The Development of Rail Transport and Its Impact on the National Economy & Foreign Economic Activity of the Republic of Kazakhstan

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Abstract: The article considers the process of transport infrastructure development as an important direction of socio-economic progress, increase of production efficiency. The paper indicates the importance of this direction of development of the national economy, as the pace and level of development of society depend on the activities of this sphere. In this case, the successful solution of many problems is determined by the effectiveness of the management mechanism of the transport complex. The paper describes the characteristics of the impact of rail transport infrastructure development on the processes taking place in Kazakhstan. The article notes that in modern conditions of the transport infrastructure is an important factor of economic and social development. The role of rail transport infrastructure is manifested, first of all, in the fact that its comprehensive development increases the effectiveness of the current economic structure of Kazakhstan's economy. The article discusses the main characteristics of the transport system management, in particular rail transport and its criteria; the importance of geopolitical aspects of the transport infrastructure development, in particular rail transport for the national economy.

Key-Words: infrastructure, national economy, the management of railway transport, economic development, progress, effectiveness.

1 Introduction

In the fourth direction of the Message of President N. Nazarbayev to the people of Kazakhstan "New opportunities of development in the conditions of the fourth industrial revolution" the Head of state set a task to bring the annual income from transit in 2020 to 5 billion dollars. The break-even point designated by the President will allow the state to return the funds spent on the infrastructure as soon as possible and will ensure the country's quality of development in the conditions of the sunset of the "era of oil abundance" (Agreement of the Heads of the member States of the Eurasian economic Community, 2005).

Under the influence of geographical and historical factors the most important part of the transit and transport infrastructure of the Republic of Kazakhstan railway transport. Today, the stability of the production infrastructure, ensuring national security, improving the conditions and quality of life of the population largely depends on the stability and efficiency of its functioning (The Message of The President of the Republic of Kazakhstan - Leader of Nation N. Nazarbayev "Strategy" Kazakhstan-2050": a new political course of the established state" (Astana, December 14, 2012).
Therefore, the definition of priority directions of development of the country's railway transport is an important task for improving the efficiency of the national economy.

To achieve the described administrative component of the railway transport management in the Republic of Kazakhstan introduced the following Management system:
The organizational structure of railway transport management provides for a combination of territorial, sectorial and functional principles (Concacof, 2005).

The territorial principle is based on the management of enterprises and organizations of railway transport of all its branches located in a certain territory.

In accordance with this, the entire railway network is divided into parts called "railway", for

example, Almaty railway, East Kazakhstan railway, etc.

In turn, the railway is divided into regions of the road.

The sectorial principle involves the management of individual sectors, for which the higher governing body — the transport Committee of the Ministry for investment and development of the Republic of Kazakhstan established sectorial departments and management, and on the roads-services, departments and directorates.

The functional principle means the existence of units dealing with individual special issues.

The existing railway transport management system in Kazakhstan is divided into several parts. The management structure of the main activity of railway transport can be represented by the following chain: staff (Chairman) — railway management — linear production enterprises (Barkhudar Sh. Gussenov, 2018).

The apparatus is the Central governing body that directs the:

- railway transport throughout the country, addressing critical management issues;
- long-term development of all branches of railway transport, introduction of science and technology achievements in production, development of road capacity and transportation capacity, etc.

The apparatus includes sectorial departments and divisions, subsidiaries and dependent organizations of the Directorate and management, scientific research institutes and other enterprises.

The railway is a branch of the Committee, which is the main economic organization of railway transport. It is headed by the chief of the road, who reports directly to the Chairman of the Committee. In the management of roads on the rights of the collegial Executive body operates technical and economic Council, which is composed of experts in various branches of transport, representatives of the production. The chief of the road and his deputies, carry out the management of services by industry. Road management services, in turn, manage the work of the units by industry within their road.

All services of the road administration on production and technical issues are subordinated to the relevant departments and offices of the apparatus.

Linear production enterprises have their own equipment and technical means for solving all production tasks, staff (workers and specialists).

The automated system of railway transport management (ASRTM) provides the collection and processing of information necessary for the organization and management of railway transport.

In accordance with the governance structure of a rail ASRTM has three levels: a top level Committee, the average level of the railway, the lower level is a linear enterprise. The main technological base of the system is a single network of computer centers: the main computer center (MCC), the transport Committee, information and computing centers of Railways (ICC) and node (NCC).

In the activities of the MCC include:

* data collection and processing; creation of a network-wide database;
* calculation of the main regulatory documents of railway transport (the plan of formation of cars and containers, train schedule, etc.));
* accrual of payments for the use of car fleets of the CIS and Baltic countries;
* financial settlements with users of railway transport services.

2 Problem Formulation

At present, the state of railway transport infrastructure in Kazakhstan is characterized by a high level of wear and tear of the locomotive fleet, uneven territorial location of the railway network, the presence of areas with limited capacity and the annual growth of the load capacity of infrastructure facilities (Gussenov B., 2018).

The main directions of development and administrative control of transport are: actions aimed at the reconstruction of the roadbed of the main Railways; the creation of long-component freight trains with the study of longitudinal forces arising in them;

- use of American control and design technology to create high-speed railway line Astana-Almaty;
- determination of dynamic parameters of the roadbed and optimization of the rigidity of the sub-rail base in the areas of high-speed traffic;
- improving the design of the upper structure of the road on the highway based on the Japanese model of management in the technological sector of the economy;
- creation of automated control systems for container cargo transportation and transport management (Agreement, March 24, 2005. N 205 Astana).

Reconstruction of the roadbed of the main Railways of Kazakhstan is based on the implementation of the presidential decree on the integration of transport of the Republic into the world transport network and on the decision to introduce high-speed passenger traffic for 8500 km of the main Railways of the Republic until 2020. It should be noted that high-speed passenger traffic is carried out at a speed of

more than 140 km/h, and according to the existing TOR (technical operation rules), the speed of movement is allowed up to 140 km / h.

It should be borne in mind that the railway roadbed of the main Railways of Kazakhstan does not take the estimated two or three times more train loads. As you know, in Europe, where the high-speed movement of trains is carried out, it is believed that the module of deformation of the soil of the top of the roadbed should not be less than 60 MPa (mega Pascal). The strengthening of railway embankments in many cases needs to be carried out in the operating conditions of the Railways without interruption of train traffic. Knowledge of the distribution of soil properties will significantly save the cost of strengthening while ensuring the safety of trains.

2.1 Methodology

In the process of the study were used General methods of research: methods of analysis of financial statements: horizontal, vertical, ratio, comparison, and other.

The following methods were used to study the impact of railway development on the national economy of the Republic of Kazakhstan and its regions:

- review of the regulatory framework;
- analytical method;
- studying of foreign experience;
- the possibility of application of instruments of state - private partnership;
- collection and processing of statistics;
- economic-mathematical calculations.

2.1.1 Foreign Experience

In the context of world practice, several alternative models of state regulation of the railway industry and railway infrastructure have been formed, in particular:

- model of vertically integrated industry;
- model of intra-organizational division into business sectors;
- model of vertical division of the industry.

Let us consider in detail each of the selected models.

Vertically integrated industry (vertically-integrated railway)

This is a traditional model of the organization of the railway industry, involving the presence of a single organizational structure, carrying out the functions of management of railway infrastructure, transportation of passengers and goods, as well as performing operational and marketing functions. According to kessedi and Wheeling, this model " is focused on production, does not meet the requirements of the market and has a hierarchical organizational architecture." At the same time, a vertically integrated railway monopoly may have both a state (European Union) and a private form of ownership (New Zealand). For example, U.S. government policy was aimed at preserving the competing Railways (railroads competing) on the main lines (corridors) of the movement.

Advantages of this model:

- possibility of complex planning of activities within a single vertically integrated company;
- simplified planning of long-term investments;
- possibility to reduce transaction costs.

Disadvantages of this model:

- inability to respond to market needs;
- lack of incentives to reduce X-inefficiency and inefficiency of resource allocation;
- low financial performance;
- impossibility of development in the competition industry (Lavrinenko, 2005).

The experience of the European Union shows that, despite the high level of state support for the industry (about 50% of operating costs were financed by state subsidies), competition with other modes of transport (intermodal competition) leads to a decrease in the share of the railway market. The low efficiency of vertically integrated companies, high level of state subsidies and growing concern about environmental pollution have created the preconditions for reforming the railway industry.

Intra-organizational division into business sectors (internal market approach).

Under this model, it is assumed that the single organizational structure is divided into separate functional business sectors responsible for the provision of relevant services (freight, long-distance passenger transport, regional passenger transport, etc.). At the same time, the management of the business sectors is obliged to report to the top management (the management of the holding) for financial results, which encourages the management of individual business sectors to make decisions, taking into account the needs of the market based on cost-effectiveness. At the same time, functional division of business sectors minimizes the possibility of railway companies to compete with each other.

Such income was typical for the UK from the early 1980 to 1994, when five railway sectors had their own managers, kept separate accounting and set goals to improve profitability and reduce the scale of losses (Gobeman S.,1986).

Following the United Kingdom, the governments of Spain, the Netherlands and Germany reorganized their own railway industries based on intra-organizational division into business sectors.

Advantages of this model:
- creates more incentives for the development of business sectors;
- facilitates the integration of new services as the business sector is still a single organization;
- minimizes the number of internal relations;
- contributes to the transparency of the allocation of subsidies and expenditures.

Disadvantages of this model:
The difficulties with the allocation of common costs between functional business sectors;
- lack of competition in each individual business sector.

By the early 1990, this model of industry organization has evolved into an understanding that management, maintenance, and operation of railway infrastructure and rolling stock should be separated into separate independent market segments.
Vertically divided industry (vertically separated railway)

This model assumes the separation of the railway network infrastructure from other activities (transportation, repair, etc.) as a sector that demonstrates the natural monopoly characteristics (similar to the power grid, telecommunications, gas transportation, etc.) and requires high operating and development costs.
The main objective of separating railway infrastructure from transport activities is to create a competitive environment for rail carriers for the right to use the same railway infrastructure (Gussenov B., 2018).

The presence of control over the infrastructure network of one of the carriers will create an unreasonably advantageous position in the market. It is assumed that the non-recoverable nature of the costs of maintaining and developing infrastructure is much less important than the advantages that can give the creation and development of competition in the transportation activities. Access to the railway infrastructure is provided to users (carriers) in an open and non-discriminatory manner.

In this model, all railway infrastructure objects are the area of responsibility and are owned by one owner (at on the basis of state or private ownership). In most countries, rail infrastructure has historically maintained a state property. The UK's unsuccessful attempt to privatize the railway infrastructure complex has shown that private investors are not ready to provide the adequate amount of investment funds necessary to maintain the reliable operation and further development of railway infrastructure facilities, to the detriment of their own interests aimed at obtaining the maximum return on their invested capital. This eliminates the possibility of a complete withdrawal from state subsidies for infrastructure, both in terms of operating costs and in terms of investment development of the industry. Nevertheless, in the world practice of state regulation, there is a shift towards the creation of conditions in the industry that facilitate the attraction of private investors ' funds to the railway infrastructure (Germany, in some States of Australia) (Prospects of development of international transport in the Republic of Kazakhstan (on the example of railway transport), 2018).

One of the tools to provide carriers with competitive access to the relevant railway infrastructure facilities is the "reverse tender" mechanism. The regulatory body, which aims to reduce the budgetary burden and control the quality of transport services (usually passenger), organizes tenders, the results of which determine the most effective transport company (ie. the company requesting the state the least amount of subsidies, provided that all obligations to passengers and the state are retained, and grants it the right (franchise) to carry out passenger traffic on a certain route for a certain period of time. The "reverse tender" mechanism is actively used for passenger transport in the UK and for some local and regional services in Sweden and Germany.

Advantages of this model:
- promotes competition (either between operators, or in a separate direction, or between franchises);
- transparency of inter-sectoral interaction;
- as well as specialization.

Disadvantages of this model:
- difficulties of dispatching and distribution of time intervals (with multi-station access);
- as well as certain difficulties in the planning of industry investments.

The differences in the approaches to the order and models of the railway industry functioning create the preconditions for the variability of the state tariff policy in the sphere of railway transport services. In addition, the lack of a common approach to the issue of the composition of railway

infrastructure services (in particular, to the issue of the allocation of locomotive traction services from the railway infrastructure services) contributed to the development of different approaches to the organization of locomotive traction services. For example, in Kazakhstan, locomotives were allocated to companies independent of the owner of the infrastructure, in the UK – transferred to the balance sheets of rolling stock operators, in Germany and in the Russian Federation, the locomotives were retained as part of the activities for the transport of goods (Isaenko E. P, Nusupbekova G. S., 2011).
In General, the analysis of the world experience of state regulation of railway infrastructure services shows that there is no direct relationship between the efficiency of the railway infrastructure and the model of organization of the railway industry (vertical division or integration of the infrastructure company) (Germany, Kazakhstan, France).

It should be noted that in countries where the development of the railway industry has historically been at the expense of the state and on its initiative, despite the reforms carried out at the end of the XX century, aimed at the privatization and liberalization of the industry, a high proportion of the state presence is maintained, manifested in the state tariff regulation, control over the activities and subsidies of railway companies, including in the segment of railway infrastructure services (Gobeman S.,1986).
Economic science and many years of world experience in the regulation of infrastructure industry markets shows that a key factor in improving the efficiency of infrastructure companies in the monopoly markets is the change in the mechanisms and order of state policy in the field of regulation.

The most effective mechanisms of state regulation of railway infrastructure services are presented (Gussenov B., 2018).

1. Creation of quasi-competitive conditions for the functioning of the owner of the railway infrastructure. In particular, the creation of conditions for infrastructure companies to operate, simulating the conditions of functioning in competitive markets, aimed primarily at stimulating the management of infrastructure companies to improve the efficiency of activities, reduce costs, and ensure the reliability and safety of the functioning of railway infrastructure (Isaenko E. P, Nusupbekova G. S., 2011).
2. Ensuring transparency and openness of the procedure of conducting key aspects of the activities of natural monopoly infrastructure companies (tariff procedures for railway infrastructure services) for all stakeholders (regulators, infrastructure users).
3. Creating the conditions necessary to attract private investors to the industry, in particular by protecting the interests of investors, through the development of mechanisms to guarantee the return of their invested capital.

3 Problem Solution

Management of the railway system was formed under the influence of two factors: dynamics of growth of interregional and inter - Republican cargo flows as a result of the development of mineral deposits and virgin lands and, secondly, the growth of transit traffic. Railway transport of the Republic copes well with service of interregional, inter-Republican and transit cargo transportation, the network for cargo transportation between the regions is somewhat worse prepared (Kenzheguzin M. B., 2005).

Over the past decade, new highways have begun to form, crossing the Eurasian continent in the East-West direction and in the Meridian direction: the formation of the Eurasian land transport network of the XXI century, the basis of which are the Railways, has begun.

The existing network of railway transport routes in the center of Eurasia is shown in table 1.

Table 1. Railway transport routes in Eurasia.

Transport route	Burdening trade and economic ties and cargo flows
TRANS-Siberian railway - from Russian ports of the Pacific Ocean, through Russia, through Belarus, Ukraine to Western Europe	Cargo flows between North-Eastern and partly Central China, Mongolia, Korea, Japan, Primorye and the Far East of Russia and Western Europe (including the European part of Russia)
Euro-Asian highway - from Southeast Asia, through China, Kazakhstan through Russia, through Belarus, Ukraine to Western Europe	Cargo flows between Central and southern China, other countries of the Asia-Pacific region and Western Europe
The TRANS-Asian highway- from Southeast Asia, through China, Kazakhstan, Uzbekistan, Turkmenistan, Iran and Turkey to the Mediterranean Sea	Cargo traffic between Eastern, Central and southern China, other countries of the Asia-Pacific region and South-Eastern Europe, the Middle East
Middle East-Siberia- connects TRANS-Siberian and Euro-Asian highways	Traffic flows between the Urals, Western Siberia Russia and Iran, Turkey

TRACECA - from Asia, its South-Eastern part through the Caucasus to Western Europe with ferry crossings across the Caspian and Black seas	The median direction between the Eurasian and TRANS-Asian highways, which begins in Kazakhstan and ensuring the flows of the States of the Caucasus
North-South - from the North of Europe, through the Caucasus or the Caspian Sea, to Iran, Turkey and further to the shores of the Indian ocean	Cargo flows between Northern Europe, European part of CIS and Middle East, South Asia

Source: compiled by the author on the basis of the studied material, (Gussenov B., 2018).

Existing transport corridors through Kazakhstan, Russia and Belarus can be significantly developed to increase transit from Asia to Europe. Eurasian transit has already generated various projects, in particular, going on for a long time outside the territory of the Community States. Obviously, there is a need for such routes, but the competition for attracting international cargo traffic can be acute. The sooner the countries of the Community determine their position on this issue, the more likely they are to direct these flows through their territory (Gussenov B., 2015).

The importance of strengthening the material - technical base rail sectors in General, the use of advanced means of traction, elongation and relaxation of the direct paths of precinct stations, etc. Today, the share of energy traction in the total freight turnover of railway transport accounts for about 41%, and diesel traction - more than 51%.

In order to improve the configuration of the railway network of Kazakhstan, experts put forward two solutions. The first is the connection to major dead-end lines, which account for 1/3 of the country's rail networks. The second is the construction of new Railways. However, it is necessary to take into account the specifics of the solution of the resource potential of the Republic. It seems that the complete elimination of dead-end lines is hardly appropriate. But the construction of new roads requires large investments. Therefore, it is necessary to scientifically substantiate the quantitative and qualitative parameters of the development of the productive forces of a region in the future and link them with specific capital investments per 1 km of Railways (Schmidt F., 2011).

Railway transport reform in the context of globalization and its impact on the economy has a number of features. Railway transport is the most capital-intensive mode of transport. Another feature is that the technological continuity of the entire production transportation process, close inextricable links of hundreds of enterprises of shippers and consignees are necessary. This means that no link in the railway sector, whether it is a section of the road or a passenger car, can operate on individual parameters.

Since the railway network of Kazakhstan is continued in other CIS republics, within the economic Union it is necessary to have a common technique - a regulatory policy in the railway sector. As you know, the railway network of Kazakhstan, in addition to the main line, has numerous access roads, which belong to various enterprises, they contain and operate. In these farms it is possible to co-exist diverse forms of ownership: private, joint-stock, etc. (Konshin G. G., 2011). But the prerequisite is the compliance of the dead-end lines with the relevant technical standards.

Railway transport has a huge complex of loading and unloading devices, a wide network of enterprises for the production and repair of machines, for the production and preparation of spare parts, etc., where public, joint-stock and private enterprises can develop.

For Kazakhstan and the Central Asian republics, the TRANS-Asian railway is important because it reduces the distance of transportation to the Pacific coast and the Central regions of China and SU - AR (Xinjiang - Uygur Autonomous region), compared with the existing connections through the TRANS-Siberian railway of Russia by 600-4000 km, depending on the destination, which leads to a reduction in the time of delivery of goods by 18-20 days (State program of industrial and innovative development of Kazakhstan for 2015-2019, http://stat.gov.kz).

Now, when Kazakhstan is shrouded in a network of Railways, there are all the prerequisites for the normal functioning, there is a problem of management of the railway enterprise.

3.1 Analytical Aspect

The importance of transport as a factor of national competitiveness and sustainable growth has increased dramatically in recent years (Tab.2).

Thus, since 2016, the share of the transport industry in the country's GDP is not less than 8 % (in 2016 - 7.9%, in 2017 - 8.3%, in 2018 - 8.3%).

Table 2. Operational length of Railways for General use

Operational length of public railway tracks (including roads of other countries on the territory of Kazakhstan and roads of Kazakhstan passing through the territory of other States), km								
	2011	2012	2013	2014	2015	2016	2017	2018
Republic of Kazakhstan	15 016	14 892	15 333	15 341	15 341	15 341	16 104	16 614
Akmola region	1 619	1 559	1 559	1 559	1 559	1 559	1 559	1 559
Aktobe region	1 443	1 444	1 444	1 444	1 444	1 444	1 499	1 839
Almaty region	1 099	1 099	1 394	1 402	1 402	1 402	1 401	1 401
Atyrau region	742	742	742	742	742	742	742	742
West Kazakhstan	431	431	431	431	431	431	431	431
Zhambyl region	1 104	1 103	1 104	1 104	1 104	1 104	1 104	1 104
Karaganda region	1 940	1 940	1 940	1 940	1 940	1 940	2 467	2 467
Kostanai region	1 275	1 271	1 271	1 271	1 271	1 271	1 336	1 336
Kyzylorda region	755	755	755	755	755	755	871	871
Mangistau region	784	785	926	926	926	926	926	1 097
South-Kazakhstan Region*	552	552	552	552	552	552	552	552
Pavlodar region	926	925	925	925	925	925	925	925
North-Kazakhstan region	804	807	807	807	807	807	807	807
East Kazakhstan region	1 206	1 206	1 209	1 209	1 209	1 209	1 209	1 209
Roads of the Republic of Kazakhstan on the territory of other countries	336	275	275	275	275	275	275	275

Note: *South Kazakhstan region was renamed into the Turkestan region with the administrative center in the city of Turkestan.
Source: compiled by the author on the basis of the statistics Committee of the Ministry of national economy (http://stat.gov.kz).

Over the past 10 years, the total investment in infrastructure, transport and logistics assets and competencies amounted to about 30 billion US dollars (stat.gov.kz).

During this period, more than 2 thousand km of Railways were built, 6.3 thousand km of roads were reconstructed, port capacities in the Caspian Sea were increased to 23.5 million tons, reconstruction was carried out at 15 airports (runway) (State program of industrial and innovative development of Kazakhstan for 2015-2019, http://stat.gov.kz).
The active construction of infrastructure in General has had a positive impact on the performance of Kazakhstan in the relevant international rankings.
From 2011 to 2017, our position on the "quality of infrastructure" indicator in the world economic forum's global competitiveness Index improved by 14 points.

From 2014 to 2016, we climbed from 88th to 77th in the world Bank's logistics performance Index. In accordance with the state Program "Nurly Zhol", in 2020 we plan to take 40th place (State program of infrastructure development Nurly Zhol for 2015-2019., http://stat.gov.kz).

Work on the elimination of infrastructure restrictions continues within the framework of the state Program "Nurly Zhol".

The head of state in his recent Address to the people of Kazakhstan "New opportunities for development in the conditions of the fourth industrial revolution" set a specific task: in 2020 to provide income from transit to 5 billion us dollars (State program of infrastructure development Nurly Zhol for 2015-2019., http://stat.gov.kz).

Today, Kazakhstan as the main land transit between Europe and Asia has created the basic infrastructure conditions for transit as a high-income source of the economy (The President's address to the people of Kazakhstan "NURLY ZHOL - PATH TO FUTURE" 11 November 2014).

At the same time, Kazakhstan's architecture of transcontinental transit corridors is being formed in the conditions of tough competition for attracting transit.

Nevertheless, we were able to offer a competitive alternative to traditional trade routes (southern sea route, TRANS-Siberian railway) (Gussenov B., 2015).

Already today delivery of cargo from Asia to Europe through Kazakhstan is real for 12-15 days.
The southern sea route takes 45-60 days, the TRANS-Siberian railway-18-20 days.
Since 2015, the total volume of container traffic in transit through Kazakhstan has been growing steadily with an increase of up to 60 % (in 2015 - 212 thousand TFE (twenty - Foot equivalent), in 2016 - 245 thousand TFE or 15%, in 2017-347.5 thousand TFE or 41%). (Tab.3).

Table 3. Rolling stock of railway transport, units.

	2011	2012	2013	2014	2015	2016	2017	2018
Locomotives-total	1 681	1 772	1 865,5	1 896,5	1 892,5	1 803,5	1 725,0	1 732,0
among them:								
steam train	-	-	-	-	-	-	-	-
electric locomotive	576	571	552	563	577	549,5	539,0	549,0
diesel locomotive	1 106	1 202	1 313,5	1 333,5	1 315,5	1 254,0	1 186,0	1 183,0
Motor waggon - all	288	318	323	327	315	307	287	291
Passenger waggon	2 354	2 306	2 302	2 217	2 214	2 590	2 630	2 661
Baggage waggon	62	56	55	29	29	28	28	28
Freight waggon owned by the railway-total	53 104	55 909	66 503	65 803	60 940	59 025	56 504	54 925
among them:								
covered waggon	7 809	8 654	10 145	9 801	9 051	8 806	8 415	8 041
Gondolas	23 727	26 298	32 413	32 329	30 982	30 797	30 146	30 491
platform waggon	4 823	4 246	3 992	3 725	3 360	3 000	2 280	2 271
cistern	6 280	6 152	6 634	6 492	5 769	5 657	5 438	5 232
other	10 465	10 559	13 319	13 453	11 775	10 762	10 224	8 889
Waggons owned by private companies and enterprises	43 305	51 924	61 192	63 477	71 351	73 177	72 848	75 496

Source: compiled by the author on the basis of the statistics Committee of the Ministry of national economy (http://stat.gov.kz).

At the same time, in the direction of China - Europe - China, a twofold increase in the number of containers is provided annually (in 2016 - 47.4 thousand TFE, in 2017 - 104.6 thousand TFE, in 2018 - 201 thousand TFE).

In the year 2020 by establishing competitive tariff rates and coordinated action with the countries-partners, the volume of container traffic in transit will increase to 2 million TFE, or increase 10 times (compared to 2015, 212 million).

At the same time, railway infrastructure projects are still being implemented.

Last year, the construction of the second track on the Almaty - Shu section was completed, which contributed to the increase in transit from China to Europe, Central Asia, the Persian Gulf and back.

Technical specifications:

- the length of the line is 112 km;
- the cost of the project is 38.1 billion tenge;
- the period of implementation is 2015-2017.

The aim of the project is to eliminate bottlenecks in the organization of trains on the southern direction to increase the capacity of the existing section of "Almaty – Shu" and reduce the time of transportation of goods on the specified section by 2.5 times.

In November 2017, the work on the implementation of the project for the construction of the second track on the Almaty – Shu section, with a total length of 112 km, was completed.

The allocated funds in the amount of 38.1 billion tenge were fully disbursed.

In general, the implementation of the project has increased the capacity of the site from 17 to 68 pairs of trains per day and reduces the train travel time by 2.5 times.

Another important project is the construction of a railway line bypassing the Almaty station using the PPP (public-private partnership) mechanism (Tab. 4-7).

Table 4. Freight turnover of public railway transport, billion t/km

	2011	2012	2013	2014	2015	2016	2017	2018
Republic of Kazakhstan	213,2	223,6	235,9	231,3	280,7	267,4	239,0	266,6

Source: compiled by the author on the basis of the statistics Committee of the Ministry of national economy (http://stat.gov.kz).

The bypass line will reduce the time of delivery of transit cargo through the station by an average of 2 days, and will relieve the volume of cargo operations by 40%.

Table 5. Passenger turnover of railway transport, in billion p-km

	2011	2012	2013	2014	2015	2016	2017	2018
Republic of Kazakhstan	16,1	16,6	19,3	20,6	19,0	17,0	17,9	18,2

Source: compiled by the author on the basis of the statistics Committee of the Ministry of national economy (http://stat.gov.kz).

This year it is planned to develop project and tender documentation and conduct a tender.

Table 6. Cargo turnover of all types of transport, billion t-km

	2011	2012	2013	2014	2015	2016	2017	2018
total	385,3	448,8	478,0	495,4	554,9	546,3	518,6	564,0
from them:								
railway	**213,2**	**223,6**	**235,9**	**231,3**	**280,7**	**267,4**	**239,0**	**266,6**
the automobile and urban electric	80,3	121,1	132,3	145,3	155,7	161,8	163,3	166,1
internal water	0,08	0,08	0,06	0,03	0,03	0,03	0,02	0,03
pipeline	88,6	100,7	106,9	116,0	116,0	115,4	114,5	129,5
air, million t-km	90,1	92,6	59,5	63,0	49,3	42,7	42,9	53,8

Source: compiled by the author on the basis of the statistics Committee of the Ministry of national economy (http://stat.gov.kz).

Table 7. Passenger turnover of all modes of transport, million p-km

	2010	2011	2012	2013	2014	2015	2016	2017
total	149 065	188 939	213 036	235 738	246 959	251 251	266 784	273 193
from them:								
railway	**16 056**	**16 575**	**19 256**	**20 625**	**18 999**	**17 012**	**17 914**	**18 222**
the automobile and urban electric	126 537	164 524	185 156	205 425	217 372	223 086	237 556	240 587
internal water	3,3	1,9	1,9	0,9	1,2	0,4	1,2	0,7
air	6 469	7 839	8 623	9 688	10 586	11 153	11 313	14 384

Source: compiled by the author on the basis of the statistics Committee of the Ministry of national economy (http://stat.gov.kz).

The analysis of the restructuring of the railway industry and the implementation of freight and passenger traffic made it possible to identify the following factors of mutual efficiency of these two areas of development:

- internal factors: changes in the structure of railway transport, transportation and capacity, including the formation of new routes, increasing the level of mechanization and automation, the development of innovative processes, etc. entails a change in the organization, volume and overall efficiency of international transport and Vice versa;
- external factors: changes in the regulatory framework, the development of competition, the intensification of integration processes, also indicate a inversely proportional relationship between the effectiveness of restructuring and the development of international transport.

4 Conclusion

Today we can say with confidence that the transport industry of Kazakhstan has passed one of the historical stages of development of management. Over the years, the country's transport complex has made a significant contribution to the country's trade and economic relations and opened access to foreign markets for the development of export potential. This indicates the positive results of the implemented system of transport complex management of the Republic of Kazakhstan.

Now, in the conditions of growing competition from alternative corridors bypassing us, it is necessary to ensure the efficiency of the existing transport and logistics infrastructure.

The head of state in his 2018 Address also set the task of large-scale introduction of modern digital technologies in transport and logistics.

In the modern world, digitalization has become a new development paradigm, and advanced countries are already implementing large-scale strategies to digitalize their transport and logistics systems (Gussenov B., 2018).

For example, in the European Union in 2010 the basic document - the Directive on the principles of IT work was adopted. On its basis, more than 400 norms and standards have already been introduced to regulate the relationship of all road users.

The world leader in the formation of a digital society, Germany accelerates the technological re-equipment of the railway infrastructure.

For reference: in 2016, the Ministry of transport and digital infrastructure, the national railway operator Deutsche Bahn AG and the German railway Association signed a three-way joint strategy for digitalization of Railways.

Up to 2020, 5 billion euros will be spent annually on digitization of the German railway network (implementation of components of the European train control system ETCS).

In Finland, the Transport code has been radically revised in order to ensure customer focus, create new services, remove restrictions and improve the business environment.

For example:

- robotization of infrastructure and road maintenance;
- ITS - corridor Nordic Way in cooperation with Denmark, Norway and Sweden (2000 users

exchange information about dangerous areas and weather conditions on the roads);
- unified application "Mobility as a service" (paid access to information about services and suppliers of all modes of transport in one interface);
- unmanned vehicle control, etc.

The Ministry is working on the introduction of modern technologies in the domestic transport and logistics system (Transport strategy of the Republic of Kazakhstan until 2020. http://adilet.zan.kz/rus/docs/P050000075_).
Embedded systems, which will improve the management of transport and passenger streams, will increase the safety of transportation and increase the speed.

Thus, within the framework of the multi-component project "Intelligent transport system", the integration of vehicles, infrastructure, users and information and communication technologies is carried out in stages.

World practice shows that digitalization in transport is not possible without the active participation of business.

According to research, digitalization increases the company's profitability by almost a third (26% - G. Westerman, D. Bonnet, A. McAfee. Leading Digital: Turning Technology into Business Transformation, 2014).

In this regard, companies are intensively investing in the development of network infrastructure and adaptation of business strategy for advanced IT-capabilities (according to the us company Kerravala Consulting, since 2015, the annual volume of investments in the expansion of IT-infrastructure capabilities is not less than $ 12 billion. USA).

In the context of globalization, the most important task for Kazakhstan is to enter domestic products to foreign markets, expand trade and economic relations of our country with foreign partners. This largely depends on the degree of involvement of the Republic of Kazakhstan in the global and regional transport and communication systems.

Thus, the existing infrastructure does not yet meet the requirements of the market economy, even though the budget costs for its development are constantly growing. In this regard, the government of the Republic of Kazakhstan relies on a new transport corridor “Western Europe-Western China”.

At present, the railway transport management system in Kazakhstan assumes, for the optimal use of the existing infrastructure, to introduce long-distance trains. The introduction of new technical systems on rolling stock does not require much time and is much more cost-effective than the design and construction of new infrastructure. The results of the research in the decision to build a high-speed railway in Kazakhstan are of practical use. Increase speed of passenger trains operated on railway lines requires the implementation of numerous construction activities on the reconstruction of track facilities etc. Introduction of high-speed traffic of passenger trains does not impair the dynamic preparation of the working area of the subgrade.

All this indicates the feasibility of the introduction of innovative methods of railway transport management in Kazakhstan and their undoubted impact on the national economy of the Republic of Kazakhstan.

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