republic [available at: https://www.mindop.sk/ministerstvo-1/doprava-3/zeleznicna-doprava/liberalizacia-osobnej-zeleznicnej-dopravy/oznamenia-o-vyhlaseni-verejnej-sutaze/oznamenie-o-zacati-verejnej-sutaze, access May 13, 2023]

Slovak Republic. 2020. Notice on the announcement of a public tender for the Žilina – Rajec line - repeated (in Slovak). Slovak Republic [available at: https://www.mindop.sk/ministerstvo-1/doprava-3/zeleznicna-doprava/liberalizacia-osobnej-zeleznicnej-dopravy/zilina-rajec-opakovana, access May 13, 2023]

Solina, K. & Abramović, B. (2022). Effects of Railway Market Liberalisation: European Union Perspective. *Sustainability*, 14, 4657. https://doi.org/10.3390/su14084657

Stojic, G., Mladenovic, D., Prentkovskis, O. & Veskovic, S. (2018). A novel model for determining public service compensation in integrated public transport systems. *Sustainability*, 10(9), 2969. https://doi.org/10.3390/su10092969

Tomeš, Z., Kvizda, M., Nigrin, T. & Seidenglanz, D. (2014). Competition in the railway passenger market in the Czech republic. *Research in Transportation Economics*, 48, p. 270-276. https://doi.org/10.1016/j.retrec.2014.09.052

Záhumenská, Z. Vojtek, M. & Gašparík, J. (2018). Position of railway passenger transport companies on current liberalized transport market, *10th International Scientific Conference Horizons of Railway Transport*, Strečno 11-12 October 2018, 00020. https://doi.org/10.1051/matecconf/201823500020