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Analysis of the Development of the Transport System of Saint Petersburg

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ABSTRACT

St. Petersburg is the fourth most populous city in Europe (after Moscow, Greater London and Greater Paris). Hundreds of thousands of people move daily within the urban agglomeration. Under these conditions, the effective functioning of the urban economy is impossible without a modern transport system capable of providing a solution to current and future problems of the urban economy. The work aims to analyse the effectiveness of the development of the transport system of St. Petersburg. Therefore, it is necessary to examine the main provisions of the most critical regulatory legal acts regulating the city's transport system's development, identify their advantages and disadvantages, and determine how effectively the activities outlined in them are being implemented in dynamics. The author's analysis of the two editions of the St. Petersburg transport system development program (the original edition of 2014 and the current edition of 2020) revealed negative trends, consisting of the deviation of the program indicators' actual value their planned values. Based on the results of the study, the author draws the following conclusions: when implementing the program for the development of the transport system of St. Petersburg, general principles of strategic management are not used, particularly, the effectiveness of program measures is not analysed, the reasons and factors that led to the deviation of planned indicators from the actual ones are not extended for a new period without any assessment of the results achieved; indicators of the transport system development program are constantly being adjusted downward; There is no unified management system for the development of transport infrastructure in the city, the program activities themselves are distributed among separate committees of the city administration, which harms the results of socio-economic development of the transport complex.

Keywords: transport; transport system; transport management; state program; transport development; urban transport; public transport; transport financing

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INTRODUCTION

The establishment of modern transport infrastructure is a prerequisite for the successful operation of a large city, allowing for efficient usage of its potential to address current and prospective socio-economic development problems. In a large city, jobs are rarely within walking distance of home, which forces citizens to make active use of private or public transport to commute to and from work. In this connection, it is necessary to analyse whether the Saint Petersburg transport system is functioning effectively and whether it has the necessary focus to address the future social and economic problems of the urban economy.

METHODOLOGY

The paper uses methods of analysis and synthesis, logical modelling, comparative analysis. The article is based on the analysis of various editions of the Saint Petersburg State Program "Development of the Transport System of Saint Petersburg", to assess how effectively the targets are being met, how they change over time.

MAIN PART

A large number of research papers are devoted to various aspects of urban transport. Note basic research [1–3], the works devoted to study the infrastructural transport problems [4, 5], the works researching the management transport problems [6, 7]. Interesting study on the development of the Canadian transport system [8]. A whole series of works by Russian and foreign authors is devoted to various problems of transport development during the coronavirus period [9–12]. At the same time, the problem of the management of the transport system of Saint Petersburg has not been sufficiently investigated. Only works can be specified [13, 14].

The most important legal act regulating the development of the city's transport complex is the Decision of the Government of Saint Petersburg of 30 June 2014 No. 552 "On the State Programme of Saint Petersburg "Development of the Transport System of Saint Petersburg" (https://base.garant.ru/22938750/). Approved the programme, including objectives, measures to achieve them, programme indicators, time frames and responsibility for implementing individual activities. In its first edition, the programme was for the period 2015–2020.

Since then, the programme has been adjusted annually, often with significant adjustments. The most recent major changes were made by the Government of the city decision of 05 November 2000 No. 900 (http://docs.cntd.ru/document/822403631). In fact, in 2020, we are dealing with a new program, although maintaining some structural continuity with the 2014 program, but with a completely different implementation date — from 2019 to 2024.

The purpose of the programme remained unchanged after numerous revisions and a virtual four-year extension: "ensuring the accessibility, efficiency and safety of the Saint Petersburg transport complex, responded to the needs of the socio-economic development and transit potential of Saint Petersburg, with priority development of urban passenger and external transport". In the author's view, this formulation of the goal is too general, unspecified and unattainable. In particular, it is not clear what is meant by the accessibility and efficiency of urban transport, and security — is a complex task that can only be achieved with the participation of federal agencies, including Ministry of Internal Affairs and и Federal Security Service.

Note that in 2014, there were 6 indicators (targets) for the programme as a whole and 30 indicators for 5 subprogrammes. The current version contains 8 indicators for the programme as a whole and a further 43 indicators for subprogrammes. Thus, the number of indicators has increased from 36 to 51, i.e. by 42%, which, in our view, reduces the focus of programme activities. This large number of programme targets is excessive, preventing a rational assessment of the impact of programme interventions and their impact on the lives of citizens.

By comparison, the State Programme of the City of Moscow "Development of the transport system" in 2012–2016 and the way forward to 2020, adopted by a resolution of the Government of Moscow in 02 September 2011 No. 408-PP (in the 2019 edition) (http://docs.cntd.ru/document/537907060) contains only eight indicators. For all of these, by 2021, there should be an increase in relation to 2017, which is the baseline. In particular, the most important programme indicator — the average time spent on public transport during in the morning peak hours from residential areas near Moscow Ring Road to city centre — should be reduced from 56.8 to 55 minutes, which is very significant with increasing motorization of the population. This indicator formulation is logical and specific. This shows that the development of public transport in Moscow is one of the priorities of the city government [15].

Of the 6 targets of the Saint Petersburg Transport System Development Programme identified in 2014 edition, in 2020 edition remained 5. The indicator "Length highways of uninterrupted roads bypassing the city centre" was removed from the programme as it remains unchanged throughout the period under review. In the view of the author, to these 5 indicators should be added 2 important indicators of subprogramme 1 ("Development of the Transport System of Saint Petersburg"), to assess the overall transport situation. Analyse the extent to which these indicators have been achieved (see *table 1*).

The table shows that out of the 7 indicators considered in the initial revision of the programme, only 3 had been achieved by 2019: number of road traffic accidents registered; length of road network; length of cycle car network. It can also be seen that the target value of the four indicators in 2020 has changed less than in 2014.

Moreover, in the new version of the programme it is planned that the value of what we consider to be the most important indicator — average travel time for work purposes — by 2024 will be significantly worse than 2020. In the opinion of the authors of the programme, the implementation of the measures planned by the programme will have a negative impact on the performance of the transport system.

Another important indicator — length of public road network of regional importance — although it is expected to grow by 2024 compared to 2019, but only 31 km, which is less than 1% of the size of the existing road network. This is significantly less than planned in the original programme.

Thus, from the table presented, it can be seen that the planned values of individual indicators are in fact adapted to the current situation, without being an incentive to radical transformation of the operating conditions of the Saint Petersburg transport system.

Note also some ambiguity in the wording of the programme indicators themselves. For example, the first (percentage of residents satisfied with the quality of service) is an estimate. His objectivity could therefore be called into question. The number of accidents per 10 thousand vehicles depends on a number of different

Table 1

Values of indicators of the state program "Development of the transport system of St. Petersburg"

No.	Indicator name	Indicator value by year					
		2014 edition		2020 edition			Fact
		2019	2020	2019	2020	2024	2019
Targets of the State programme							
1	Share of residents satisfied with the quality of urban transport services, %	86	88	81.3	81.4	88.9	77.8
2	Number of registered road traffic accidents per 10 thous. vehicle, pc.	28	27	28	27	26	26.8
3	Share of passengers carried by urban transport, %	73.2	73.5	73.2	73.5	74.7	71.8
4	Share of population, living within walking distance of subway stations, %	37.2	37.3	37.3	37.3	37.3	36.2
5	Length of cycle car network, km	80	200	133.5	125	170.2	116.1
Targets for subprogramme 1							
6	Length of public road network of regional importance in Saint Petersburg, km	3458	3510	3446	3453	3477	3472.2
7	Average travel time for work, min.	47	46	50.4	49.8	59.0	49

Source: compiled by the author.

Table 2

Financing of activities of the program "Development of the transport system of St. Petersburg" at the expense of the city budget

Indicator / Year	2015	2017	2019	2020	2021	2024
Funding of the programme in 2014 edition, billion rub.	92.8	86.3	95.0	99.1	-	-
Funding of the programme in 2014 edition in constant 2014 prices, billion rub.	92.8	79.7	77.5	80.2	-	-
% by 2015	100	86	83	86	-	-
Funding of the programme in 2020 edition, billion rub.	-	-	114.5	105.8	144.8	161.1
Funding of the programme in 2020 edition in constant 2020 prices, billion rub.	-	-	114.5	105.1	137.6	136.2

Source: compiled by the author.

factors (the information provided by the Traffic Police, the penalties for violation of the road map, the quality of the vehicles and their various systems of assistance to the driver, etc.), among which the level of development of the transport system is important but not decisive [16]. The length of the cycling network cannot be considered as a basic indicator of the whole programme, as there are few users of cycling in Saint Petersburg (less than 1%). At the same time, despite the current trend of development of cycling in European countries [17, 18], it should be noted that climatic conditions in Saint Petersburg do not favour cycling. As a result, owing to the low number of cyclists in the city centre, bicycle lanes are often used for car parking.

The current programme does not define the priorities for the development of the Saint Petersburg transport system, in particular does not answer the questions: which type of public transport (buses, trolleybuses, trams, subways) should be given priority? what should be the relationship between these modes of transport in the sleeping area and in the centre? what should be the role of rail transport? (interesting work about it [19]) and etc. But, most importantly, it's not clear from the program how the priority of public transport will be ensured. In large cities, the most important mode of transport is the metro. In Russia, active development of the metro in recent years is observed in Moscow, where 43 new stations were opened between 2015 and 2020, except for the stations of the Moscow central ring road and the Moscow central diameters. Only 5 metro stations were built in Saint Petersburg in 2015–2019. This is almost nine times less than in Moscow. In 2020–2023 there are no plans to open new underground stations at all. In such conditions, it is almost impossible to induce citizens to abandon private transport in favour of public transport.

Consider the evolution of funding levels for programme activities in the various sections of the programme (see *table 2*).

Table 2 shows that in the original programme, a reduction in the funding of programme activities was planned: by 2017, it should have decreased from 92.8 to 86.3 billion rub. in current prices, which is 6.8%. In 2014 prices, the decrease would be already 14%, which is a negative trend. This situation has continued since then. In the author's opinion it is not possible to achieve the planned targets aimed at improving the functioning of the Saint Petersburg transport system with reduced funding.

It should also be noted that the 2020 edition is partially free of these weaknesses. After a decline in 2020 due to the negative effects of the coronavirus epidemic, in 2021 estimated that the funding of programme activities will increase by 30 billion rub. compared to 2019 in current prices. At constant prices (calculated by the author on the basis of the forecast index-deflator of GDP), the growth will be less significant and will amount to 23 billion rubles or more than 20%. Funding for the development of the Saint Petersburg transport system should remain the same in the future.

In 2019, the actual funding of the programme's activities was almost 10 billion rub. more than originally planned (104.5 billion as against 95 billion rub.), but 10 billion rub. less than the corrected plan. In 2014 prices, according to our calculations, this is 85 billion rub. that is lower than the costs of 2015. This shows that the financing of the Saint Petersburg Transport System Development Programme in 2014–2019 implemented on a residual basis and based on actual urban budget availability rather than on targeted priorities. But this approach makes all programme indicators conditional. Based on the available resources of the regional budget, the city provides ad hoc funding for certain activities (construction of metros, transport interchanges, new roads, pedestrian crossings, etc.), whose implementation is recognized important at present.

For example, the development of bicycle routes along highways leads to reduced safety because cyclists are not visible to other road users at night. In addition, the development of bike lanes has virtually no impact on other parameters of the transport system, in the speed of movement of the city's inhabitants for labour purposes. This approach does not systematically address existing urban infrastructure problems.

CONCLUSION

1. General rules of strategic management require that the effectiveness of programme activities be reviewed after implementation, causes and factors were identified, resulting deviations from the actual, measures were developed to address existing deviation. This isn't in the transport sector of the Saint Petersburg. The existing programme for the development of the transport system is actually extended for the next period without evaluation of the results achieved.

2. There are no clear strategic priorities in urban transport. Indicators of the transport system development programme are permanently corrected. The amount of resources that the city spends on transport infrastructure does not meet the needs of the regional economy, don't allow it to function sustainably in the prevailing business environment.

3. This is no unified management system for transport infrastructure development. The distribution of programme activities among the individual committees reduces the focus of the system of management of the transport complex on the solution of future tasks of social and economic development.

4. The development of public transport is rightly declared as a priority of the programme. In practice, the achievement of this priority is hampered by the slow pace of construction of the metro: in 2015–2020 Saint Petersburg opened almost 9 times fewer metro stations than Moscow. In general, the creation of a unified system of management of the transport system, the identification of responsible persons and the establishment of a system of target indicators, remaining unchanged throughout the period of implementation of the policy measures, are necessary condition for the successful development of Saint Petersburg in the long term.

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