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Technological Aspects of Tendering in Rail Passenger Transport in Slovakia

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Abstract

The market for rail services in EU countries has long been inaccessible to the private sector. Transport services were provided by national operators, which led to the prevention of participation in fair and non-discriminatory competition in the provision of rail transport services. It is necessary to analyse the overall development in the operation of rail passenger transport, including the entry of private operators into the rail infrastructure. Based on the knowledge of the current situation, it is necessary to take measures to achieve compliance with the requirements of Regulation (EC) No 1370/2007. The paper characterizes the current state and the process of organizing public tenders in the Slovak Republic based on a case study and their process and proposes the gradual steps of the public tender in the form of a schedule. An important point of the whole process of the organization of the public tender is the correct setting of competencies, determination of the subject of the public tender and to propose a uniform methodology of the public tender, which may, however, vary in individual states due to the conditions of national legislation. Part of the unified methodology is the determination of the phases of the public tender process, which are part of the schedule of the public tender. The schedule of the public tender shows the entire cycle, resp. the duration of each phase of the tender for each proposed group of measures taken.

Keywords

schedule, tender phase, public services, railway passenger transport

1 Introduction

Historically, antitrust and competition protection have taken place mainly at national level. Free and non-discriminatory access is needed to enable potential economic operators to take full advantage of all profitable market opportunities. Free and non-discriminatory access to the market allows better use of potential profit opportunities, while stimulating new investors as well as original market participants to higher business-quality activity. One way to make the market accessible is through the liberalization process (Černá et al., 2020). The EU considers the liberalization of the rail transport market to be a key solution for promoting competition, which can contribute to the development of rail transport and greater use of its capacity. The economic, environmental, and social aspects of rail transport should be considered as the main benefits of sustainable development. The liberalization process in this area is very demanding (Bougna and Crozet, 2016). All barriers to market access must be examined and all the effects of those barriers analysed so that they can be removed or reduced. Once these criteria are met, the goal of a single European railway market will be achieved. The advantage of the liberalization of the rail services market is the existence of competition based on fundamental market principles. European law, the so-called fourth railway package, stipulates that after 2023, contracts in the field of rail transport must also be concluded based on public tenders (Nash et al., 2019).

Tender is a form of public service allocation within the framework of Public Service Contracts based on a non-discriminatory approach. In other words, we can also say that it is a competition announced by the Ministry of Transport and Construction of the Slovak Republic (2021) (hereinafter the Ministry) for a certain transport performance with the subsequent conclusion of a Public Service Contract in the

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public interest or direct award to a selected railway undertaking. The associated public interest represents the indirect realization of the loss from the operation of unprofitable connections and from the obligation to transport specified groups of the population, in accordance with the relevant price legislation free of charge or for specified, resp. discounted travel expenses (social discounts). On that basis, services in the public interest include, in particular, those to which every citizen is entitled, regardless of their financial status, physical abilities and located anywhere in the territory of the State. The Public Service Contract obliges the operator to provide the state, self-governing region, or municipality with services which, because of their commercial interests, would not be provided at all or not to the required extent due to their economic disadvantage, and the state, self-governing region or municipality undertakes to pay the operator for these performances' demonstrable loss.

2 Material, methods, and literature overview

One of the immediate aims of the EU railway policy in railway transport was included in the fourth railway package that opened domestic passenger railways to new entrants and services in December 2019. Companies would either be able to offer competing services, such as a new train service on a particular route or bid for public service rail contracts through tendering (Lakatos and Mándoki, 2021). This makes competitive tendering mandatory for public service rail contracts in the EU. In rare instances, a specific train operator can be contracted directly. Hence, Regulation (EC) No 1370/2007 of the European Parliament and the Council of the European Union (2007) enables competent authorities to comply with regulations and the rights of companies to participate in a fully functioning market to provide a comprehensive, safe, better quality, and lower-cost public railway transport system. The research approach for public tenders organising long-distance railways was developed according to EU strategic documents in transport policy, particularly Regulation (EC) No 1370/2007 (European Parliament and the Council of the European Union, 2007) and Quality Standards CEN EN 13 816:2002 (CEN, 2002) and CEN EN 15 140:2006 (CEN, 2006). The position of railway undertakings in passenger transport on current liberalized transport market is elaborated in the research Záhumenská et al. (2018). Dolinayova et al. (2022) analysed competition on the domestic rail passenger transport market under Public Service Obligation in some selected European countries and Slovak Republic. "Open access passenger rail competition in Slovakia – experience from the Bratislava–Košice line" research was presented by Kvizda and Solnička (2019). A very important part of the proper functioning of public transport is the correctly set and synchronised timetable in regional and long-distance public transport even in stochastic conditions (Zefreh et al., 2020). Humić and Abramović (2019) analysed and proposed criteria for the quality of services of public interest organized by train operators. Case studies of impact of various methods for choosing a railway undertaking were developed by Špetík (2022). Others case studies were developed by Tomeš and Fitzová (2019), who focused on the advantages of open access passenger rail competition on the Prague – Brno line. Research on public tenders, competition, and liberalisation of railway markets in the Czech Republic was conducted by Fitzová et al. (2021), Seidenglanz et al. (2014), and Tomeš et al. (2014). Bulíček (2018) proposed methodology of timetable synchronization in urban public transport at busy hubs of long-distance transport. This problem and subsequently the simulation model for not solving this problem were proposed by Ľupták et al. (2019) too.

The resources of scientific, professional, and commercial nature were used to analyse all the collected theoretical knowledge of the problem. The scientific methods for creating a methodological approach can be divided into basic methods (gathering and processing information, analysis, synthesis, and displaying processes), empirical methods (observation and analogy), exact methods (global analysis within the context of the systematic identification of relationships and processes when contracting services in the public interest within the long-distance rail passenger services sector and methods linked to creative thinking (benchmarking and brainstorming).

3 Public tendering: Case study for the Slovak Republic

Under the conditions of the Slovak Republic, transport services in the public interest are provided based on a concluded Public Service Contract between the Ministry of Transport and Construction of the Slovak Republic (2021) and the railway operator. This contract is concluded for a particular volume of rail passenger transport services (in train kilometres). The more passengers will travel on a given route, the higher the revenue the route will generate and therefore it will not be necessary to require more funds from public budgets (Kvizda and Solnička, 2019). Customers of public transport services in rail transport have the largest choice of operators in history. The arrival

of new railway undertakings can be identified as innovation, investment, services improvement, technological and organizational modernization and, on the other hand, allows the customer to choose from more than one transport service provider, thus stimulating the relationship between quality and price. Today, there are no lucrative or less lucrative lines in rail transport within the Contract. On the contrary, there are only those lines where it is possible to operate transport services in a commercial way (non-subsidized operation) or lines where it is necessary to provide rail transport and co-finance it from the public budget (Abramović et al., 2018).

The first progress in this area was the announcement of a public tender for the provision of transport services in the public interest on the Bratislava – Banska Bystrica route in 2015. This public tender was cancelled due to insufficiently defined rules and conditions. In their research Gasparik et al. (2019) addressed the issue of the failure of this tender. Záhumenská et al. (2017) developed a case study including the calculation of total costs when ensuring railway passenger transport on the Bratislava to Banska Bystrica line. This case study was a model example for the needs of the public tenders for the provision of public transport services on this route.

The allocation of services in the public interest in rail passenger transport is regulated by European Union and by national legislation, by amending Regulation (EC) No 1370/2007 on services of general interest in rail and road passenger transport (European Parliament and the Council of the European Union, 2016) and by the Act no. 514/2009 on Railway Transport Coll. (Slovak Republic, 2009), as amended – hereinafter referred to as Act. The actual allocation of services in the public interest is carried out based on the Public Service Contract in the Public Interest. The Act stipulates that performances in the public interest in railway passenger transport are ordered by the Ministry through the conclusion of Public Service Contracts with a railway undertaking or a licensed operator within the framework of providing transport services in public transport to provide the required transport services and to fulfil the established contractual obligations. Fares for transport services under the treaty are subject to state regulation (European Parliament and the Council of the European Union, 2007). The contract may be concluded between the Ministry and the operator by direct award to the selected railway operator. At present, the Act does not stipulate any procedure for Contracts awarding by means of a public tender. The purpose of the Agreement is to guarantee safe, efficient, and high-quality transport services for specified fares, with adequate performance according to the needs of the transport service of the territory and the like (European Parliament and the Council of the European Union, 2016).

Performances in railway passenger transport are currently ordered by the Ministry of Transport and Construction of the Slovak Republic (2021) based on one "Public Service Contract for the period 2021-2030", which is annually amended by an addendum the required volume of transport services intended for long-distance and regional rail passenger transport is differentiated in the partial contract. The currently valid Contract covering services in railway passenger transport was awarded by the Ministry directly to the selected operator again – to Železničná spoločnosť Slovensko, Inc. Specifically defined long-distance lines of the network of the Railways of the Slovak Republic (hereinafter referred to as ŽSR) are set out in the strategic document "Strategic plan for the development of transport in the Slovak Republic until 2030" (Ministry of Transport, Construction and Regional Development of the Slovak Republic, 2016). In Table 1 are shown the number of announced public tenders for the provision of transport services in the public interest in

Table 1 Overview of announced public tenders in railway passenger transport in the Slovak Republic (Source: authors)

Line	Announcement of public tender	Performance of Public service Contract	Duration of the contract	Number of applicants	Result of public tender
		Long-distance			
Bratislava – Banska Bystrica	2015	-	10 years	10	cancelled
		Regional			
Žilina – Rajec	2018	1.1.2020	10 years	1	cancelled
Žilina – Rajec (repeated)	2020	1.1.2022	10 years	0	cancelled
Košice – Moldava nad Bodvou	2018	1.1.2021	10 years	-	-
Bratislava – Komarno	2018	1.1.2021	10 years	1	cancelled
Bratislava – Komarno (repeated)	2020	1.1.2023	10 years	1	cancelled

rail passenger transport in the Slovak Republic on selected long-distance and regional lines. Due to availability, some tender data was not available or is not yet known and published.

All announced public tenders in railway passenger transport in the Slovak Republic were evaluated as unsuccessful (non-transparent conditions of the public tender defined by the customer – capacity, quality, price). From the analysis of the conditions and process of public transport on transport lines, we can say that there are no precise and clear rules for the organization of public transport in individual countries. Also, common EU legislation does not define any clear rules for the actual process of the public tender. The gradual steps concerning the organization and process of public administration in the given EU states thus remain within the competence of that given state.

4 Proposal of the schedule of public tenders

Based on the analysis, we found out the possible process of public tender and the occurrence of the same gradual steps within the organization of public tender in rail passenger transport. We created the so-called general methodological scheme of organizing public tenders in rail passenger transport. This methodology can be applied in the organization and process of public administration in the country, while it is important to pay attention to the national legislation of the country, which very often differs from the national legislation of other EU countries. The methodical scheme of organization and process of a public tender in rail passenger transport is shown in Fig. 1.

When applying the general model of the public transport services ordering methodology, we can define the individual competencies resulting from the successive steps of the public tender organization and the relevant entities that will be directly responsible for the preparation, organization, and process of the public tender. In the conditions of the Slovak Republic, according to the proposed methodology, the Ministry of Transport and Construction of the Slovak Republic will be responsible for the preparation, organization, and process of the public administration. In the event of the creation of a new National Transport Agency or the Public Transport Coordination Office, it will be possible for all competences, or part of them only, to be transferred to these bodies. The responsible entity will perform all the activities specified above (for example preparation and organization of the public tender, evaluation of tenders, selection of the winning operator, etc.). It will perform these activities through its components,

Fig. 1 Methodical scheme of a public tender (PT) in railway passenger transport (Source: authors)

respectively through the newly established departments and in cooperation with the infrastructure manager, therefore with ŽSR. The body responsible for the control of public procurement, which is to take place in accordance with the provisions of the Public Procurement Act, should be the Public Procurement Office. Within the process of the public tender process itself, the Antimonopoly Office of the Slovak Republic will supervise the process of the public tender process. Based on the general methodology of ordering transport services in the public interest, we can design the process. The successive steps of the tender in rail passenger transport are shown in Fig. 2.

The gradual steps of the public tender form the basis of the entire process of the public tender. This means that the steps are immutable and unambiguous, and their sequence must not be confused in any way. The procedure adopted for the tender allows for the participation of all providers.

This procedure is fair and respects the principles of transparency and non-discrimination.

Based on the set tasks of the responsible entity, appropriate training needs to be made within the set deadline before the start of the public tender. The reason is the fact that thanks to the honest preparation and determination of individual tasks, the winning operator will be able to fulfil the obligations arising from the Public Service Contract

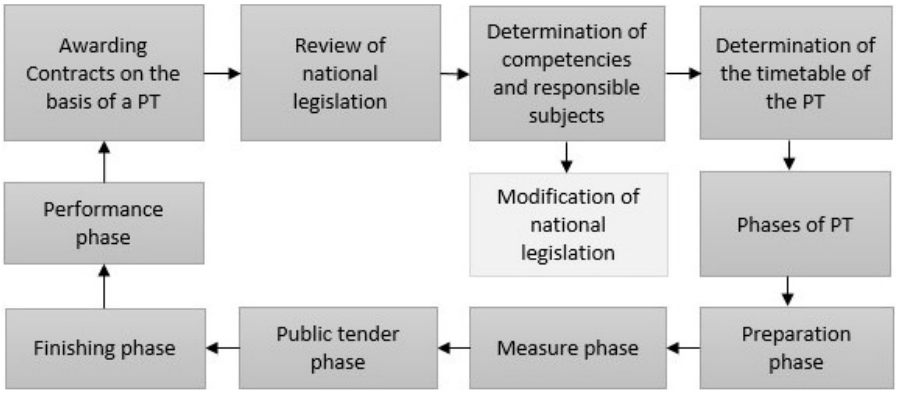

Fig. 2 Proposal of the public tender process in rail passenger transport (Source: authors)

right from the beginning of the validity of the concluded Public Service Contract. After the division of public tender subjects, the planning of public tender deadlines for each group will follow. The exception will be the last group, in which it will be possible to set the public tender deadline separately for each public tender subject belonging to this group regarding the implementation time of the relevant infrastructure measure, or it may be a common deadline according to the longest implementation time of a specific measure. However, the implementation of infrastructure measures must be completed no later than six months before the beginning of the validity of the Public Service Contract for a specific subject of the public tender.

With regards to the railway routes, it is therefore appropriate to divide them into three groups according to the schedule for implementing appropriate infrastructure measures or control of the implementation of infrastructure measures. These are groups of infrastructure measures such as Group I (no measures), Group II (implementation within a period of 3 years), Group III (implementation period exceeds 3 years).

Although the schedule is significantly different for each public tender, the phases of the process are the same:

- Preparation phase – definition of railway lines and the subject matter of the individual Public tenders; inspection of the condition of the infrastructure; development of a prospective timetable; set conditions and requirements for the public tender; suggestions for the range of necessary measures;
- Measure phase – implementing necessary measures;
- Public tender phase – publication of prior notification; preparation of tender documentation and Public Service Contract evaluation criteria; start of the public tender; receipt and evaluation of participation requests; delivery of requests for tenders from potential service providers; receipt and evaluation of tenders; selection of a winner; delivery of selection notice;
- Finishing phase – conclusion of Public Service Contract;
- Performance phase – performance of Public Service Contract.

The individual phases of the public tender can be expressed in the form of a schedule of the public tender, which shows the whole cycle, and the duration of individual phases of the public tender for each proposed group of adopted measures, respectively. The cycle will run from the moment of the beginning of the preparatory phase until the end of the performance phase, i.e. the end of the concluded Contract. The Group I and Group II cycles take care of the set deadlines of the individual phases of the schedule of the public tender. Fig. 3 graphically shows the process of one cycle of the public tender.

The implementation of the preparation phase is determined for a period of 12 months, so 1 year before the very beginning of the public tender. This period is valid for all groups of tenders. This phase is followed by the public tender phase. It has a specified duration of 21 months for all subjects of the public tender. This period is divided into smaller parts, namely the first 12 months from the publication of the prior notice in the Official Journal of the EU, the period of 6 months from the start of the tender and the last day for the submission of tenders. The last 3 months are intended for the evaluation of tenders and the subsequent selection of the most advantageous tender together with the sending of the notice of selection / exclusion of the operator. The finishing phase is designed for a minimum of 3 months for all groups of tenders. However, this time horizon is determined by a minimum horizon of 3 months if the customer provides the vehicles for a specific subject of the public tender. It is recommended to extend this period to at least one year, ideally to two years, given the need

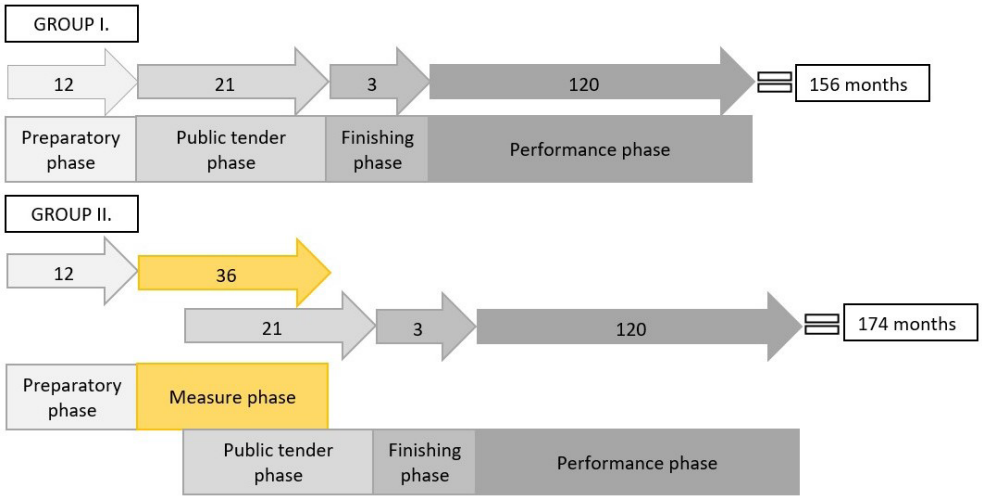

Fig. 3 Process map of one cycle of the public tender (Source: authors)

to procure railway vehicles within the competence of the operator for the subsequent performance of the Contract (the so-called operator preparation phase). The performance phase is designed for a period of 120 months, so for the entire duration of the Contract (10 years), from the beginning of the performance to the end.

According to the provisions of Regulation (EC) No 1370/2007 (European Parliament and the Council of the European Union, 2007), it is possible to extend the validity of the Contract for a period of 15 years, but it is at the discretion of the customer how to proceed with this step, as the Contracts in the Slovak Republic were not concluded for such a time in long-distance rail passenger transport. Also, in the case of concluding a Contract with a new operator, with which the Ministry of Transport and Construction of the Slovak Republic has not yet cooperated, there may be dissatisfaction with the performance of the Contract by both the customer and the operator, or by the traveling public. In Fig. 4 we can see two consecutive cycles of the public tender for three groups of measures.

For Group III, the tender cycle chart will be compiled on a very similar basis to Group II, and the length of the necessary measures phase will depend on the longest period of implementation of the infrastructure measures or the time of implementation of the measures separately for each subject of the group's tender. In Table 2 we will show an overview of the schedule of public tenders in the Slovak Republic in two cycles based on the proposed methodology.

Table 2 presents the distribution of the individual phases of the tender over time, determined for the first and second cycle. Within each cycle, groups of infrastructure measures are defined. Each group of measures provides information on the beginning and end of each stage of the tender (values are expressed in months). In the filling phase, the beginning and end of the operation of services in the public interest on the given line is determined. This means that *X*, as the time value, expresses the beginning of the validity of the Contract (respectively the month of the start of operation of the railway line). Time value *Y*, expresses the ending of the validity of the Contract (respectively the beginning of the validity of the new Contract). The time value *Z*, expresses the ending of the validity of the Contract in the second cycle. The duration of the Contract is expressed by the variable *P* (period), which in this case is 120 months. Using this methodology, the beginning of the cycle will be common for all groups, subject to a 10-year term. This method can help us to apply the new Agreement for the next period of validity, which means that before the expiration of the Agreement, the application of the new Agreement will be ready, and thus we will achieve a smooth transition between securing traffic on the lines. In the implementation of infrastructure measures based on this proposal, we can optimize the planning, implementation, and control of the implementation of infrastructure measures in the future, and thus achieve a reduction in the time of the preparation phase. Ultimately, we will achieve the optimization of the entire tender cycle.

5 Conclusion

At present, it is necessary to address the issue of organizing public tenders in rail passenger transport. It follows from the conditions of national and international legislation that after 2023, Public Service Contracts must be concluded in the public interest only because of a public tender. It is necessary to set up a functioning system of organization of public tenders in rail passenger transport.

Based on the analysis of the examined current state of the issue in Slovakia and abroad, as well as the current development of the organization of public tenders, we can state

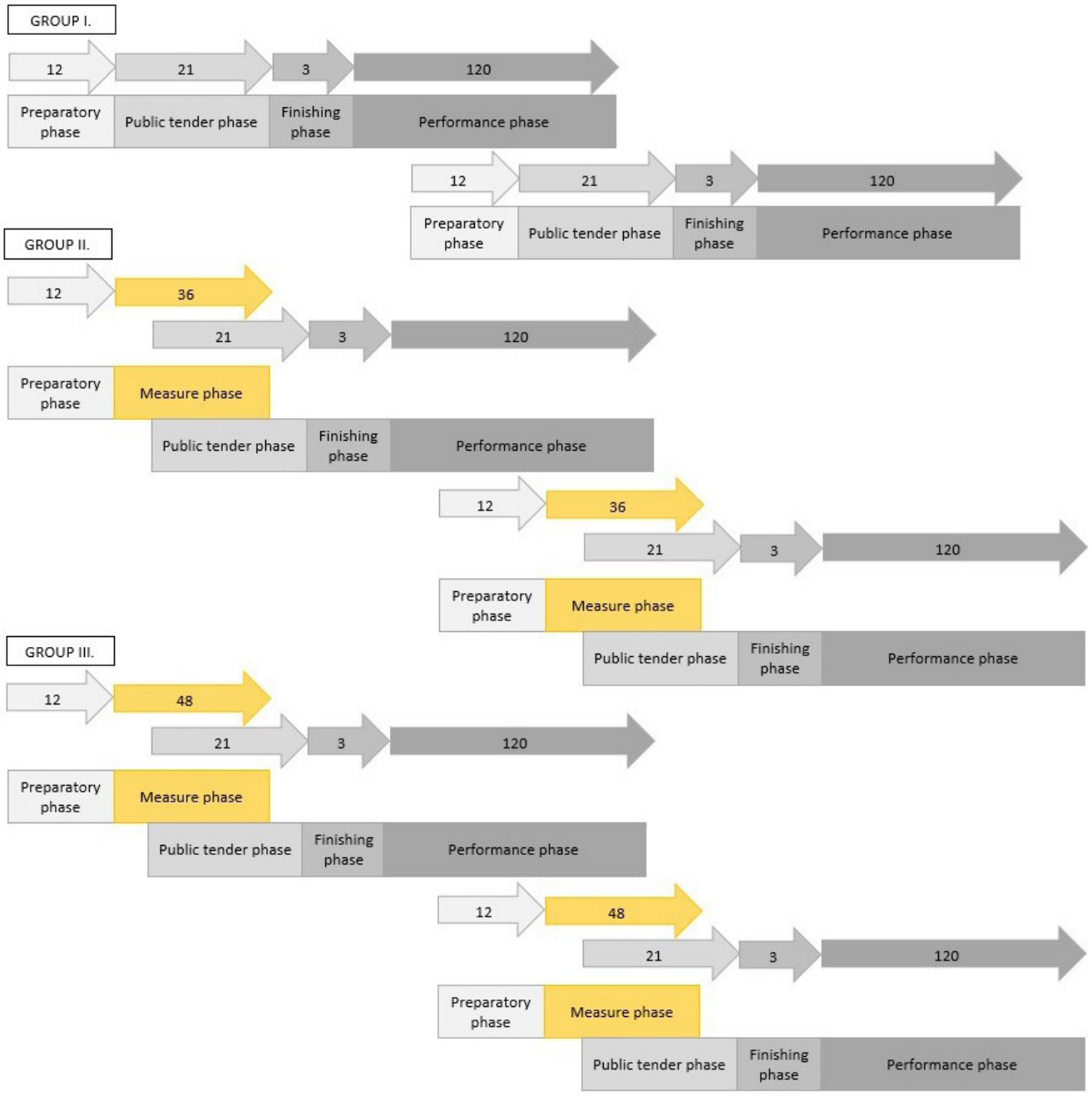

Fig. 4 Process map of two consecutive cycles of the public tender (Source: authors)

that several public tenders have been announced in Slovakia, either for selected regional rail passenger lines or one long-distance rail passenger line, but they all ended up with an unsuccessful result. The reason was the non-transparent setting of the conditions of the tenders or the failure to provide sufficient time for the preparation of tenders, based on which many operators decided not to submit their tenders.

The draft schedule for rail passenger transport provides an overview of the organization and determines the conduct of the tender. Due to the pre-set conditions of the public tender, the customer of transport services in the public interest can have an overview of the latest date when it is necessary to announce the public tender. The proposed methodology can be applicable either in regional transport or in international transport, which is preceded by the necessary definition of competencies between the various entities participating in the public tender.

Acknowledgement

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Table 2 An overview of the schedule of public tenders in the Slovak Republic in two cycles based on the proposed methodology (Source: authors)

Group	Distribution of individual phases of two cycles					
	Stage	Preparation phase	Measure phase	Public tender phase	Finishing phase	Performance phase
			First cycle			
I	Beginning	$X-36$	–	$X-24$	$X-3$	X
	End	$X-24$	–	$X-3$	X	$(X+P)=Y$
II	Beginning	$X-66$	$X-54$	$X-24$	$X-3$	X
	End	$X-54$	$X-18$	$X-3$	X	$(X+P)=Y$
III (Measure phase for example 4 years)	Beginning	$X-78$	$X-66$	$X-24$	$X-3$	X
	End	$X-66$	$X-18$	$X-3$	X	$(X+P)=Y$
			Second cycle			
I	Beginning	$Y-36$	–	$Y-24$	Y-3	Y
	End	$Y-24$	–	$Y-3$	Y	$(Y+P)=Z$
II	Beginning	$Y-66$	$Y-54$	$Y-24$	Y-3	Y
	End	$Y-54$	$Y-18$	$Y-3$	Y	$(Y+P)=Z$
III (Measure phase for example 4 years)	Beginning	$Y-78$	$Y-66$	$Y-24$	Y-3	Y
	End	$Y-66$	$Y-18$	$Y-3$	Y	$(Y+P)=Z$

References

Abramović, B., Šipuš, D., Leko, M. (2018) "The analysis of the organisation of Railway Passenger Transport on the liberalised market", In: Lakušić, S. (ed.) Road and Rail Infrastructure V: Proceedings of the 5th International Conference on Road and Rail Infrastructure - CETRA 2018, Zadar, Croatia, pp. 847–853. ISBN 978-953-8168-25-3 https://doi.org/10.5592/co/cetra.2018.658

Bougna, E., Crozet, Y. (2016) "Towards a liberalised European rail transport: Analysing and modelling the impact of competition on productive efficiency", Research in Transportation Economics, 59, pp. 358–367. https://doi.org/10.1016/j.retrec.2016.07.014

Bulíček, J. (2018) "Timetable synchronisation: Urban public transport in busy hubs of long-distance transport", MATEC Web of Conferences, 239, 02001. https://doi.org/10.1051/matecconf/201823902001

CEN (2002) "CEN EN 13816:2002 Transportation – Logistics and services – Public passanger transport – Service quality definition, targeting and measurement", European Committee for Standardization, Brussels, Belgium.

CEN (2006) "CEN EN 15140:2006 Public passenger transport – Basic requirements and recommendations for systems that measure delivered service quality", European Committee for Standardization, Brussels, Belgium.

Černá, L., Zitrický, V., Abramović, B. (2020) "Methodical manual for a set of transport regulations in railway passenger transport", LOGI - Scientific Journal on Transport and Logistics, 11(1), pp. 13–24. https://doi.org/10.2478/logi-2020-0002

Dolinayova, A., Cerna, L., Domeny, I. (2022) "Competition on the domestic rail passenger transport market under Public Service Obligation in some selected European countries and Slovak Republic", In: Marinov, M., Piip, J. (eds.) Sustainable Rail Transport 4: Innovative Rail Research and Education, Springer, pp. 269–323. ISBN 978-3-030-82094-7 https://doi.org/10.1007/978-3-030-82095-4_12

Slovak Republic (2009) "514 ZÁKON z 28. októbra 2009 o doprave na dráhach" (Act no. 514/2009 on Railway Transport Coll.). [pdf] Available at: https://www.zscargo.sk/fm_source/O%20NÁS/Legislatíva/Zakon-o-doprave-na-drahach.pdf [Accessed: 10 December 2022] (in Slovak)

European Parliament and the Council of the European Union (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". [pdf] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R1370&from=EN [Accessed: 15 May 2022]

European Parliament and the Council of the 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". [pdf] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R2338&from=EN [Accessed: 15 May 2022]

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

Gasparik, J., Mesko, P., Zahumenska, Z. (2019) "Methodology for Tendering the Performances in Long Ddistance Rail Passenger Transport", Periodica Polytechnica Transportation Engineering, 47(1), pp. 19–24. https://doi.org/10.3311/pptr.11192

Humić, R., Abramović, B. (2019) "Criteria for the quality of services of public interest organized by train operators", Transportation Research Procedia, 40, pp. 259–264. https://doi.org/10.1016/j.trpro.2019.07.039

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. (2021) "Evaluation of Traveling Parameters in Parallel Long-Distance Public Transport", Periodica Polytechnica Transportation Engineering, 49(1), pp. 74–79. https://doi.org/10.3311/pptr.14731

Ľupták, V., Drożdziel, P., Stopka, O., Stopková, M., Rybicka, I. (2019) "Approach methodology for comprehensive assessing the public passenger transport timetable performances at a regional scale", Sustainability, 11(13), 3532. https://doi.org/10.3390/su11133532

Ministry of Transport, Construction and Regional Development of the Slovak Republic (2016) "Strategický plán rozvoja dopravy SR do roku 2030" (Strategic plan for the development of transport in the Slovak Republic until 2030). [online] Available at: https://www.mindop.sk/ministerstvo-1/doprava-3/strategia/strategicky-plan-rozvoja-dopravy-sr-do-roku-2030 [Accessed: 15 December 2022] (in Slovak)

Ministry of Transport and Construction of the Slovak Republic (2021) "Zmluva o dopravných službách vo verejnom záujme pre obdobie rokov 2021-2030" (Public Service Contract for the period 2021-2030). [online] Available at: https://www.mindop.sk/ministerstvo-1/doprava-3/zeleznicna-doprava/zmluvy-o-dopravnych-sluzbach-vo-verejnom-zaujme-pri-prevadzkovani-osobnej-dopravy-na-drahe/zmluva-o-dopravnych-sluzbach-vo-verejnom-zaujme-pre-obdobie-rokov-2021-2030-42242 [Accessed: 12 December 2022] (in Slovak)

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, pp. 11–20. https://doi.org/10.1016/j.tranpol.2019.03.011

Seidenglanz, D., Chvátal, F., Nedvědová, K. (2014) "Comparison of urban and suburban rail transport in Germany and in the Czech Republic", Review of Economic Perspectives, 14(2), pp. 165–194. https://doi.org/10.2478/revecp-2014-0009

Špetík, O. (2022) "Impact of various methods for choosing a railway undertaking: Case evidence from the Czech Republic", Case Studies on Transport Policy, 10(1), pp. 616–624. https://doi.org/10.1016/j.cstp.2022.01.022

Tomeš, Z., Fitzová, H. (2019) "Does the incumbent have an advantage in open access passenger rail competition? A case study on the Prague–Brno line", Journal of Rail Transport Planning & Management, 12, 100140. https://doi.org/10.1016/j.jrtpm.2019.100140

Tomeš, Z., Kvizda, M., Nigrin, T., Seidenglanz, D. (2014) "Competition in the railway passenger market in the Czech Republic", Research in Transportation Economics, 48, pp. 270–276. https://doi.org/10.1016/j.retrec.2014.09.052

Záhumenská, Z., Gašparík, J., Škorupa, M., Kurenkov, P. V. (2017) "Calculation of total costs when ensuring railway passenger transport at the Bratislava to Banská Bystrica line", Transport and Communications, 5(2), pp. 41–45. https://doi.org/10.26552/tac.c.2017.2.10

Záhumenská, Z., Vojtek, M., Gašparík, J. (2018) "Position of railway passenger transport companies on current liberalized transport market", MATEC Web of Conferences, 235, 00020. https://doi.org/10.1051/matecconf/201823500020

Zefreh, M. M., Hussain, B. Sipos, T. (2020) "In-Depth Analysis and Model Development of Passenger Satisfaction with Public Transportation", KSCE Journal of Civil Engineering, 24(10), pp. 3064–3073. https://doi.org/10.1007/s12205-020-1871-7